



NATIONAL DISASTER MANAGEMENT GUIDELINES

SCALING, TYPE OF EQUIPMENT AND TRAINING OF FIRE SERVICES



April 2012



NATIONAL DISASTER MANAGEMENT AUTHORITY
GOVERNMENT OF INDIA

National Disaster Management Guidelines

Scaling, Type of Equipment
and Training of Fire Services

National Disaster Management Guidelines—Scaling, Type of Equipment and Training of Fire Services

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The National Disaster Management Guidelines on Scaling, Type of Equipment and Training of Fire Services are formulated under the Chairmanship of Shri Jyoti Kumar Sinha, Member, NDMA in consultation with various stakeholders, service providers and specialists in firefighting from across the country.

National Disaster Management Guidelines

Scaling, Type of Equipment and Training of Fire Services



National Disaster Management Authority
Government of India

Preamble

These Guidelines on scaling, type of equipment and training of fire services are issued by the National Disaster Management Authority (NDMA) under Section 6 of the DM Act 2005 for standardization and revamping of the fire services in the country and effective, efficient and comprehensive management of fire incidents,. The vision is to minimize loss of life and property by strengthening and standardizing fire response, mechanisms, proper scaling of equipment, appropriate training of firemen at different required levels in the country and prevention of fire incidents by spreading a culture of awareness, alertness and preparedness amongst the people.

Having examined the shortcomings in the fire fighting capabilities of our country as a whole, and with an aim of addressing the critical gaps, the NDMA had been engaged in constant dialogue with various authorities, including the 13th Finance Commission (FC). It was also brought to the notice of the Hon'ble Prime Minister in the NDMA meeting chaired by him.

At the Prime Minister's level it has been decided that the Planning Commission could play a role in persuading the states to make prioritized plans and provide proper allocation of funds for fire services in their annual five year plans.

Discussion with the 13th FC led to appreciation of the problem by them and subsequent allotment of appropriate funds to all the states which had submitted proposals before it and further direction to the other remaining states and Urban Local Bodies to specifically spend on fire services out of the funds allotted by the 13th FC to the Urban Local Bodies (ULBs).

It is expected that the short comings because of lack of proper plans and availability of adequate funds will be overcome in the next five years by the two pronged approach of;

- Prioritized and planned steps in the State five year plans ; and
- Expeditious actions by the ULB's and the state governments as directed by the 13th FC and spending money on the fire services from the grants allotted to them.

These guidelines have been prepared with help of a core group consisting of the members of the Standing Fire Advisory Council, GoI and other experts in the field. In order to operationalize the process in a systematic manner, the NDMA is issuing these guidelines with regard to scaling, type of equipment, man power and their training along with a strategy for funding the requirements. All state governments and local bodies concerned shall follow it in a planned and focused manner.

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Vice Chairman
National Disaster Management Authority
Government of India

FOREWORD

Efficient and well equipped fire services are essential to respond to fire hazards. The unacceptable deficiencies in the fire services in India had drawn the attention of NDMA right from the beginning. The matter was taken up at various levels, from the Prime Minister of India to the 13th Finance Commission. While the Prime Minister had directed the Planning Commission to give it the required priority, the 13th Finance Commission has made reasonable allocations to States and Urban Local Bodies. However, the remaining fund requirements will have to be taken care by the States in the next five year plan.

These Guidelines are issued with the objective of standardizing scaling/type of equipment and training of manpower, which in turn would modernize and improve our fire fighting capabilities in the country.

I express my deep appreciation of the commitment of Shri J.K. Sinha, Member, NDMA, and the Members of the Core Group, the MHA and Standing Fire Advisory Council (SFAC), Govt. of India for their wholehearted support and cooperation in the preparation of these guidelines.

New Delhi
April, 2012

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Finally, I would like to express my gratitude to our Hon'ble Vice Chairman, Shri M. Shashidhar Reddy, MLA for his critical review and inputs, that have added immense value to the contents as well as the quality of these Guidelines. I also acknowledge my sincere gratitude to all the distinguished Members of NDMA for their valuable suggestions and feedback from time to time.

New Delhi
April, 2012


Jyoti Kumar Sinha

Abbreviations

ASCI	Administrative Staff College of India
BIS	Bureau of Indian Standards
CISF	Central Industrial Security Force
DG S&D	Director General of Supplies & Disposals
FC	Finance Commission
GoI	Government of India
GIS	Geographic Information System
GIA	Grants-in-Aid
GST	Goods and Services Tax
H/him	Her / him
HAM	Hertz, Armstrong and Marconi
IOC	Indian Oil Corporation
IRS	Incident Response System
JLNURM	Jawaharlal Nehru National Urban Renewal Mission
MFR	Medical First Responder
MHA	Ministry of Home Affairs
MoD	Ministry of Defence
MoT	Ministry of Road Transport and Highways
MoC	Ministry of Communications and Information Technology
MPLAD	Member of Parliament Local Area Development
NCT	National Capital Territory
NDMA	National Disaster Management Authority
NDMICS	National Disaster Management Information and Communication System

NDRF	National Disaster Response Force
SFAC	Standing Fire Advisory Committee
SFAC	Standing Fire Advisory Council
Sq.KM	Square Kilometer
ToR	Terms of Reference
ULBs	Urban Local Bodies
UT	Union Territory
13 th FC	13 th Finance omission
13 th FCR	13 th Finance Commission Report

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1

Executive Summary and Action Points for the State Governments and ULBs

1.1. Methodology

1.1.1. In order to organize a conscious, planned and a determined effort in all the states to improve fire fighting capabilities in the country, prevent unacceptable deaths and huge loss of property, the National Disaster Management Authority (NDMA) felt that definite guidelines are needed in terms of setting up of fire stations, their spread at different levels, their scaling, type of equipment and training of manpower. The NDMA was involved in constant dialogue at highest levels for providing adequate funds to the states for strengthening of fire services in the country. While definite steps for funding have been worked out by the 13th Finance Commission (FC), it may not be adequate for the total requirement of the country. Therefore, how the 13th FC grant should be operationalized and how the remaining funds should be mobilized through the Planning Commission, has been suggested. What should be the minimum standard of equipment and spread of the fire services up to rural areas in the country are also being laid down.

1.1.2. For preparing these guidelines, a Core Group was constituted by the NDMA consisting of members of the State Fire Advisory Council (SFAC), Ministry of Home Affairs (MHA), and other experts of the country. Care was taken to ensure that all States were represented. The first meeting of the core group was conducted on 22nd of March, 2010. Various issues concerning the fire services of India were discussed. It was decided to prepare a draft guideline on the basis of issues discussed. A smaller group from amongst the members of the core group was selected to prepare a draft under the supervision and guidance of Shri J.K. Sinha, Hon'ble Member, NDMA. A number of meetings of the smaller group were held and various issues discussed.

1.1.3. On the release of the 13th Finance Commission Report (FCR) during the drafting of these guidelines, it was felt necessary to again call a meeting of the larger core group to

discuss the implications of the recommendations of the FC. The meeting was held on 9th September, 2010 and all the issues concerned with the fire services were again discussed against the backdrop of the 13th FCR. The members and representatives of all the states were verbally explained as to what steps they need to take immediately in order to access the funds awarded by the 13th FC. It was decided that a chapter for the operationalisation of the recommendations of the 13th FC report should also be added in these guidelines.

1.1.4. The final draft prepared was circulated to all the states and stakeholders concerned for their comments. It was finalized only when all the comments and suggestions were received, examined and incorporated in these guidelines. The draft was then discussed and reviewed by the members of the NDMA.

1.1.5. These guidelines are so designed that they will provide direction and guidance to the central and state governments and the Urban Local Bodies (ULBs) on the issues concerned.

- a. It will help the state to chalk out a comprehensive strategy for fully accessing the funds allocated by the 13th FC and comfortably spend on the fire services of the state.
- b. Since the 13th FC funds may not be adequate for the total requirement of the state as per the norms laid down by the SFAC, it will also enable the state to prepare a comprehensive state five year plan for the remaining requirements for placement before the Planning Commission.
- c. This exercise will make India better prepared and more resilient with regard to fire hazards.

1.2. Structure of the guidelines

1.2.1. These guidelines consist of seven chapters, the details of which are as follows.

1.2.2. Chapter 2 on **Fire Services In India and its Present Status** provides a brief history of the evolution of fire services in India, the increasing trend of fire incidents, shortcomings in the fire services, basic norms for setting up of fire stations, overall shortages of fire stations, equipment and fire personnel in the country, the slow pace of growth of fire services in India, enumerating the glaring deficiencies noticed even in the recent fire incidents.

1.2.3. Chapter 3 on **Emergent Needs and Recent Initiatives** deals with the various immediate needs of the fire services in the country like need for a comprehensive plan for revamping of

the fire services for the entire state, need for enactment of Fire Act in every state, need for provincialisation wherever it has not already been done, setting up a complete administrative structure for fire services, need for creating required infrastructure, adoption of new technologies, need for research and development etc. Keeping the other disaster vulnerabilities of the country in mind, the possibility of converting the fire service into a multi-hazard unit has also been discussed. While dealing with recent initiatives taken, this chapter also deals with a complete strategy for improvement of fire services in the whole country.

1.2.4. Chapter 4 on **Operationalisation of the 13th Finance Commission Report; Strategy and Action Plan** gives a complete gist of the recommendations made by the 13th FC regarding fire services in the country. It deals with the various direct Grants in Aid (GIA) made to different states and also the allocations made to the ULBs by the 13th FC with directions for spending on fire services in their jurisdiction. The conditionalities laid down for accessing the performance grant by the ULBs and a complete set of actions that need to be taken for the purpose has been pointed out in this chapter.

1.2.5. Chapter 5 on **Fire Hazard Response and Mitigation Plan** discusses various issues involved in order to help states prepare their plans. It will not only help in preparing plans for all the districts in the country, but will also be helpful in preparing the plans for all million plus cities. It was felt necessary because specifically, preparation of Fire Hazard Response Mitigation Plan and its publication in the state gazette, is one of the nine conditions that need to be fulfilled by the states in order to be eligible for drawing their share of the performance grant. Along with other steps as enumerated in the 13th FCR, if this plan is not prepared by the concerned states for all million plus (2001 census) cities in their states and notified in the state gazette, the state will not be able to draw the performance grant they would otherwise be entitled to. A complete detailed format of the plan has been given so that the state may find it convenient to prepare its plan and get it notified. The list of cities with million plus population (2001 census) has been placed at Annexure – 3.

1.2.6. Chapter 6 on **Training** deals with levels of training required right from the entry level, basic training to various in-service promotional, and specialized training. Other disaster management training that may be required has also been enumerated.

1.2.7. Chapter 7 on **Scaling of Fire Stations, Equipment and Manpower** deals with equipment required for different types of fire hazards, norms for setting up fire stations, response time, etc. It also deals with the requirement of special equipment and its location as per vulnerability analysis of the states concerned.

1.3. Action Points

1.3.1. For convenience of central and state governments, ministries and ULBs, action points enumerated in these guidelines are as follows;

Table - 1

Page No.	Action Points	Time line	Responsible Agency / ies
17 18	Enactment of a Fire Act so that fire vulnerabilities in the state are adequately dealt with. The Act should interalia provide a legal regime for mandatory clearance from the fire department for buildings and premises that the state may consider hazardous requiring their own fire protection arrangements. Provision should be there for time to time revision of standards in a phased manner as the area develops. The Act should further also provide for a designated fire officer who should organize regular mock exercises and ensure maintenance of fire prevention systems in big locations. It should include proper cadre planning for smooth growth of fire services. For urban areas fire tax / levy could be provided for and the revenue so generated should be earmarked for the improvement and upkeep of the fire services over and above the normal governmental financial support required by the fire service. (Para: 3.2.1, 3.2.2, 3.2.3)	1 to 2 years	State Government
18	Preparation of a comprehensive plan for revamping of Fire Service in the state. Calculation of the total requirement of equipment and fire stations on the basis of the state vulnerabilities, classifications of hazardous industries in rural and urban areas on the basis of norms laid down by the SFAC for fire services. Finalization of how much	As quickly as possible / latest by 31st December, 2012. It must be kept in mind that 2 years of the 13th FC award has already lapsed and the state plans for the next five	State Government / ULBs

Page No.	Action Points	Time line	Responsible Agency / ies
	can be procured from the 13th FC grant for the ULB's and how much will have to be procured through the state five year plan. (para: 3.3.1)	year plan also have to be prepared quickly.	
19 20	Creating basic infrastructure, fire stations, water reserves, training centers etc. (Para: 3.4.1, 3.4.2, 3.4.3, 3.4.4, 3.4.5, 3.4.6, 3.4.7, 3.4.8)	As per the time line of the implementation of the fire hazzard response and mitagation plan.	State Government / ULBs
21 22	Improve the outreach of the Fire Services , fire stations / posts should at least be established right up to the sub-divisional level in the beginning and ultimately to the block and the Gram Panchayat (GP) level (Para: 2.3.2) with proper infrastructure, and equipment as per norms laid down by the SFAC (para: 3.5.1, 3.5.2, 3.5.3, 3.5.4, 3.5.6, 3.5.7, 3.5.8)	Blueprint of the plan for the whole state should be prepared within a year and should be implemented in a phased, planned and time bound manner.	State Government / ULBs
22	Provincialisation of the Fire Services and its placement under a professional fighter. (Para: 3.6.1)	1 to 2 years	State Government
23	Introduction of a proper supervisory structure for the fire services (para: 3.7.1).	1 to 2 years	State Government / ULBs
23	Creation of supervisory levels of fire services in accordance with administrative structure of the state (Para: 3.7.2)	Along with the creation of the fire stations/fire posts.	State Government / ULBs
24	Head of fire services at state level (Para: 3.8.1)	Along with the creation of the fire stations/fire posts.	State Government / ULBs

Page No.	Action Points	Time line	Responsible Agency / ies
24	Fire chief at district level (Para: 3.9.1)	Along with the creation of the fire stations/fire posts.	
25	Make fire services into a multi hazard response unit , well equipped and trained to respond to other local disasters as per vulnerabilities. (para: 3.10.1)	1 to 2 years	State Government / ULBs
25	Ensure community preparedness and awareness. Provide a proper platform which would keep the community organized and trained on a regular / permanent basis, to enable them to respond in an effective and organized manner when required through conducting mock exercises. (para: 3.11.1, 3.11.2)	1 to 2 years	State Government / ULBs
26	Research & Development of indigenous less water consuming technologies so that such equipment may be easily available to the Indian fire services at cheaper prices. (para: 3.12.1)	It is a continuous and long run process but initiative must be taken immediately.	State Government/ DRDO / IITs / NITs / Private Sector
33	Compliance of 13th FC grant conditionality for accessing the allotment of performance grant and ensuring that ULBs spend money on fire services also. (Para: 4.2.1.2)	Immediately within 1 year	State Government / ULBs
37 38	Fixing up accountability and responsibility for the preparation of fire hazard response mitigation plan between the ULB and the other departments that may be running the fire services in the state as the case may be (Para: 4.4.1, 4.4.2).	Immediately within 1 year	State Government / ULBs

Page No.	Action Points	Time line	Responsible Agency / ies
39	Establishing a mechanism / process for smooth transfer of funds from the ULBs to other departments running the fire services in states where fire services are not with the ULBs (Para: 4.5.2 (a), (b), 4.5.3).	Immediately within 1 year	State Government / ULBs
51 52	Minimum qualification for the recruitment of Fire men should also be raised to 10 + 2 because it has been already raised for entry to the officer grade level. (para: 6.5.1, 6.5.2).	1 to 2 years	MHA/NFSC
54 55	Setting up of a modern training center at state level with adequate infrastructure, faculty and facilities with modern training aids like simulators and adequate equipment in every state for new entrants, in-service and promotional courses (para: 6.8.1, 6.8.2, 6.8.3, 6.8.4).	1 to 2 years	State Government
57 58	Scaling of fire station (para: 7.2.1, 7.2.2, 7.2.3, 7.2.4)	1 to 2 years	State Government / ULBs
58	Setting up of a good communication system (Para: 7.3.1, 7.3.2).	1 to 2 years	State Government / ULBs

2

Fire Services in India and its Present Status

2.1. Evolution of fire services in India

2.1.1. The development of fire services in India, to a large extent, was influenced by India's political and historical association with Britain. Regular fire services in India first came up in Bombay (Mumbai) & Calcutta (Kolkata).

2.1.2. The great fire of Bombay occurred in 1803 and the first nucleus of fire service in India took shape, with police being entrusted with fire fighting jobs. In 1822, the fire service in Calcutta was organized under the Calcutta Police. In 1855, the Bombay fire brigade was officially formed and formally placed under the police as a part-time function. In 1864, it was placed jointly with the government and Municipal Corporation. In 1872, the Calcutta fire brigade came to be financed by the Calcutta Municipal Corporation. By the Municipal Act 1872 and 1878, insurance companies were made to contribute towards the maintenance of the fire brigades. In 1888, through the Bombay Municipal Corporation Act, protection against fire became obligatory for the Bombay Municipal Corporation. The Madras city fire brigade was established in 1908 by the Municipal Corporation of Madras after a devastating fire in the city. Delhi is believed to have had a fire brigade in 1867, but the organized form of fire station is claimed to have been started in 1896 and was under the Municipal Corporation. Presently, Delhi has its own Fire Service Act, under the Government of the National Capital Territory (NCT) of Delhi since 10th November, 1994.

2.1.3. While in Britain, a national fire service was started during the Second World War, no such national fire service was formed in India. As a sequel to the Second World War, however, a need was felt to organize and improve the fire service in India and, hence, some new fire brigades were set up. The concept of auxiliary fire services in the Civil Defence (CD) was also introduced, but it never took concrete shape in the country. The fire brigades in India remained heterogeneous in character and majority of them continued to remain ill-equipped and differently organized.

2.2. Present status

2.2.1. Fire services in India come under the 12th schedule of the Constitution under the provisions of Article 243W of the Constitution, the performance of functions listed in the 12th schedule comes under the domain of municipalities. Presently, fire prevention and fire fighting services are organized by the concerned states, Union Territories (UTs) and ULBs.

2.2.2. In view of the shortcomings in the fire services in different states of the country and the need to upgrade it, the GoI in 1956 formed a Standing Fire Advisory Committee (SFAC) under the MHA. The mandate of the committee was to examine the technical problems relating to fire services and to advise the GoI for speedy development and upgradation of fire services all over the country. This committee was renamed as Standing Fire Advisory Council (SFAC) in 1980. This committee/council has representation from each state fire service, as well as representation from Ministry of Home Affairs (MHA), Ministry of Defence (MoD), Ministry of Road Transport and Highways (MoT), Ministry of Communications and Information Technology (MoC) and Bureau of Indian Standards (BIS).

2.2.3. Fire services in Gujarat, Chhattisgarh, Punjab, Maharashtra, Himachal Pradesh, Haryana and Madhya Pradesh are under the respective concerned municipal corporations. In other remaining states, it is under the Home Department. While some states have enacted their own Fire Act, some have not. In some states, it is called the state fire service, while in some states, it is called the state fire and emergency services. It is but natural that there is no standardization with regard to the scaling, type of equipment and the training of manpower of fire services. In each state, it has grown according to the initiatives taken by the state governments and the funds provided for the fire services. Presently, the only fire services which are fully committed to the common public are the municipal and state fire services. However, the Airport Authority, big industrial establishments, Central Industrial Security Force (CISF) and sections of the Armed Forces, have their own fire services and many a times, in case of need, rush to aid the local fire services.

2.2.4. The state fire services have their own organizational structure, administrative setup, funding mechanism, training facilities and equipment. Somehow, the fire service in India has not got the attention it needs and deserves. There has been very little planned and determined effort to revamp it with a comprehensive developmental plan and adequate funds.

2.3. Increasing trend of fire incidents in India

2.3.1. The incidents of death due to accidental fire in the country are quite alarming. Data shows that there were a total of 20,772 deaths in 2007 in comparison to 19,222 deaths in the

year 2006. The trend is increasing year by year and the states need to take immediate action for revamping their fire services.

2.3.2. Some of the major fire incidents that occurred in India in the past four decades are as follows.¹

- i. On 31st January, 1974 an explosion in a rail transport of fire work products led to the death of 42 people in Allahabad;
- ii. On 29th July, 1979 a total of 78 people died and 88 were injured due to fire in a cinema hall in Tuticorin, Tamil Nadu;
- iii. In 1981, similarly an explosion in a firework factory in Mettupatti killed 32 workers, including women and children;
- iv. In 1992, two separate incidents of firework disasters in Tharia and Ludhiana accounted for 25 and 40 deaths respectively;
- v. On 24th May, 1995, an explosion at a firecracker factory in Rohtak, Haryana resulted in a death toll of 23 people, which included 13 women, 6 children and 4 men;
- vi. On 23rd December, 1995, over 500 people were dead and 300 injured due a fire in a school function in Dabwali, Haryana;
- vii. In 1995, a fire at a cinema theater in Delhi killed more than 60 persons and left hundreds injured;
- viii. On 9th June, 1997, an accidental fire in the Brihadeswara temple in Thanjavur district of Tamil Nadu resulted in more than 60 deaths and 250 were injured in the stampede to escape;
- ix. In February 1997, at least 204 people died due to a fire at a religious discourse at Baripada, Odisha;
- x. On 7th November, 1999, at least 45 people were killed (16 women and eight children were among the dead) and 16 seriously injured in Sonapat, Haryana, when a fire began after sparks from some high-tension wires over the market fell over a firecracker shop and an adjoining clothes store. Around 25 stores, some of them selling plastic wares, were completely gutted;
- xi. In November 2002, at least 17 people were killed and 27 injured (five in critical conditions) when two gas cylinders in a van carrying fireworks exploded, bringing down several nearby houses at Athur, near Salem. Those dead included seven men, five women and five children. 15 houses on either side of the street came down in the explosion, trapping

¹ Source – www.ncrb.nic.in

and killing the people inside them. Crackers, stored in one of the buildings, were being loaded into the van, which was already carrying two gas cylinders. The van was gutted in the fire;

- xii. On 4th November, 2004, a blast occurred in Srikakulum, Andhra Pradesh as explosives stored in an unauthorized manner by a cracker manufacturer in China Bazar area caught fire. The incident killed 13 and seriously injured 13 others. Several other nearby houses had been badly damaged. This was an illegal factory and they had no license for manufacturing firecrackers;
- xiii. On 16th July 2004, a fire broke out at a school at Kumbakonam resulting in the death of 93 primary school children;
- xiv. On 1st November, 2005, several hundreds of tsunami survivors at Nagapattinam, Tamil Nadu were homeless again after fire gutted their temporary shelters. The blaze was started by fireworks being used to celebrate Diwali. The 90 families affected were re-housed in a local hall;
- xv. On 15th September, 2005, fire engulfed three illegal firecracker factories in Khusropur village (22 miles east of the state capital Patna, eastern state of Bihar) which accounted for at least 35 deaths and injured at least 50 people. The factories were being run from three houses in the village. The fire was sparked by an electrical short circuit and quickly spread to the flammable material stored in the factories;
- xvi. On 22nd February 2006, fire in a fireworks plant in Tamil Nadu killed 10 and seriously injured 19. The fire was caused by an explosion at a stack of 'rockets' being dried, against rules, under trees. Extremely hot climate and friction had triggered the explosion, the resultant fire spread instantly to the shed where 'packed rockets' had been stored and from there, it spread to other sheds;
- xvii. On 10th April, 2006, a fire broke out at a trade fair in Meerut, Uttar Pradesh killing more than 57 persons and injuring thousands;
- xviii. On 29th October, 2009, a fire broke out at a Jaipur oil depot in which 12 persons died and 150 persons were injured. The fire could not be controlled and died on its own; and
- xix. On 9th November, 2011, fire broke out at AMRI Hospital, Kolkata in which 90 patients could not be evacuated and died of suffocation.

2.3.3. In independent India, the SFAC has been deliberating extensively and regularly making various recommendations to the government for improvement of fire services. The SFAC had recommended re-organization of fire services in India way back in 1956 and also recommended

a uniform fire service legislation in all states. The SFAC had also prepared a Model Fire Service Bill and the same was circulated to all the state governments by the MHA, GoI, Letter No. 28/03/56-ER-II, dated 17/10/1958. Some states have still not enacted any Fire Act of their own. For convenience of those states who have not enacted their Fire Act, a copy of Model Fire Service Bill is being enclosed in Annexure – 1 with a direction to enact one within a year or two.

2.4. Shortcomings in the present system

2.4.1. During their regular deliberations, the SFAC have noticed the following shortcomings in the fire services in India.

Lack of:

- a. Unified fire services in some of the states;
- b. Proper organisational structure, training and career progression of its personnel;
- c. Adequate modern equipment and their scaling, authorization & standardization;
- d. Appropriate and adequate funding;
- e. Training institutions;
- f. Infrastructural facilities – fire stations and accommodation of personnel etc.;
- g. Vulnerability analysis;
- h. Public awareness (DOs & DON'Ts), conduct of regular mock exercises and evacuation drills; and
- i. Uniform fire safety legislation in some of the states.

2.5. SFAC norms for setting up fire stations

2.5.1. The SFAC has laid down norms for setting up of fire stations. The criterion for setting them up are as follows.

- a. Response time (3 to 5 minutes in urban areas and 20 minutes in rural areas);
- b. The scale of population to be served; and
- c. The number of minimum standard equipment that are needed and manpower required for its operation.

Source: Compendium of recommendations of SFAC

2.6. Overall shortage in the country

2.6.1. On the basis of the norms laid down by SFAC, the existing deficiencies as regards fire stations, fire fighting vehicles and personnel are as follows.

- a. Fire stations – 97.54%;
- b. Fire fighting and rescue vehicles – 80.04%; and
- c. Fire personnel – 96.28%.

Source: Compendium of recommendations of SFAC

2.7. Slow pace of growth of fire services

2.7.1. Though deliberations by the SFAC for improving the fire services in the country have been done regularly, deficiencies clearly identified and various recommendations made, too little or very delayed / inadequate steps have been taken to become better prepared. The result is that even in the most recent fire incidents, the response has not been as it should be. Avoidable deaths and huge loss of property continue to occur even today. Some of the recent incidents with such unnecessary loss of life and property are as follows.

- a. Kolkata – Bada Bazaar – 12th January, 2008, 2500 shops were gutted, property worth crores destroyed. The fire could not be controlled and put out for days together; it was found difficult to reach the source of fire because of narrow lanes and there was also scarcity of adequate water to put it out.



A shop on fire at Mehta Building – Bada Bazar Kolkata

Fire men breaking a window to rescue the trapped at Mehta Building

- b. Jaipur – IOC depot – 30th October, 2009, 12 persons were killed, 200 injured, half a million evacuated from the neighborhood. The fire could not be controlled for over a week because nothing was available to put out the oil fire. It stopped only when the fire burnt itself out.



IOC Jaipur Depot during burn out, Jaipur

c. Kolkata – Park Street – 23rd March, 2010, 26 persons were killed, some even jumped to death because the key of the terrace gate was missing and the trapped persons could not escape to the terrace. Hydraulic ladder also could not reach in time because of traffic congestion. It was stationed in a garage in Behala area far from the down town and business hub of Kolkata with many high rise buildings.



Park Street heritage building on fire, Kolkata

d. Fire at AMRI Hospital – Kolkata on 9th November, 2011, 90 patients could not be evacuated and died of suffocation. There was no fire fighting equipment in the hospital and the community who wanted to come and help were not adequately trained and also found it difficult to get inside because the security decided to block them.



Start of Fire at AMRI Hospital, Kolkata



Conflagration later at AMRI Hospital, Kolkata

2.8. The situation is alarming and needs to be improved immediately. There is an urgent need for all the states to get vulnerability analysis done of all densely populated, important and hazardous locations in various states, assess and fix the requirement of equipment and manpower, spread awareness amongst the people regarding do's and don'ts so that such incidents are prevented and if they occur, they are tackled promptly.

3

Emergent Needs and Recent Initiatives

3.1. Introduction

3.1.1 Recent and earlier fire incidents have clearly demonstrated some of the major shortcomings in our fire fighting capabilities along the length and breadth of the country. The recent fire incident in a hospital in eastern India has added another dangerous possibility and dimensions to fire accident. We need to have a serious look at the capabilities of our fire services in this context. If the tele-therapy machine in the hospital had been damaged, the incident would have assumed a completely different tone and escalated into an even worse tragedy. The Mayapuri incident in our country is a very recent example of what can happen if a radiological device gets damaged. We need to examine whether our fire services have the capability to respond in a fire incident when radiological equipment has got damaged. Are the fire services trained and equipped to respond or even capable to contain and restrict the dangers till other experts arrive? There is more than an urgent need to ensure that the fire services are well equipped and trained to respond to all possible vulnerabilities resulting out of fire accidents. The instructions are given in NDMA guidelines for nuclear and radiological emergencies must be followed for management of such type of incidents and must mandatorily be a part of the firemen training as hospitals having radiological machines are spread throughout our country.

3.1.2 Unless there is a conscious and planned effort in all the states, the fire fighting capabilities of the country are not likely to improve and an unacceptable number of deaths along with huge loss of property will continue to occur. To prevent such unwarranted deaths and loss of property there is an urgent need therefore, to start a planned and determined move towards revamping the fire services in India.

3.2. Enactment of a Fire Act in every state

3.2.1. It is sad that in many states even today a comprehensive Fire Act does not exist. Considering the increasing vulnerabilities to fire all over the country, it is of utmost importance

that every state enacts its own Fire Act so that fire vulnerabilities in the state are adequately dealt with and unacceptable loss of life and property is prevented. The GoI had prepared a draft model Fire Bill and circulated to all the states way back in 1958. The states which have not enacted their own Fire Act should immediately enact a suitable Fire Act within a year. A copy of the draft model Fire Bill is enclosed in Annexure – 1 for reference.

3.2.2. Various necessary provisions in the Fire Act: The legal regime in the Fire Act to prevent fire hazard should provide for mandatory clearance from the fire service department for all high rise buildings, residential clusters, colonies, business centers, malls etc. that they are self sufficient in fire fighting capabilities. This regime should also ensure; a) oil and natural gas installations, b) Hospitals, c) hotels with more than 100 rooms, d) shopping complex, e) building above 50 meters height, f) cinema halls and g) stadiums, etc. have adequate fire fighting capabilities of their own along with a fire officer who should be trained



Emergency Escape Chute

in fire fighting and who should conduct regular fire drills. There should be proper escape routes and such equipment like emergency escape chute etc. for safe and quick evacuation. It should be mandatory for the respective fire station officer to check whether in each such location in his jurisdiction, fire fighting capabilities and adequate escape facilities are in place, fire drills are held regularly and that the people living there are aware of what should be done in case of fire. Provision should also be made for right of way for fire tenders and proper parking locations for firefighting appliances at such busy and vulnerable locations. If the occupancies do not fulfill the fire safety requirements like proper fire safety equipment and escape / evacuation routes and parking locations etc., there should be provision for sealing of such occupancies. This will ensure that fire safety norms are followed and enforced at all places. There should be provision for legal and penal action against defaulters.

3.2.3. The state government and ULBs should charge a token fee for inspecting and giving fire clearances. Penalties should be charged for violations of rules. The revenue thus generated should be used only for the improvement and upkeep of fire services.

3.3. Preparation of a comprehensive plan for the state

3.3.1. The first step for every state is to prepare a complete plan and work out the total requirements of manpower and equipment for the entire state. All hazardous industries existing in the urban and rural areas of the state need to be accounted for and after conducting the vulnerability analysis of the area, the requirement of equipment should be worked out on the

basis of the norms laid down by the SFAC. The number of fire stations, the number and type of vehicles and equipment required should be calculated. After finalizing the requirements, it should be examined as to how much can be procured out of the 13th FC grant to the ULBs in the states and for remaining requirements, proposals should be prepared and submitted to the Planning Commission through the MHA, GoI for consideration and approval in the respective state plan.

3.4. Creating basic infrastructure and adopting modern technologies

3.4.1. Creating basic infrastructure is of utmost importance and the state government should provide adequate funds for such projects. The National Policy on Disaster Management of the Government of India has clearly laid down that disaster management should be main streamed in the development process of the country (para 2.4.1. and 4.2.1.). The state government may also think of taking up such projects as a part of all the developmental programs of the district.

3.4.2. **Proper fire stations:** New fire stations, their buildings and fire service posts will need to be set up as per norms of SFAC based on the vulnerabilities. Designs for buildings may vary according to the size of the fire station and geographical condition. For convenience, the basic requirement for setting up of a fire station is being given in Annexure – 1B.

3.4.3. Tackling water scarcity:

3.4.3.1. **Tapping natural water resources:** Scarcity of water is becoming more and more pronounced. For fire fighting, water availability is a vital requirement and needs to be addressed. It is of even greater significance in the hill areas where more and more settlements are coming up on different hill features. It is necessary to ensure that sufficient water is readily available for fire fighting near about the habitations. For this purpose all available natural resources of water may need to be surveyed and tapped.



Tapping of natural water resource

3.4.3.2. **Rain water harvesting:** Considering the growing water shortages all over the country, rain water harvesting may also be considered wherever possible and required.



Rain water harvesting

3.4.3.3. **Water storage tanks:** Storage tanks should be constructed at suitable and possible locations within the towns and other vulnerable areas for use in emergencies. Design for tanks and water reservoirs may be prepared by the engineers of state Public Works Department (PWD) as per the local conditions.



Sample underground water storage tank

3.4.3.4. **Detachable water tender:** To tackle fire at locations where there is no possibility of creating a water source, the concept of very large detachable water tenders can be a solution. Such water tenders can be left near the fire site and the engine could go to bring another tank.



Detachable Water Tender

3.4.3.5. **Fire hydrants:** Fire hydrants existing in the town also need to be checked regularly and ensured that they are functional. Maps plotting area wise locations of fire hydrants should be available in the local fire station, police station and revenue office etc.



Fire hydrant

3.4.3.6. **Modern technologies:** Water mist technology: Scarcity of water being a universal phenomenon, newer technologies which use very little water are being put in place. Water mist technology is one such innovation. The machine is so designed that water converts into mist and, when released on the fire, cuts off oxygen supply to the fire thus putting it out. The machine is small and has various options of the amount of water that it can carry. There are machines which can be mounted on motor cycles, machines that can be mounted on small



Portable /back pack water mist firefighting equipment

vehicles and machines that can be mounted on small vehicles and machines that can be carried by a man on his back. Depending on the magnitude of the fire appropriate equipment could be deployed and used. This innovation has proved very

useful because it minimizes collateral damage. The conventional fire tenders use a lot of water which tends to damage other objects nearby. A mist fire fighting unit does no such damage. Being available in various sizes it has also proved useful in moving through congested areas. Such motor cycle or small vehicle mounted fire fighting units are ideal for busy, congested towns and localities. They can rush to the site, reach quickly and start fire fighting while larger tenders may follow.

3.5. Improving outreach of the fire services

3.5.1. Seventy percent of India's population is in the rural areas while only thirty percent is in the urban areas. The fire fighting capabilities however exist mostly in the urban and semi-urban areas. Covering the rural areas against the fire hazard has always been a serious issue. However, no well conceived and comprehensive steps have been taken to solve this issue and tackle the problem.

3.5.2. Creating fire fighting capabilities right up to the block and GP level may be ideal for rural areas, but going at least up to the sub-divisional level everywhere in the country is absolutely necessary, in order to provide even the most minimal cover against fire hazards to the rural areas. Presently in case of a fire in the villages, assistance is generally available only at the district level. Unfortunately in most cases help is able to reach the villages only when the fire is over and the maximum damage has already occurred. The most affected are generally the marginalized sections of society.

3.5.3. Depending upon the vulnerability, history and the distance from the sub-divisional headquarters, the state government may therefore decide to put up fire posts even at the block or the panchayat level. It must be noted that under Article 243G of the Indian constitution (Eleventh Schedule), the GPs are clearly mandated to ensure social welfare and specially the welfare of weaker sections, schedule castes and schedule tribes. The GPs are also responsible for maintenance of community assets in their area. If required and decided that fire posts should be set up in such vulnerable and strategic locations, the manning of these fire posts may be done either by recruiting CD volunteers from the village itself or by calling up the required number of home guards and placing them at such fire posts.

3.5.4. Converting CD set up from town centric to district centric as recommended by the NDMA in the Policy Approach Paper for the Revamping of CD is already in the process of implementation. The CD organization already has the concept of auxiliary fire services. If Home Guards or CD volunteers are recruited they would need to be trained in fire fighting capabilities by the state fire service or by the state CD set up. The supervision of these rural fire posts will also have to always remain under the State fire officers having jurisdiction in the area.

3.5.5. Mobility, usefulness and availability of water should be the main criteria for selecting the equipment for the rural areas. Jeep/tractor mounted portable fire fighting equipment or small and simple fire tenders should be considered depending on the availability of roads and their condition. In water scarce locations, water mist fire fighting unit may also be considered. The help of the officers of the state fire service department should be taken for ascertaining and fixing the type of portable /back pack pumps, water mist fire fighting units that are required.

3.5.6. Since some capital expenditure would be involved for procuring small / portable Jeep or Tractor mounted fire fighting equipment or simple fire tenders etc., the Panchayat Raj Institutions (PRIs) can procure them from the panchayat development funds after discussing and analyzing vulnerabilities of the panchayat with the district fire chief. It must be noted that disaster management now has to be main streamed in all developmental activities as per the National Disaster Management Policy, 2009 (para 2.4.1. and 4.2.1.). The equipment could be located in the GP premises and could be utilized by the local community members in cases of fire. Today every rural area has enough competent persons who can drive tractors, operate pumps and threshers etc. All that is required at the panchayat level is training the volunteers to handle the fire fighting equipment, teaching them techniques of fire fighting and observing precautionary measures. This could be easily organized by the district and sub-divisional fire officers who could also teach them important aspects of maintenance of equipment etc.

3.5.7. Because of lack of capabilities small fires in villages turn into conflagrations and cause serious damages both in terms of lives and properties including agricultural products. If at the GP level in vulnerable areas, village level teams are organized, trained and equipped, they would at least be able to manage many fire incidents and prevent conflagrations. The GP premises could function as a rural fire post. An enlightened GP will easily appreciate the significance and since it will be in their self-interest and safety they would eagerly go forward in this direction. District magistrates need to motivate and enlighten the *mukhiya* of the GP. For manning of such fire posts he can also think of organizing CD volunteers of which he is the head in the district or for calling of Home Guards for such purposes if CD volunteers cannot be mobilized.

3.5.8. Wide publicity should also be given through posters and sign posts regarding Do's and Don'ts for prevention of fire hazards in the villages. The 13th FC has given adequate funds for capacity building in disaster management. For easy reference, relevant paras of 13th FCR concerning capacity building state wise fund allotments have been placed at Annexure - 2. It may be noted that capacity building includes buying some equipment also. It may further be kept in mind that fire fighting equipment can also be purchased under the Member of Parliament Local Area Development (MPLAD) scheme. The GP fire post can also be developed into a multi hazard response unit in such vulnerable areas.

3.6. Provincialisation and formation of state level fire services

3.6.1. The GoI had already approved the provincialisation of fire services in India with a uniform fire legislation in all the states vide MHA letter No. 33/50 CD dated 5th January 1952, but this has not been done everywhere (copy of the compendium giving details regarding provincialization is placed at Annexure - 1A). Due to lack of provincialisation, the fire brigades in some states are still under the command of different municipal corporations and are also not under one command. Thus there are problems in mobilizing them in grave emergencies elsewhere. Compartmentalization under different municipal corporations also inhibits the career progression of the fire service personnel which is definitely not good for their general morale and motivation. Being heterogeneous there is also lack of standardized equipment and proper training in the service. Each state has its own training program. A provincialised fire services must be under the command and control of a professional fire fighter. The state government should consider forming a state level fire service by clubbing all the municipal fire services which should provide for inter ULB transfers on promotion and make mobilization of resources easier during emergencies. The state Fire Act could itself provide for such mobilization if the state governments are not in favour of removing the fire services from the municipal control.

3.7. Proper administrative and supervisory structure of fire services in accordance with the administrative structure of the state

3.7.1. For introducing and standardizing a proper supervisory structure for fire services, the existing administrative structure of the country needs to be kept in mind. For convenience and understanding of the suggested supervisory structure for the fire services, the normal administrative structure in the country is shown in Fig. 1. It shows the existing administrative structure in the state in relation to the towns and villages, ULBs and PRIs.

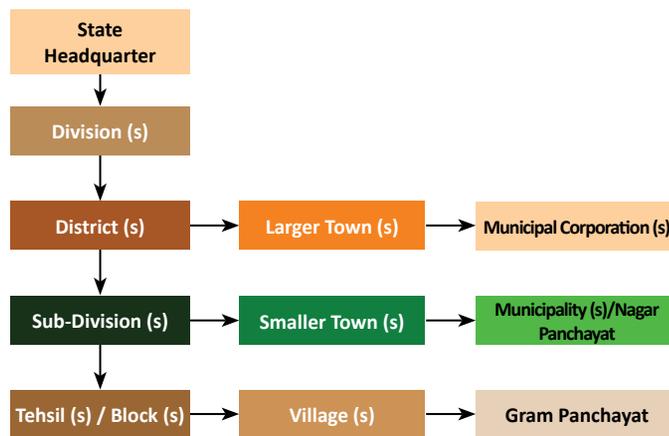


Figure -1 Administrative Structure of the State

The state fire supervisory staff should also be placed accordingly. The suggested administrative / supervisory structure for the fire services are indicated in Fig. 2. While creating the required structure for supervision, a proper recruitment

and promotion policy should also be adopted by the state government. Due weightage should be given to both experience and fresh blood in recruitment and promotion.

3.7.2. For closer supervision of the fire services in the subordinate formation of the state, the districts may need to be sub-grouped and placed under a supervisor. The state government may find it convenient to have a group of districts in line with the administrative revenue divisions of the state and place the corresponding cluster of districts under a suitable senior fire officer as supervisor in the divisional towns of the state.

- Note:**
- a. The head fire services at state level will be the senior most supervisor of the state.
 - b. The divisional fire services chief will supervise the fire services of all the districts in the division.
 - c. The district fire chief will supervise all the fire stations in the district and sub-division and GP fire post if any.
 - d. The sub-divisional fire service officer will attend to fire not only in the sub-division town but also supervise all the tehsils / blocks in the sub-division wherever and whenever fire fighting facilities are placed.

3.8. Head of fire services at the state level

3.8.1. For effective superintendence and control of the fire services in the state there should be a professional head of the services at the appropriate level depending upon the size of command with adequate personnel to help him in the discharge his duties.

3.9. Fire chief at the district level:

3.9.1. The district fire service should be headed by a district chief fire officer. The fire station should be under a fire station officer with adequate assistant fire officers for shift duties. Depending on the number of fire stations existing in the district and keeping the ideal span of control in mind, adequate number of supervisory officer should also be placed under the district chief fire officer. For other

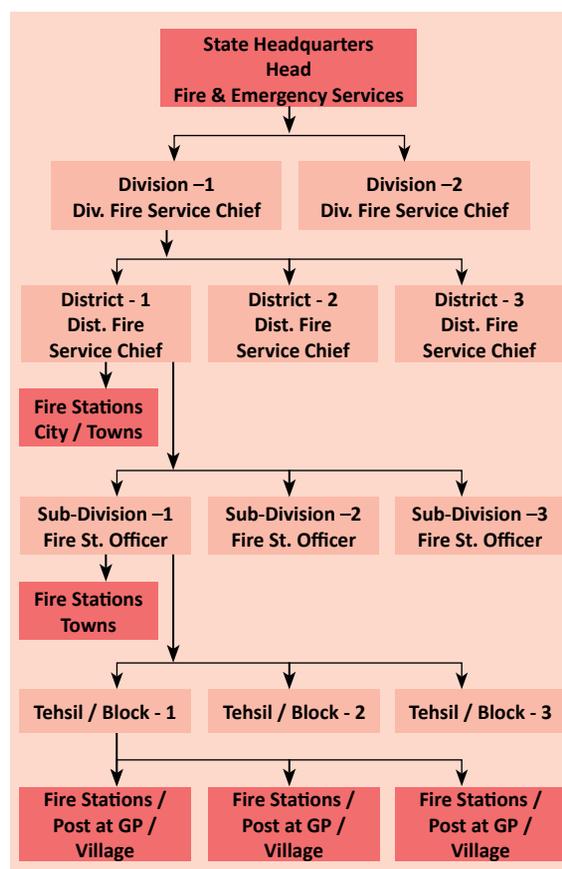


Figure -2. Suggestive Administrative Structure of the Fire Services of the State

administrative duties like disciplinary matters, accounting, repair & maintenance work and general upkeep of the campus, etc., appropriate staff should also be provided. Designations, ranks, pay scales, etc., are not being mentioned, as they may differ from state to state. It is however, emphasized that adequate supervisory staff and manpower (as shown in Fig.2) is definitely put in place, not only for maintaining effective supervision but also for a proper career progression in the service. The state government may discuss the issues with the state fire services chief and provide adequate supervisory positions.

3.10. Making the fire services a multi-hazard response unit

3.10.1. Constitutionally preventing and fighting fire hazards is a municipal function in India. The Disaster Management Act, 2005 (Section 41) and the National Policy on Disaster Management, 2009 (para 3.2.9) require the local bodies (i.e., PRI, municipalities, district and cantonment boards, town planning authorities) which control and manage civic services to ensure capacity building of their officers and employees for managing disasters. Thus it is logical to make fire services into a multi hazard response unit, well equipped and trained to respond to other local disasters also. This will ensure availability of multi-hazard response unit at numerous locations which could also be mobilized to respond to major disasters elsewhere in the districts or the state if required.

3.11. Community participation

3.11.1. Helping out each other, if one can, in times of disaster is a very human and natural behavior. It has been regularly witnessed in India, that the community turns up in large numbers to help out the victims whenever disasters have occurred. World over, fighting against common fire hazard, is a joint community effort. Most of the fire fighting capabilities in the developed western world reside with the community. Community members get themselves trained in fire fighting techniques and even feel proud to be a fire fighter, wear that uniform and help the community to fight the hazard. They even take leave from their regular jobs and work as volunteers during such disasters. Desire to be able to help and self interest of the community are the motivating factor. This should be utilized to organize the community in fire fighting capabilities by providing a local platform for training, helping them and get equipped. In order to continuously remind the people and keep them alert in vulnerable areas there is a very strong need for awareness generation amongst the community regarding the do's and don'ts to face fire hazards with adequate signages, posters, etc. The fire services could also be trained and equipped to impart basic knowledge to the local community as a routine job at locations

where they exist. The fire services could team up with the NDRF and CD set up and share some responsibility in this regard.

3.11.2. In India, however organized volunteerism in fire fighting and other disaster management has not fully developed. Community Based Disaster Management (CBDM) has a lot of potential, significance and importance. There is an urgent need to develop and improve it. The important thing is to provide a catalyst, which can organize it. The CD organization can easily perform this catalytic function. The NDMA has already submitted a complete revamping report for the CD in the country. If it is implemented comprehensively, the CD can become an important agency not only for general disaster management but also assist in fire fighting. It already has an auxiliary fire service wing. The CD set up or the fire services in the district could be equipped with a mobile training van with training equipment which could move around in the districts and provide training to the community.

3.12. Research and development

3.12.1. Technology has a very important role and its availability helps the responders in a big way when disasters strike. Things that cannot be done manually are easily attainable with the use of appropriate technologies. Unfortunately in India, as far as fire hazard is concerned, many of the modern, useful and effective technologies are imported. The main reason is that there is a lack of Research and Development (R&D) efforts in this area in the country. This makes the equipment prohibitively costly and difficult to procure. It would be very useful, if the DRDO, IITs, NITs and other research organizations are able to utilize their expertise, capabilities and do some R&D work in this area to bring out some small “water mist technology” type or any other such innovative technology. The private sector could also be encouraged to invest in research and development in this area.

3.13. Recent initiatives for funding

3.13.1. As mandated, the NDMA took up the alarming and unacceptable inadequacies in fire equipment, manpower, training and financial crunch in the fire services in the country at various levels. The matter was placed before the NDMA meeting chaired by the Prime Minister of India on 18th January, 2010, where the Deputy Chairman of the Planning Commission of India was also present. It was then decided that the Planning Commission would advise the state governments during the process of drawing up their annual plans to prioritize and attend to the upgradation of the fire services and removal of existing deficiencies.

3.13.2. For revamping and removal of the glaring deficiencies in the fire services all over the country, the NDMA had remained in constant dialogues with the 13th FC. They have fully appreciated this problem and taken necessary steps. The details of the 13th FC recommendations and its operationalisation is discussed in Chapter-4.

3.13.3. With a planned infusion of funds through the above twin pronged approach with the Planning Commission and the 13th FC of India, initiated by the NDMA, the establishment of a uniform fire service with adequate fire stations, with a well thought out career progression of its personnel, appropriate equipment and proper training in rescue techniques and adequate legal provisions, the fire fighting capabilities in the country will become more efficient and effective.

4

Operationalisation Of 13th FC Report; Strategy and Action Plan

4.1. Introduction

4.1.1. It would be appropriate to have an overall strategy for accessing funds for fire services as per requirement of the state, a comprehensive and focused approach is required. In order to guide the state government and to ensure the upgradation of fire services all over the country in a comprehensive and focused manner, these guidelines assume a great significance and need to be followed meticulously to make them more resilient and prepared.

4.1.2. Planning and working out the total (urban and rural) requirements of the state, based on the local vulnerabilities and norms laid down by the SFAC is of prime importance. All the existing facilities and equipment already available within the state should be added up and then reduced from the overall requirement calculated as per the state vulnerabilities and norms laid down by the SFAC. Care should be taken that old items which need to be condemned should not be treated as assets. The total requirement of the state government so calculated should be categorized into urban and rural categories and be procured in a prioritized and time bound manner on the basis of vulnerabilities. While utilizing the funds available through the 13th FC, plans should be prepared for placement of demand before the Planning Commission for the remaining requirements of fire services.

4.1.3. The funds provided by the 13th FC (2010-15) for the fire services through the ULBs should be fully utilized. It should also be understood that the funds will be available in a phased manner, as enumerated in the 13th FCR. The procurement and revamping plan of the state under this fund should be made in a similar corresponding phased manner.

4.1.4. It should further be ensured that the funds under the special performance grant of 13th FC be fully accessed by ensuring compliance of all the nine conditions laid down by the 13th FC. The state government should ensure that all nine conditions are fulfilled. The states which do not comply will not get any funds under this head and the total money available will be distributed among the states which have complied with it. It should be kept in mind that

under this head, there is a sum of about Rs. 8000 crores available for the whole country. For convenience, Table – 2 showing details of state wise approximate allocation of basic grants and performance grants made by the 13th FC and calculated as per para 10.147 of 13th FC is as follows.

Table - 2

State-wise Allocation of 13th Finance Commission Grants in crores for Urban Local Bodies			
States	Basic Grant	Performance Grant	Total
Andhra Pradesh	1254.59	664.23	1919.82
Arunachal Pradesh	20.83	11.03	31.86
Assam	165.64	87.69	253.33
Bihar	475.44	251.73	727.17
Chhattisgarh	272.68	144.38	417.06
Goa	53.39	28.26	81.65
Gujarat	851.16	450.65	1301.81
Haryana	283.88	150.29	434.17
Himachal Pradesh	53.52	28.33	81.85
Jammu & Kashmir	133.51	70.68	204.19
Jharkhand	278.34	147.35	425.69
Karnataka	1302.51	689.55	1992.06
Kerala	474.91	251.46	726.37
Madhya Pradesh	976.81	517.24	1494.05
Maharashtra	2077.73	1099.99	3177.72
Manipur	53.57	28.36	81.93
Meghalaya	52.43	27.78	80.21
Mizoram	61.40	32.51	93.91
Nagaland	50.17	26.56	76.73
Orissa	324.52	171.82	496.34
Punjab	411.35	217.78	629.13

State-wise Allocation of 13th Finance Commission Grants in crores for Urban Local Bodies			
States	Basic Grant	Performance Grant	Total
Rajasthan	780.86	413.40	1194.26
Sikkim	1.69	0.90	2.59
Tamil Nadu	1550.98	821.12	2372.1
Tripura	36.64	19.40	56.04
Uttar Pradesh	1930.59	1022.14	2952.73
Uttarakhand	124.46	65.89	190.35
West Bengal	1056.28	559.22	1615.5
Total	15109.88	7999.74	23110.62

Source: Compiled with the help of ASCI, Hyderabad on the basis of para 10.147 of 13th FCR. The total state wise allocations are approximate. There may be marginal variation in the final figures.

4.1.5. The funds awarded through the 13th FC obviously may not be adequate for the total requirements in the states as per the laid down norms of SFAC. For remainder of the total requirement as calculated earlier (both urban and rural) proposal should be simultaneously prepared to be placed in the state five years plan and demand made before the Planning Commission of India, for sanction.

4.1.6. For the purpose of preparing the plan and calculating the required funds a suggestive minimum scaling of equipment has been discussed in Chapter-7. The approximate price of equipment concerned is enclosed in Annexure – 4. This may change from time to time and therefore the DG S&D rates should be followed. The manpower required for each equipment has been given separately in Chapter-7. The cost involved in pay & allowances for the manpower should be worked out according to the existing pay scales in the concerned State/ULB.

4.1.7. Through the above strategy the revamping of both the urban and rural fire services can take place in a phased but definite manner.

4.2. Gist of the important and relevant paragraphs of 13th FCR

4.2.1. During the core group meeting, a comprehensive analysis of recommendations of 13th FC has been done for its operationalisation. The gist of the important and relevant paragraphs of 13th FCR regarding fire services are as follows.

4.2.1.1. “Para 10.145 of 13th FCR”: Keeping these factors in mind, we recommend that grants be given to local bodies as detailed in Table 10.4 as shown in Table - 3.

Table - 3

Table 10.4 of 13th FC - Recommended Grants for Local Bodies

(Rs. crore)

Year	BE 2009-10	2010- 11	2011- 12	2012- 13	2013-14	2014-15	2010-15
Percentage of the previous years' divisible pool to be given to all States as grant under Article 275 of the Constitution-General Basic Grant and Total Special Areas Grant		1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
General Performance Grants			0.50%	1.00%	1.00%	1.00%	0.78%
Aggregate Grants to Local Bodies		1.50%	2.00%	2.50%	2.50%	2.50%	2.28%
Projected (Rs crore) Divisible Pool: 2009-14	545463	636183	746179	880156	1038188	1224595	3846169*
General Basic Grant and Total Special Areas Grant		8182	9543	11193	13202	15573	57693
General Basic Grant		8022	9303	10873	12883	15253	56335
General Performance Grant		0	3181	7462	8802	10382	29826
General Basic Grant & General Performance Grant		8022	12484	18335	21685	25635	86161
Total Special Areas Grant		160	239	319	319	319	1357
Special Areas Basic Grant		160	160	160	160	160	798
Special Areas Performance Grant		0	80	160	160	160	559
Aggregate Grants to Local Bodies		8182	12724	18654	22004	25955	87519

* Period 2009-10 to 2013-14. Totals may not tally due to rounding off.

4.2.1.2. Nine conditions: Para 10.161 of 13th FC reads as “For the years 2011-2012, 2012-13, 2013-14 and 2014-15, a state government will be eligible to draw down its share of the general performance grant shown in Annex 10.15b only if it fulfils the following nine conditions; i, ...ii, ...iii,... **condition No. (ix) as depicted in Figure-3** “All municipal corporations with a population of more than 1 million (2001 census) must put in place a fire hazard response and mitigation plan for their respective jurisdictions. Publication of these plans in the respective state government gazettes will demonstrate compliance with this condition”.

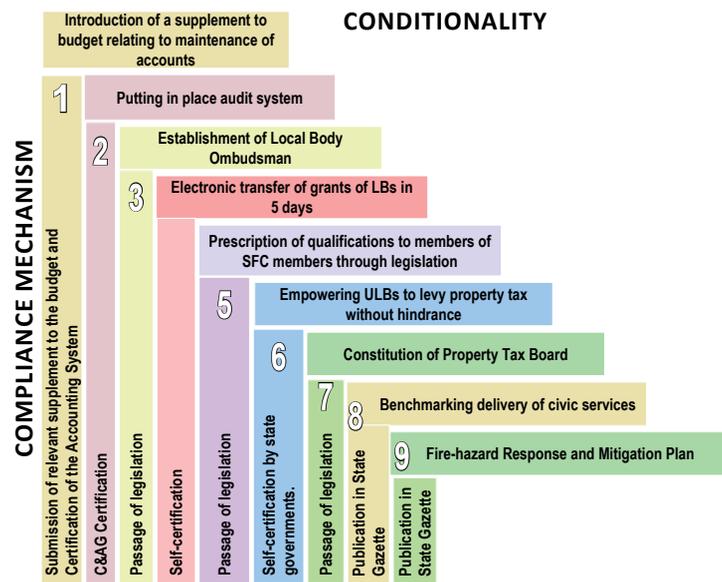


Figure. 3 – Nine Conditions and the compliance

These conditions as shown in Fig. 3. must be met by the end of a fiscal year (31 March) for the state to be eligible to draw down its performance grant for the succeeding fiscal year.

4.2.1.3. Revamping Fire and Emergency Services: Para 10.171 of 13th FC reads as “The National Disaster Management Authority (NDMA) has drawn the Commission’s attention to the dismal state of fire services in the country. NDMA has estimated the deficiency of the services in the country as under”

a. Fire stations -	97.54%
b. Fire fighting and rescue vehicles -	80.04%
c. Fire personnel -	96.28%

Source: Compendium of recommendations of SFAC and 13th Finance Commission Report

4.2.1.4. Para 10.172 of 13th FC reads as “NDMA argued for allocation of grants worth Rs. 7,000 crore to the States to meet these shortages. We accept the need to restructure fire and emergency services across the urban and rural areas of the country and recognise that the stipulation in Para 10.161(ix) is merely a first step. Though this is an important area, we are not imposing an expenditure conditionality on local bodies in view of our approach to conditionality outlined in Para 10.166. We recommend that a portion of the grants provided by us to the urban local bodies be spent on revamping of the Fire services within their respective

jurisdictions. These bodies could provide financial support to the State Fire services Department towards this objective. In this process, they could draw upon the expertise of State agencies and the NDMA, as required”.

4.2.1.5. Para 11.38 of Chapter-11 reads as “The NDMA has focused especially on the current state of fire services in the country and has argued for the upgradation of fire-preparedness and provision of a grant of Rs. 7000 crore to the State Governments for this purpose. We have considered this issue in our chapter on local bodies”.

4.2.1.6. Para 12.8 reads as “Grants for local bodies in line with Para 4(iii) of the ToR and for disaster management in terms of Para 8 of the ToR have been dealt with at length in chapters 10 and 11, respectively. These grants also flow to the States under Article 275 of the Constitution. We have listed these grants in Table 12.1 of this section in order to be comprehensive. The grants-in-aid of the revenues of States, as recommended by us for the award period 2011-15, are shown in Table – 4”.

Table - 4

SL	Table 12.1 of the 13th FC - Grants-in-Aid to States	(Rs. crore)
1	Local Bodies	87519
2	Disaster Relief (including for capacity building)	26373
3	Post-devolution Non-plan Revenue Deficit	51800
4	Performance Incentive	1500
5	Elementary Education	24068
6	Environment	15000
	(a) Protection of Forests	5000
	(b) Renewable Energy	5000
	(c) Water Sector Management	5000
7	Improving Outcomes	14446
	(a) Reduction in Infant Mortality Rates	5000
	(b) Improvement in Supply of Justice	5000
	(c) Incentive for Issuing UIDs	2989
	(d) District Innovation Fund	616
	(e) Improvement of Statistical Systems at State and District Level	616
	(f) Employee and Pension Data base	225

SL	Table 12.1 of the 13th FC - Grants-in-Aid to States	(Rs. crore)
8	Maintenance of Roads and Bridges	19930
9	State-specific	27945
10	Implementation of model GST	50000
	Total	318581

4.2.1.7. Para 12.117 of 13th FC reads as “The State-wise details of grants-in-aid recommended for needs that are specific to each State are given below.

- a. Para 12.123 (**Andhra Pradesh**): The State has represented for an allocation to strengthen Fire and Emergency Services by providing essential equipment to convert the service into a multi-hazard response unit. We recommend a grant of **Rs. 17 crore** on this account.
- b. Para 12.171 (**Haryana**): With rapid industrialization of many parts of Haryana, the fire service department has to be upgraded and adequately equipped to face emergencies. We allocate an amount of **Rs. 100 crore** for this.
- c. Para 12.245 (**Mizoram**): In response to the State Government’s memorandum, we recommend an amount of **Rs. 20 crore** for building new fire stations to revamp the fire and emergency services in the State.
- d. Para 12.261 (**Orissa**): The State memorandum has highlighted the enormous gap in provision of fire services in the State, based on which, we recommend an amount of **Rs. 150 crore** for this purpose. The State should ensure that part of this fund is utilized to upgrade the fire service training institution and to provide training to fire service personnel.
- e. Para 12.299 (**Tripura**): As requested by the State Government, we recommend **Rs. 15 crore** for construction of the headquarters of fire services in the State.
- f. Para 12.301 (**Uttar Pradesh (Varanasi)**): The city of Varanasi is a centre of national and international importance for pilgrims and tourists and thus, needs support to improve its infrastructure. Funds have been requested separately to strengthen fire services in the State. We propose a grant of **Rs. 20 crore** to upgrade the fire and emergency services in Varanasi.
- g. Para 12.319 (**West Bengal**): Having converted the West Bengal Fire Service Department into the West Bengal Fire and Emergency Department in view of new challenges, the State Government has requested a grant for its upgradation and strengthening. We recommend a grant of **Rs. 150 crore** to fill the infrastructure and equipment gaps in the Department.

4.2.1.8. It is obvious that the 13th FC has considered the importance and need to re-vamp the fire services in the country. While they have allocated amounts as grants in aid directly to states which had submitted specific proposals before it, taking note of the constitutional position that fire services are municipal functions they have more than doubled the grants (both basic grant & performance grant) to the local bodies in comparison to the allocations made by the 12th FC and simultaneously recommended that the local bodies should spend money on fire services. It is now for the state government and local bodies to see and ensure that the glaring deficiencies in the fire services are removed and the community is provided with better cover and safety against fire hazards. For the convenience and reference of the stakeholders, the allocation made by 13th FC to the different state governments are placed at table 5.

Table – 5
Table 12.6 : Grants-in-Aid for State-specific Needs

(Rs. crore)

State	2010-11	2011-12	2012-13	2013-14	2014-15	2010-15
1	2	3	4	5	6	7
Andhra Pradesh	20.00	312.50	312.50	312.50	312.50	1270.00
Arunachal Pradesh	0.00	75.00	75.00	75.00	75.00	300.00
Assam	0.00	150.00	150.00	150.00	150.00	600.00
Bihar	0.00	461.25	461.25	461.25	461.25	1845.00
Chhattisgarh	0.00	320.25	320.25	320.25	320.25	1281.00
Goa	0.00	50.00	50.00	50.00	50.00	200.00
Gujarat	0.00	325.00	325.00	325.00	325.00	1300.00
Haryana	0.00	250.00	250.00	250.00	250.00	1000.00
Himachal Pradesh	0.00	87.50	87.50	87.50	87.50	350.00
Jammu & Kashmir	1000.00	87.50	87.50	87.50	87.50	1350.00
Jharkhand	0.00	356.25	356.25	356.25	356.25	1425.00
Karnataka	0.00	325.00	325.00	325.00	325.00	1300.00
Kerala	0.00	375.00	375.00	375.00	375.00	1500.00
Madhya Pradesh	0.00	307.75	307.75	307.75	307.75	1231.00
Maharashtra	0.00	308.75	308.75	308.75	308.75	1235.00
Manipur	0.00	75.25	75.25	75.25	75.25	301.00
Meghalaya	0.00	62.50	62.50	62.50	62.50	250.00
Mizoram	0.00	62.50	62.50	62.50	62.50	250.00
Nagaland	0.00	62.50	62.50	62.50	62.50	250.00
Orissa	0.00	436.25	436.25	436.25	436.25	1745.00
Punjab	30.00	362.50	362.50	362.50	362.50	1480.00
Rajasthan	0.00	300.00	300.00	300.00	300.00	1200.00
Sikkim	0.00	100.00	100.00	100.00	100.00	400.00
Tamil Nadu	0.00	325.00	325.00	325.00	325.00	1300.00
Tripura	0.00	125.00	125.00	125.00	125.00	500.00
Uttar Pradesh	0.00	419.75	419.75	419.75	419.75	1679.00
Uttarakhand	0.00	175.00	175.00	175.00	175.00	700.00
West Bengal	0.00	425.75	425.75	425.75	425.75	1703.00
Total States	1050.00	6723.75	6723.75	6723.75	6723.75	27945.00

Source: 13th Finance Commission Report

4.3. Strategy for operationalisation of recommendations of 13th FC

4.3.1. It can be observed from the recommendations, that the 13th FC has noted with concern the very high level of deficiencies in the fire services of the country. Recognizing the criticality of the fire services, they have clearly underpinned the need to restructure and revamp the fire services. Apart from the fire disasters, the commission has taken cognizance of other disasters in general and has recommended substantial grants to the states for disaster training and related capacity building (Para 11.102 of 13th FC Report). State-wise allocations for capacity building for effective disaster response is being given at Annexure - 2.

4.3.2. For the operationalisation of the recommendations of 13th FC in the correct spirit a clear and comprehensive line of action needs to be decided right from the beginning by both the central and state governments along with the ULBs.

The FC has made two complimentary recommendations:

- a. *Para 10.161 (ix) of the Report - All Municipal Corporations with a population of more than one million (2001 census) must put in place a fire hazard response and mitigation plan for their respective jurisdictions. The plans for Municipal Corporation areas should be published in the State Gazette as a measure of compliance; and*

[This is a mandatory recommendation and is one of the nine conditions stipulated by the commission, for drawing the performance grant. The state governments can access funds under performance grant only if they comply with the nine conditions including putting in place a fire hazard response plan for million plus cities.] (List of the concerned million plus cities placed at Annexure - 3 for convenience). For preparation of fire hazard response and mitigation plan in all million plus cities, the responsibility seems to have been entrusted to the municipal corporations though they are expected to seek expertise from the state fire services or the NDMA. Once the plan is prepared, the municipal corporations need to get the plans published in the state gazette. The FC vide para 10.172 page no. 182 of its' report has clearly stated that for the preparation of these plans, the expertise of the fire service department or the national disaster management authority, may be utilized.

- b. *Para 10.172 of the Report - The 13th FC has recommended that a portion of the grant allocated by the commission to the Urban Local Bodies may be spent on the revamping the Fire services in their jurisdiction. The ULBs may extend financial support to State Fire services Department in this effort.*

[This provision enables coverage of urban areas other than the million plus cities as well.]

4.4. Accountability

4.4.1. Since fire services are under the home departments in some states and under the ULBs in others, a broader question arises as to who will be responsible for the preparation and the implementation of the fire hazard response and mitigation plans as well as the revamping of fire services. There will be no problem in such states where the fire services are under the ULBs. For use of ULB funds the problem will arise in those states where the fire services are under the home department. In such states coordination and convergence between the urban and home department will be necessary. For the implementation of the plan a mechanism of coordination and convergence between the two departments will have to be formulated. The state governments need to decide this issue right from the beginning. Broadly the questions that need to be addressed include:

- a. Who should prepare the plan – ULB or the fire services department ?
- b. If it should be fire services department because of their expertise, what should be the role of ULB in the process? It is important in states where fire services are not with the ULBs.
- c. What relations are required between ULB and city fire services agency not under the ULBs to put the process in place, prepare the plan and implement it?
- d. Who will be accountable for implementation of the plan?
- e. What could be the mechanisms for monitoring and evaluation in such cases?

The state government needs to issue clear cut direction on the above raised points.

4.4.2. In the absence of proper instructions, the municipal corporations may prepare fire hazard response and mitigation plan as they think right and fit. This however would lead to disproportionate and unbalanced growth of fire services in different states and ULBs. It is vital that the NDMA, which has been mandated to lay down policies, plans and formulation of guidelines for disaster management (section-6 of DM Act) should formulate guidelines for the preparation of fire hazard response and mitigation plan for all urban and rural areas. To standardize the fire hazard response and mitigation plan, a comprehensive and suggestive format of the plan is being placed in Chapter-5 for reference. The fire service of state governments/ULBs should refer to the same during the preparation of their response plan. The format is being laid down to help prepare fire hazard response mitigation plan for million plus cities. It will also be helpful in preparing plans for other cities.

4.4.3. These guidelines would motivate, help and guide the municipal corporations and state governments to work out detailed standardized plans for their respective jurisdictions.

4.5. Consultative process

4.5.1. The state government may need to issue directions to the concerned municipal authorities on the issues mentioned in para – 10.172 page no. 182 of 13th FCR especially when the funds of the ULBs are to be used for revamping of the fire services. It may not be out of place to mention here that the accountability of all agencies working within the town to the “city council” is one of the mandatory conditions under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) launched in 2005. All state governments have accepted this condition and also indicated timelines for compliance. The local bodies should therefore have a role in the planning process concerning the city, and the fire hazard response and mitigation plan for a city with 1 million plus population should be finalized in a consultative process through discussion with the “council” or through a presentation on the plan before them. This will also enhance community participation in the revamping of the fire services. Thus it is of utmost importance that the state governments set up a mechanism and process of consultation with the concerned municipal corporation and the department managing the fire services.

4.5.2. The second recommendation of the 13th FC is vital. It is necessary that the state governments and the corporations should ensure allocation of a portion of grants for fire services as suggested by the 13th FC, in a timely manner. This may be done in two ways:

- a. The ULBs in the states should be advised by the state governments to allocate a minimum percentage of the grants received by them under 13th FC and use them to strengthen the fire services in the city as per the plan prepared in consultation with the fire service chief. This would involve one allotment to the ULBs by the state governments and then another allotment by the ULBs to the fire service department; or
- b. Alternatively, the state government could apportion a percentage of the 13th FC grants received for the ULBs at the state level itself before allocating them to the concerned ULBs and inform the ULBs accordingly. The fund so segregated may be utilized through fire service department to strengthen and revamp the fire services in the urban areas as per plan prepared for the purpose. The ULBs may be kept informed of the amount of funds so spent from their overall allocations and the progress made in the re-vamping process of the fire services in their jurisdictions/areas.

4.5.3. It is felt that under the given financial status of the ULBs, different interests may like to divert the funds for other usages and thus allocations for revamping the fire services,

as suggested by the 13th FC may not be done in a timely and comprehensive manner. It is therefore, desirable that the allocation should take place at state level itself. It should be clearly understood that the 13th FC has increased the allocation of amount to the ULBs considerably in comparison to the allocation made by the 12th FC. It has mainly been done because of the requirement of adequate funds for revamping of the fire services in the country. Even a ten percent allocation would work out to be a substantial amount and would enable and initiate the process of revamping and strengthening the fire services to the bare minimum level in the country as a whole.

4.6. Fixing the overall allocation required both for the urban and rural fire services and apportioning the fund requirement between the ULB and state plan

4.6.1. The NDMA, through these guidelines is fixing the basic minimum standard for each fire station so that they can function with a modicum of efficiency and effectiveness to begin with. The state government with the help of fire service departments in their states can calculate the money required for different equipment with the necessary man-power for the upgradation of their fire station. The type of minimum equipment required would depend on the respective vulnerabilities. Approximate cost of equipment is being placed at Annexure - 4. The expenditure on manpower will have to be calculated as per the pay scales of the state/ULB concerned. The state should then accordingly allocate the funds segregated from the grants to the ULBs for the revamping of fire service in urban areas. Funds available from ULBs may not be adequate to fully meet even the overall urban area requirement as per the norms. To meet the short fall of necessary funds, a comprehensive plan both for the urban and rural areas should be prepared for the remaining deficiencies and taken up in the state plan for approval and allocation by the Planning Commission of India.

5

Fire Hazard Response and Mitigation Plan

5.1. Introduction

5.1.1. Fire service setup in any area is mainly based on population, response time and risk hazard analysis. In the absence of risk hazard analysis, it would be improper to decide on the specific and special equipment required at a particular fire station. It should be based on a correct assessment of the possible and potential extent of damage if the fire services do not have the concerned special equipment. There are however, a certain set of equipment, which each fire station should mandatorily have. The plan also needs to be constantly reviewed on the basis of growing hazards and thus needs to be dynamic.

5.1.2. It has already been recommended that a legal regime should be put in place which provides for mandatory fire clearance from the fire department and various other obligations for different types of buildings, colonies, industries and other installations. It should be obligatory for them to have certain fire fighting capabilities etc. The mitigation plan should have details of all such buildings and installations, the names of the fire safety officers for those installations, their address and phone numbers, etc. The detail should also include a list of fire fighting equipment and facilities they have.

5.1.3. The plan should include a calendar of activities for mass awareness and inspection of fire fighting facilities and equipment especially in schools, busy shopping malls, high rise buildings and residential clusters, to reduce the fire accidents by controlling it in time.

5.1.4. As mentioned earlier, one of the mandatory recommendations of the 13th FC for accessing the performance grant by the ULBs is the preparation of a fire hazard response and mitigation plan for million plus cities and its publication in the state gazette. The 13th FC has also directed that for revamping and strengthening of fire services and for preparing and maintaining fire hazard response and mitigation plan, the local bodies can draw expertise in the area from the state level fire agencies as well as the NDMA.

5.2. Fire hazard response and mitigation plan

5.2.1. For the convenience of the stakeholders, a broad outline of the plan and its various components are therefore being put together and are as follows ;

a. Background of the city

- City overview – population, density, land use, type of buildings, roads and accessibility;
- Infrastructure, health care system, business and industrial locations, schools, educational institutions, and other land use, etc. Classify the vulnerable assets, people, housing and critical infrastructure; and
- Resource and institutions – public and private that can help and support the fire hazard response system.

b. Planning process, response and mitigation strategy

- Goals, objectives and potential actions should be clearly spelt out in the plan;
- Identify hazards by collecting historical hazard information (both natural and man-made);
- Risk and vulnerability assessment – identification of city specific hazards and assessment of risks involved (vulnerability analysis); and
- Assess own assets and capabilities – (administrative, financial, technical, regulatory, legal) and determine how the ULBs / fire services need to address the requirements.

c. Identification of resource –

- Identify role of the government departments, existing institutions, expert agencies, NGOs, etc. along with their capacity assessment;
- Identify key stakeholders in the community and surrounding areas;
- Organize resources – identify hazard mitigation teams, agencies, community members;
- Decide stages / steps for implementation of plan – key stages, actors, public participation - training and capacity building, Public outreach & sensitization plan, involvement and participation of the community and role of ward committee and area Sabhas/Panchayats etc.;
- Review and incorporation of future developmental plans of the city and other information;

- Preventive actions – property and natural resource protection techniques and strategies, appropriate equipment and facilities of their own at large colonies and high rise buildings, like water, fire extinguishers, escape routes, etc., public information and awareness plans and actions required;
- Potential impact and damages – social, economical and environmental; and
- Use of GIS for planning.

d. Evaluation and monitoring

- For making the plan dynamic, integration of the community, continuous evaluation and monitoring is necessary. In towns interaction with the municipal council and in villages with the PRIs will prove very helpful. The plans should be discussed with them and suggestions obtained should be incorporated from time to time. Surprise mock exercises for fire emergencies will greatly help in evaluating and monitoring of the plan.

5.3. Basic components and details of fire hazard response and mitigation plan

5.3.1. A basic format of the fire hazard response and mitigation plan is being provided below for convenience which may be prepared on the basis of details discussed above. Preparation of this plan is mandatory for 1 million plus cities 2001 census.

A.	Detail of the city / area whose plan is being made
	<ul style="list-style-type: none"> a) Name of city b) Population of city: c) Area of city (in sq. kms.): d) Density of population in the city: e) Vulnerability analysis of the city : (mention all the relevant possible hazards)
6.	Name of the authority maintaining fire services i.e. state fire service/ local self government such as municipal corporation / municipal council with its detailed address, district & pin code
7.	Deficiencies on the basis of the SFAC norms. <ul style="list-style-type: none"> a) One fire engine for 50,000 population; b) One fire station for 10 sq. km urban area; c) One fire station for 50 sq. km rural area; and d) Response time maximum 5 minutes in urban area and 20 minutes in rural area.

8.	State level nodal authority for fire services (in case fire services is not provincialised)
9.	Head of fire service : a) Name: b) Designation: c) Address with Pin code: c) Telephone No. (with STD Code): d) Fax No.: e) Mobile No.: f) E-Mail:
10.	Details of the emergency operation centre (DDMA)of the concerned city : a) Address with Pin code: b) Telephone No. (with STD Code): c) Fax No.: d) E Mail:
11.	Whether fire service is governed by any Fire Act or other Act and rules, if not, how you are going to enforce preventive steps ?
12.	Calendar for the fire safety training and awareness programmes for the public. This should be so designed as to cover majority of the population in the vulnerable area of jurisdiction.
13.	Plan and calendar of evacuation drills/ mock drills in vital installations/ industrial plants/ government buildings / schools and critical infrastructure like hospitals, etc.
B : Risk assessment, incident prevention and mitigation of city : (Risk evaluation and control plan)	
14.	Plan for compulsory fire hazard evaluation of all types of buildings old and new.
15.	Plan for enforcement of fire approvals as per the provisions contained in National Building Code (NBC) 2005 for new constructions.
16.	Plan how data of all fire approvals are maintained in the headquarters or at the central data setup.
17.	Plan for introducing and enforcing development control rules of the city for new development projects.

18. The details of potential fire risk in the city

SL.	Particulars	Nos.	
		Residential	Non-Residential
a	Buildings		
	Upto 15 meters		
	15 to upto 24 meters		
	Above 24 to upto 36 meters		
	Above 36 to upto 45 meters		
	Above 45 to upto 60 meters		
	Above 60 to upto 75 meters		
	Above 75 to upto 100 meters		
	Above 100 to upto 150 meters		
	Above 150 meters above.		
b	Industrial area / chemical zone		
c	Cinema halls/ malls/ drama / theatres		
d	Public gathering places		
e	Hazards storage		
f	Pilgrims area (floating population)		
g	Exhibition/ public function grounds where permission for erecting pendals for circus or any other religious / social functions are granted.		
h	Other (give details)		

Note:- All building should be sub-classified on the basis of following classification as per Part 4 of NBC 2005:

A)	Residential buildings
	a) Lodging or rooming houses
	b) One or two family private dwelling
	c) Dormitories
	d) Apartment houses (flat)
	e) Hotels
	f) Hotels (starred)
B)	Educational buildings
	a) School up to senior secondary level
	b) All other training institutes

C)	Institutional buildings
	<ul style="list-style-type: none"> a) Hospitals and sanatoria b) Custodial institutions c) Penal and mental institutions
D)	Group D assembly buildings
E)	Group E business buildings
F)	Group F mercantile buildings
G)	Group G Industrial Buildings
H)	Group H storage buildings
I)	Group J hazardous buildings
19.	<p>Road map of the city with the following details :</p> <ul style="list-style-type: none"> a) Any major National Highway (NH) passing through city b) Any state highway passing through city c) Any tunnels in the city d) Major bridges in the city e) Accident prone patches f) Roads in hilly areas or hilly/mountain area in the city or near city and g) other related information
20.	<p>Railway network</p> <ul style="list-style-type: none"> a) Mail/express train main stations b) Local train stations c) Metro train stations d) Underground metro stations e) Sky bus f) Mono rail
21.	<p>Airport</p> <ul style="list-style-type: none"> a) Domestic b) International c) Cargo d) Helipad e) Air force airbase

22.	Sea / river port
	<ul style="list-style-type: none"> a) Passenger jetties b) Container jetties c) Bulk material handling jetties d) Petroleum products handling jetties e) Chemical and hazardous goods handling jetties f) Fishing jetties g) Ship breaking areas h) Ship building docks i) Naval base
23.	Vital installations in the city
	<ul style="list-style-type: none"> a) Secretariat b) Legislation assembly c) Bank headquarters d) Headquarters of major government and semi-government organizations e) Atomic power station f) Chemical factories g) Fertilizer plants h) Major hazardous units i) Cross country pipelines j) Petroleum oil companies like refinery, bulk storages depot, k) Petroleum and flammable gas, LPG filling stations l) Domestic gas pipe network m) Cylinder gas storage-outlets n) and such other points
24.	Temporary structures such as exhibition halls, circus tent, pandals erected for religious activities.
25.	Dilapidated and unsafe buildings in the city.
26.	Unorganized houses like Jhuggi-jhopadi and slum area.

27. Details of other hazards that exist in the city and plans for response and mitigation accordingly. Hazards like geological, metrological, biological, human caused, international and technological.

<p>A. Geological hazards associated with city :</p> <ul style="list-style-type: none"> a) Earthquake b) Tsunami c) Landslide, mudslide, subsidence d) Glacier, iceberg
<p>B. Meteorological hazards associated with city :</p> <ul style="list-style-type: none"> a) Flood, flash flood, tidal surge b) Drought c) Fire (forest, range, urban, wild land) d) Snow, ice, hail, avalanche e) Windstorm, tropical, cyclone, hurricane, tornado, water spout, dust/ sand storm. f) Extreme temperatures (heat, cold) g) Lightning strikes h) Famine i) Geomagnetic storm
<p>C. Biological hazards associated with city :</p> <ul style="list-style-type: none"> a) Emerging diseases that impact human or animal (swine flu, malaria, birds flu, plague, smallpox , anthrax, foot and mouth disease. b) Animal or insect infestation or damage.
<p>D. Human caused events such as the following :</p> <p>Accidental</p> <ul style="list-style-type: none"> a) Hazardous material (explosive, flammable liquid, flammable gas, flammable solid, oxidizers, poison, radiological, corrosive) spill or release. b) Explosion / fire c) Transportation accident d) Building / structure collapse e) Energy / power/ / utility failure f) Fuel/ resource shortage g) Air/ water pollution, contamination h) Water control structure/ dam/ lever failure i) Financial issues (economical depression, inflation, financial system collapse) j) Communication system interruptions k) Mis-information and l) Any other

<p>Intentional (assessments of the following threats and plan of the action to meet the situation arising out of)</p> <ul style="list-style-type: none"> a) Terrorism (explosive, chemical, biological, radiological, nuclear, cyber) b) Sabotage c) Civil disturbance, public unrest, mass hysteria, riot d) Enemy attack, war e) Insurrection f) Strike or labour dispute g) Disinformation h) Criminal activity (vandalism, arson, theft, fraud, embezzlement , data theft) i) Electromagnetic pulse j) Physical or information security breach k) Workplace violence l) Product defect or contamination m) Harassment n) Discrimination o) And any other
<p>Possibility of technological caused events that can be unrelated to natural or human caused events, such as:</p> <ul style="list-style-type: none"> a) Central computer, mainframe, software, or application (internal / external) b) Ancillary support equipment c) Telecommunications d) Energy / power / utility. e) And any other

28. Collect details and analyses of fire & rescue calls of the last five years to draw a probability of hazards.

SL.	Details	Year	Year	Year	Year	Year
a)	Total no. of fire & rescue calls					
	a) No. of fire calls					
	b) No of rescue calls					
	c) No of gas leaks					
	d) Building collapse					
	e) Hazards material calls					
	f) Animal rescue calls					
	g) Other calls					
b)	No. of lives saved					
c)	No. of lives lost					

SL.	Details	Year	Year	Year	Year	Year
d)	No. of injured					
e)	Property saved (Rs. in lakhs)					
f)	Property lost (Rs. in lakhs)					

29. Analysis of probable timing of incidents

SL.	Details	Year	Year	Year	Year	Year
a)	Nos. of fire/rescue calls received from 7000 hrs to 1900					
b)	Nos. of fire/rescue calls received from 1900 hrs to 7000					

C Planning, resource management and incident management
(Mutual aid/ assistance, emergency response and operations, developing and implementing emergency response plan, procedures and operationalisation of Decision Support System)

30. Disaster management plan of the city and the responsibilities of the fire services there in.

31. Plan for availing mutual aid with any central or other state government authority for conducting fire & rescue operations. please provide details

32. Collect all on site and off site disaster management plans for all vital installations, buildings and industrial plants in the jurisdiction and the role of fire services in them.

33. Addresses of fire stations which can be requested to help.

SL.	Name of fire station	Type of construction of fire station i.e. RCC/metal shade/temporary shade	Address	Telephone No.	Fax No.

34. Details of Fire and Rescue Appliances made available in Fire Stations

SL.	Name of fire station	Number of water tenders	Number of rescue tenders	Number of ladders i.e. TTL/ ALP's	Other fire or rescue appliances

35. Summary of fire service

SL.	Type of vehicles	Nos.	
a)	Number of fire stations		
b)	Water tenders		
c)	Rescue tenders		
d)	Advance emergency rescue tenders		
e)	Flood and rescue tenders		
f)	Hazmat vans		
g)	Turn table ladders		
h)	Hydraulic platforms		
i)	DCP tenders		
j)	Foam tenders		
k)	Smoke blowers		
l)	Control post vans		
m)	Water tankers		
n)	Ambulances		
o)	Cars		
p)	Jeeps		
q)	High pressure portable pumps		
r)	Portable pumps		
s)	Breathing apparatus sets		
t)	Flood rescue boats		
u)	Life jackets		
v)	Details of others appliances and equipment		
w).	Detailed address and telephone numbers if any of all the personnel in the fire station.		
x)	Plan for day to day training requirements of the station personnel like training ground, drill tower, etc.		

36. Details of officers & staff attached to fire & emergency service (right from the state hq to the local fire station) :

SL.	Designation	Name	Office address	Contact details
a)				Telephone (O): Telephone (R): Mobile No.: Fax No.: E Mail:

b)				Telephone (O): Telephone (R): Mobile No.: Fax No.: E Mail:
c)				Telephone (O): Telephone (R): Mobile No.: Fax No.: E Mail:
d)				Telephone (O): Telephone (R): Mobile No.: Fax No.: E Mail:
e)	Others (specify designation)			Telephone (O): Telephone (R): Mobile No.: Fax No.: E Mail:

D. Communication, early warning and operational procedures

This should have details of the type of communication available – wireless, (UHF / VHF), internet, tie up with local radio stations, TV and cable channels, mobile phone service providers, Global Positioning System (GPS), Geographical Information System (GIS) and Standard Operating Procedures (SOPs) as prescribed from time to time.

6

Training

6.1. Introduction

6.1.1. The aim of training is to ensure that all fire service personnel are given the necessary exposure to develop the knowledge, skills, attitude, physical fitness, vision and mental alertness that they require to carry out their jobs efficiently and provide every opportunity for career development.

6.2. Capacity building

6.2.1. Capacity building for disaster management has been identified by the 13th FC as a critical area and allocated substantial funds to states under this head. These funds should be utilized for training fire personnel also.

6.3. Training of firemen in fire services

6.3.1. The role of fireman in fire services is to extinguish fire, rescue trapped persons, provide medical first aid and also respond to the various man-made fire accidents and natural disasters. The roles cannot be performed well until and unless sufficient training is imparted to the fire service personnel. The type of training, duration etc. will depend upon the level of entry.

6.4. Levels of entry

6.4.1. Basically there are two levels of training; a) fire men and b) sub officer. Unplanned growth and development of the fire services has led to multiple level of entries to the service in different states. In some states because of non-provincialization of the service, non-availability of adequate officers and lack of proper cadre planning, recruitment is taking place at higher levels also like station officers, divisional officers and chief fire officers.

6.5. Basic induction training of firemen/leading firemen/driver

6.5.1. The minimum educational qualification at present for recruitment as a fireman / leading fireman / driver is 10th class / metric pass with driving license for heavy vehicles. The

person should not be more than 25 years of age. The induction training is of 6 months and details of the curriculum and training programme for firemen and leading firemen are placed in Annexure - 5 and 6.

6.5.2. It is important to point out here that at the Nagpur Fire Service College (NFSC), the qualification of next higher position has been raised to 10+2. Therefore the state governments may like to consider raising the basic level entry qualification to 10+2. Otherwise, the firemen who are recruited as 10th pass will have to achieve 10+2 qualification for further promotion.

6.6. Basic induction and in-service promotional training courses for officers

6.6.1. Every fireman/fire officer is required to undergo mandatory in-service promotional training courses in order to be promoted to the next higher rank as laid down in the recruitment and promotion rules of the state. The basic training for officers is for 6 months and is conducted at the NFSC, Nagpur, Maharashtra and at other existing state training centers as may be decided from time to time by the MHA/ NFSC.

6.7. Training for responding to other disasters

6.7.1. Apart from capabilities to fight fire, fire stations should not only have equipment for rescue, medical first response (first aid, ambulance, etc.) but also trained manpower for performing those duties during fire accidents and possibly to respond to other disasters as well. In view of the present day scenario it would be appropriate to equip and train them in order to be a multi-hazard response unit capable of responding to Nuclear, Biological and Chemical (NBC) emergencies also. Specialized equipment required for such emergencies should be kept in a centrally located fire station where its requirement is probable or from where it can be mobilized easily when required. Vulnerability analysis will help to decide what equipment should be provided and where should it be located. Ideally training of the fire fighter should include training to respond to other probable hazards/disasters also.

6.8. Training centre

6.8.1. A training centre for all new entrants and for organizing in-service / promotional courses is absolutely necessary in every state. The state government shall provide adequate infrastructure and facilities at the training centre like classrooms for 30 to 40 participants, training equipment, facilities for outdoor practical training, a fully equipped 70 to 100 seating

arrangements auditorium with the option of dividing it into two smaller auditoriums, a core assembly area and breakout space adjacent to the main facility, hostel accommodation for the 50 to 100 trainees with kitchen and dining facilities, etc. States where the fire services are under the municipal corporation/council, the state training center could be funded jointly by the municipal corporation and the state government. It would be pertinent to point out that the 13th FC has also made adequate provisions for capacity building in disaster response (para 11.102 of 13th FCR). The state government/ULB may also use the funds available under this head for training of fire service personnel and community, etc. The training centre shall be equipped with required number of fire fighting equipment and appliances that are normally in use by the fire services in field operations of the state. The required number could be worked out based on the number of trainees at one time and the number of periods/sessions allotted for hands-on exercises. Other details of training facilities required at training center has been placed at Annexure - 29.

6.8.2. Each training institute should have requisite number of instructional as well as supporting staff. The number of faculty and staff would be based on the number of trainees that are to be trained so that for every 30 trainees there should be one faculty member for indoor classes and for every 12 trainees there should be one faculty member for outdoor classes. In case of shortage of faculty, the state government may use the services of experienced and retired fire service officers.

6.8.3. To train the fire men, the training institution should have required number of all such equipment that is in use for fire fighting in the state. The state governments and ULBs may like to add modern simulators for different fire emergencies. Simulators will give close to life experience while undergoing training and is very useful for good training of recruits. The bare minimum equipment for hazardous material emergency required for a training institution is given in Annexure - 27.

6.8.4. It has been observed that the fire services because of their expertise in rescue and first aid are regularly called in for other emergencies and disaster situations as well. Hence, in order to provide effective and efficient response in other disasters (man-made and natural), they must be well trained to also perform in all such possible situations. It is important that they should undergo training in different emergencies and must be trained accordingly. Adequate number of equipment for training in other disasters should also be available at the

training center. The details of curriculum and training programmes as depicted in Table – 6 for sub-officers, station officers, divisional officers and other specialized course is given in Annexure - 7 to 26.

Table - 6

SL	Courses	Curriculum
1.	Sub-Officer	Annexure - 7
2.	Station Officer	Annexure - 8
3.	Divisional Officer	Annexure - 9
4.	Medical First Responder Course	Annexure - 10
5.	Basic Disaster Response Course	Annexure - 11
6.	General Search & Rescue Course	Annexure - 12
7.	Advance Search & Rescue Course	Annexure - 13
8.	Fire Fighting First Responder Course	Annexure - 14
9.	Hazardous Material Emergency First Responder course	Annexure - 15
10.	Weapon of Mass Destruction Course	Annexure - 16
11.	Flood Rescue for First Responder Course	Annexure - 17
12.	Collapsed structure – Search & Rescue Course	Annexure - 18
13.	Chemical Disaster First Responder Course	Annexure - 19
14.	Biological Incident First Responder Course	Annexure - 20
15.	Flood / Cyclone Disaster Response Course	Annexure - 21
16.	Earthquake Disaster Response Course	Annexure - 22
17.	Emergency Response to Rail Transport Accident	Annexure - 23
18.	TOT in Radiological & Nuclear Emergencies	Annexure - 24
19.	Breathing Apparatus Course	Annexure - 25
20.	Fire Prevention Course	Annexure – 26

7

Scaling of Fire Station, Equipment and Manpower

7.1 Introduction

7.1.1. Operational efficiency of any fire service depends to a large extent upon the location of fire stations in relation to the entire area and population which is required to be protected by the fire station. It has been observed that fire stations, their relative locations and its population are not taken into account while setting it up. Many towns have a single fire station which is located either on the outskirts of the town or outside the town which delays the appliances to reach many fire incidents in time. It is suggested that, as per the norms already laid down by the SFAC, the fire stations should be so equipped and manned that, for all high hazards and closely built up areas, response time of a maximum of 3 minutes should be aimed at and for all other areas, the response time should not exceed five minutes. If fire stations cannot be built at suitable location as per the above norm then each fire station should have required number of suitably equipped fire posts, which can respond in a timely manner. Detail of land and building requirement for fire stations of different size is given in Annexure – 1.

7.2. Scaling of fire station

7.2.1. In the cities with population of more than one million, the type of hazard may be termed as either high or moderate. In the areas of high fire risk the scale and type of fire station and additional fire fighting and rescue equipment should be determined by an actual survey of the area by fire experts.

7.2.2. A general scale of equipment based on population, area and traffic congestion is however, being laid down in these guidelines to cater to the minimum requirements of fire cover for both high and moderate type of fire hazards in the city. A suggestive list of special equipment have also been mentioned. They are however optional and their procurement



Small Motor Cycle water mist fire fighting unit

depends on the possibility and existence of the type of hazard that may require the use of such equipment. It has been laid down that the fire party should reach the incident site between 3 to 5 minutes in urban areas and 20 minutes in Rural areas. Thus, in some towns or cities, more than one fire station may be needed depending upon the congestion in the town. Acquisition and deployment of smaller vehicle / motor cycle mounted water mist fire fighting units at strategic vulnerable locations in densely populated areas on the pattern of police control room vans or setting up of adequate number of fire posts at strategic locations should be considered.

7.2.3. The recommended scale in these guidelines is prepared with the assumption that there are no facilities / fire services and infrastructure available in the city and the state. Thus the already available appliances should be reduced from the total requirements worked out, fix the deficiencies and then calculate the requirement of the funds for the remaining required equipments. It should also be noted that the suggested scale and type of equipment may be different for the north eastern states and other hill states like Assam, Himachal Pradesh and Utrakhand, etc. The same will also be true for island districts and union territories of Andamans and Lakshadweep etc.

7.2.4. For other parts of the country, the specification of equipment, buildings, communication, etc. is only suggestive and bare minimum. The state governments and ULBs may decide to obtain special equipment on the basis of possible requirement and can also adopt more advanced specifications of design for the appliances, etc. if they have the funds provided for. The procurement of equipment should not be in any case below the suggested specifications and scale.

7.3. Communication

7.3.1. The key to proper response in disasters lies equally in a good communication set up. The fire services need to have all possible connectivity like telephone, telefax, computerised voice logger, GIS, HAM radio, static and mobile wireless sets (like tetra system) and satellite based communication. All supervisory and response location (central control room, division fire stations and area fire station) should be linked. It should also be linked to the District Emergency Operation Centre (EOC).

7.3.2. All toll free emergency numbers existing in the state like the police, fire, emergency operation centre, medical support, etc. should not only be linked up, so that if there is any fire incident, the information reaches the fire station but also the EOC of the district administration and the nearest police station to attend to any law and order situation and

also the hospital, ambulance and emergency services to reach the spot and attend to any casualty and transportation of injured. For such coordination the NDMA guidelines on Incident Response System (IRS) and guidelines on the National Disaster Management Information and Communication System (NDMICS) shall be followed.

7.4. Scales of appliances and equipment for fire stations

7.4.1. The following scales of appliances are recommended as standard scale for each fire station:

- a. Water tender pump
- b. Extra heavy water tender
- c. Ambulance-1 No.

7.4.2. Hose

- a. RRL hose, conforming to type II of IS:636, size 63 mm dia, in 22.5 m or 30 m lengths according to local preference, and fitted with pressure die-cast light alloy coupling instantaneous conforming to IS:903-720 m.
- b. Controlled percolation hose coated on both sides, or unlined canvas hose in 30 m lengths and fitted with pressure die-cast-light alloy instantaneous couplings conforming to IS:903-240 m.

(Note : Fifty per cent of each type of hose should be carried on the fire appliances at all times and the remaining fifty per cent should be kept as reserve at the fire station for replenishing the wet hose after use.)

7.4.3. Specialized appliances

In addition to the appliances mentioned above, one or more of the following specialized appliances should be provided at selected fire stations according to local circumstances :

- a. Turn table ladders – 45 m
- b. Turn table ladders – 31 m
- c. Hydraulic platform – 31 m
- d. Hydraulic platform – 21 m
- e. Light rescue tender
- f. Emergency tender

- g. Extra heavy pumping appliance of not less than 10,000 litres per minute pumping capacity
- h. Hose laying tender
- i. Lighting van
- j. Control post van
- k. Canteen van
- l. Mobile workshop for repair of fire appliances
- m. Mobile workshop for telecom equipment
- n. Breakdown van

7.4.4. Each fire station should also be equipped with a required number of motor cycle mist fire fighting unit in congested cities and cities which have narrow lanes so that they can rush to the fire incident quickly and take immediate step, while the bigger tender may arrive later.



Big Motor cycle with back pack mist fire fighting unit

7.4.5. A minimum of 500 litres of foam compound should be stocked at every fire station and two foam making branches, each with a pick up tube, size-2, conforming to IS:2097 should be kept per mobile pumping appliances.

7.4.6. The following is the scale for determining the number of water tender/pumping unit required on the basis of population is depicted in Table – 7 as follows ;

Table - 7

SL	POPULATION	WATER TENDERS
1.	50,000	01 No.
2.	1,00,000	02 Nos.
3.	3,00,000	06 Nos.
4.	* Additional 1 lacs.	01 Nos.

Source: Compendium of recommendations of SFAC

** One additional fire tender per one lakh of additional population or a fraction thereof plus a reserve of 20% of the total water tenders. In industrial cities and areas of high fire risk, the scale and other equipment should be determined on the basis of actual survey of the area to be protected. One rescue tender per 3 to 10 lakhs population while it should be augmented by additional rescue tender for every additional 10 lakhs population*

7.4.7. Non availability of water at vulnerable locations is a serious problem and is an important requirement. Water needs to be transported to long distances. The only solution appears to be having adequate number of detachable super tankers (10 to 20 thousands liters capacity) which can be carried to strategic locations where it is needed. Detachable tenders are being recommended because the tankers can be left behind and the prime mover unit can go back to bring more detachable tankers. The number of such detachable tender can be worked out on the basis of vulnerability analysis and worst case scenario. The Kolkata Bada Bazar case may be taken into consideration on. It will be useful in hill states also where water scarcity is a problem. The tanker left at the location will function as a mother tanker from which the smaller fire tenders attending to the fire incidents can quickly re-fill and rush back to the site of fire.



Detachable water tender

7.4.8. In view of the traffic congestion and high density of population in many cities, fire parties on small vehicles with not less than 500 litres capacity water mist fire fighting unit can be added in big and congested cities or can also be partially substituted to a water tender in order to reach the incident site within minutes and start fire fighting activities. The bigger tenders may follow as required.



Small vehicle with 500 litres capacity water mist fire fighting unit

7.4.9. Each mobile pumping appliance should be equipped with two sets of compressed air breathing apparatus; each foam/crash tender should be issued with sets of compressed air breathing apparatus; each light rescue tender should be equipped with 4 sets of compressed air breathing apparatus; each turn table ladders should be equipped with four sets of compressed air breathing apparatus and each emergency tender should be equipped with 4 sets of compressed air breathing apparatus. In addition, each operational officer from sub-officer upwards should be equipped with a personal breathing apparatus set.

7.5. Personal protective equipment

7.5.1. Apart from the above basic appliances, the following personal protective equipment as shown in table – 8 are also equally important as follows ;

Table - 8

SL	Personal equipment
1.	Helmet
2.	Water bottle with sling
3.	Eye protection
4.	Ear protection
5.	Safety steel-toe boots
6.	Safety whistle
7.	Knee pads
8.	Work gloves
9.	Overalls fire resistant suit
10.	Personal safety line (sash cord) 15" length
11.	Gum boot / safety boot / fire fighting boot
12.	Fire entry suit
13.	Fire proximity suit
14.	Fire approach suit fire entry suit
15.	Fire men axe
16.	Breathing apparatus

7.6. Special scaling and type of equipment for hill areas

7.6.1. It is often very difficult to move fire tenders and other such heavy equipment in uphill areas. The general scaling of different equipment as discussed earlier may not be proper for them. The solution lies in having small water tenders, high capacity portable pumps with adequate hose pipes which can use the water from natural sources or water storage tanks located at strategic locations and other specialized equipment according to local vulnerabilities. Fire parties having small water mist fire fighting equipment would also be very useful.



Small 500 liters water mist fire fighting vehicle

7.7. Special scaling and type of equipment for island districts and UTs

7.7.1. In island districts and UTs, the fire hazard will have to be assessed and accordingly suitable independent fire fighting equipment have to be located in each island. Motor boats loaded with high capacity pumps may have to be located at the strategic places with adequate hose pipes. Adequate and required equipment should be selected and placed in each island in order to make the islands independently capable of responding to small fire accidents and other emergencies as per their vulnerabilities. Local police, officers / personnel of municipal, other services and CD volunteers need to be trained to handle such available equipment and respond to fire accident.

7.8. Water supplies

7.8.1. The local administration shall consider constructing large water storage tanks wherever water is available. Other rain water harvesting tanks at suitable places, should also be built so that when the emergency arises, water can be drawn from them. Such tanks should be constructed and placed under the supervision of the fire services department, so that it is not pilfered. Such water reservoirs can be built for the welfare of the community under different development plans and also under the Jawahar Rozgar Yojana etc.



Sample underground water storage tank

7.9. Manpower

7.9.1. Apart from the supervisory ranks, keeping in mind a proper span of control, following is the manpower requirement for various types of appliances.

Table - 9

SL	Name of appliance	Asstt. station officer	Leading fireman	Driver operator	Fireman	Total
1.	Water tender pump	Nil	1	1	4	6
2.	Extra heavy water tender	Nil	Nil	1	1	2
4.	Turn table ladder and hydraulic platform	1	1	1	3	6
5.	Pump escape	Nil	1	1	4	6

SL	Name of appliance	Asstt. station officer	Leading fireman	Driver operator	Fireman	Total
6.	Light rescue tender	Nil	1	1	2	6
7.	Emergency tender	1	1	1	4	7
8.	Crash tender/foam tender	Nil	1	1	2	4
9.	Ambulance nil	Nil	1	1	2	

7.9.2. Manpower at each fire station are as follows.

Table - 10

SL	Personnel manpower	Number
1.	Station officer	-1
2.	Asstt. station officer	-1
3.	Leading fireman (per watch-for watch room duty)	-2
4.	Crew for the appliances	-As per scale given above

7.9.3. Control Room

Table - 11

SL	Control Room	Personnel
1.	Central Control Room	1 Divisional Officer, 4 Station Officers (one per watch and one reserve) and 8 Assistant Station Officers (2 per watch and 2 reserve)
2.	Command Control Room	1 Assistant Divisional Officer, 4 Assistant Station Officers (1 per watch and 1 reserve) and 8 Leading Firemen (2 per watch and 2 reserve)
3.	Divisional Control Room	4 Station Officers, 4 Assistant Station Officers (one per watch and one reserve) and 8 Leading Firemen (2 per watch and 2 reserve)

7.9.4. Watch room operators: Four watch room operators for each station to be provided, one to be on duty for every 8 hours and the fourth man to be spared for relief-work.

7.9.5. Clerks: Where the station functions as an independent unit and has its own cash and store work, one clerk may be provided.

7.9.6. Sweepers: This class of employees should be provided at the scale of one per 5000 sq. ft. of covered area and one per 7000 sq. ft. of open area, subject to a minimum of one at each station.

7.9.7. Gardeners: One gardener for every half acre of land required to be maintained as a garden. At places having more than one station where headquarters of city fire brigades exists, the staff required should vary from place to place depending on the strength of the crew.

7.10. Duty system

7.10.1. It is recommended that a standard 3 watch duty system should be introduced in fire services, in which the first watch should be on duty for 24 hours at a stretch. On being relieved by the second watch, the first watch should be on 24 hours off duty and again come on duty for 8 hours on the third day. Similarly, the second watch, on being relieved by the third watch should remain off duty for 24 hours and come on 8 hours duty on the third day and so on. This system would appear to be more expensive, but considering the fact that extra manpower would be required for fire prevention duty, water sources inspection and maintenance, it is actually more economical, because the personnel of the day watch will be available in addition to the watch on normal operational duty and could be employed for fire prevention water sources inspection and other miscellaneous duties, thereby economizing on manpower and utilizing them to the maximum advantage.

7.10.2. One-third of the total strength of each rank, except chief fire officer and above should be provided as leave/training reserve. The need for this reserve is obvious.

Annexure – 1

BILL TO PROVIDE FOR THE MAINTENANCE OF A FIRE FORCE FOR THE STATE

(Model Fire Force Bill Circulated Vide Ministry of Home Affairs, GoI,
Letter No. 28/3/56-ER-II dated 17th October, 1958)

(See paras 3.5 under LEGISLATION)

Be it enacted by the State Legislature in the _____ year of the Republic of India as follows :

PRELIMINARY

1. Short title, extent and commencement :

- (1) This Act may be called the _____ Fire Force Act, 195.
- (2) It extends to the whole of the State _____ Name of the State.
- (3) It shall come into force in any area on such date as the State Government may, by Notification in the Official Gazette, appoint and different area and for different provisions of this Act.

2. Definitions - In this Act, unless the context otherwise requires :-

- (a) "Director" means the Director of the Fire Force appointed under Section 4:
- (b) "Fire fighting property" includes –
 - (i) lands and buildings used as fire stations.
 - (ii) Fire engines, equipments, tools, implements and things whatsoever used for fire fighting.
 - (iii) Motor vehicles and other means of transport used in connection with fire-fighting, and
 - (iv) Uniforms and badges of ranks;
- (c) "Fire-station" means any post or place declared, generally or specially, by the State Government to be a fire-station.
- (d) "Force" means (Name of the state) Fire Force maintained under this Act;

- (e) “Officer-in-charge of a fire station” includes when the officer-in-charge of the fire station is absent from the station or unable from illness or other cause to perform his duties, the fire officer present at the station who is next in rank to such officer;
- (f) “Prescribed” means prescribed by rules made under this Act.

MAINTENANCE OF THE FIRE FORCE

3 Maintenance of fire Force

There shall be maintained by the State Government a fire force to be called Name of the state Fire Force for services in the local areas in which this Act is in force.

4. Appointment of Director of Fire Force

The State Government may appoint a person to be the Director of the Fire Force.

5. Superintendence and control of the Force

1. The superintendence and control of the force shall vest in the Director and shall be carried on by him in accordance with the provisions of this Act and of any rules made thereunder.
2. The State Government may appoint such officers as it may deem fit to assist the Director in the discharge of his duties.

6. Appointment of members of the force

The Director or such other officer of the force as the State Government may authorize in this behalf shall appoint members of the force in accordance with the rules made under this Act.

7. Issue of certificate to members of Force

1. Every person shall, on appointment to the force, receive a certificate in the prescribed form under the seal of the Director or an officer authorized in this behalf by the State Government and thereupon such person shall have the powers functions and privileges of a member of the force under this Act
2. The certificate referred to in sub-section (1) shall cease to have effect when the person named therein ceases for any reason to be a member of the force; and on his ceasing to be such member, he shall forthwith surrender the certificate to any officer empowered to receive the same.
3. During any term of suspension, the powers, functions and privileges vested in any members of the force shall be in abeyance, but such member shall continue to

be subject to the same discipline and penalties as he would have been if he had not been suspended. 8. Auxiliary Fire Force – Whenever it appears to the state Government that it is necessary to augment the force, it may raise an auxiliary force by enrolment of volunteers for such area and on such terms and conditions as it may deem fit.

8. Auxiliary Fire Force

Whenever it appears to the State Government that it is necessary to augment the force, it may raise an auxiliary force by enrolment of volunteers for such areas and on such terms and conditions as it may deem fit.

9. Power to State Government to make orders

The State Government may from time to time make such general or special orders as it thinks fit :-

- (a) for providing the force with such appliances and equipments as it deems proper,
- (b) for providing adequate supply of water and for securing that it shall be available for use;
- (c) for constructing or providing stations or hiring places for accommodating the members of the force and its fire fighting appliances;
- (d) for giving rewards to persons who have given notice of fires and to those who have rendered effective service to the force on the occasion of fires;
- (e) for the training, discipline and good conduct of the members of the force;
- (f) for the speedy attendance of members of the force with necessary appliances and equipment on the occasion of any alarm of fire;
- (g) for sending members of the force with appliances and equipment beyond the limits of any area in which this Act is in force for purposes of fire fighting in the neighborhood of such limits;
- (h) for the employment of the members of the force in any rescue, salvage or other similar work;
- (i) for regulating and controlling the powers, duties and functions of the Director; and
- (j) generally for the maintenance of the force in a due state of efficiency.

10. Powers of members of the force on occasion of fire

On the occasion of fire in any area in which this Act is in force, any ,member of the force who is in charge of fire fighting operations on the spot may -

- (a) remove, or order any other member of the force to remove, any person who by his presence interferes with or impedes the operation for extinguishing the fire or for saving life or property;
- (b) close any street or passage in or near which a fire is burning;
- (c) for the purpose of extinguishing fire, break into or through or pull down, any premises for the passage of hose or appliances or cause them to be broken into or through or pulled down, doing as little damage as possible;
- (d) require the authority in charge of water supply in the area of regulate the water mains so as to provide water at a specified pressure at the place where fire has broken out and utilize the water of any stream, cistern. Well or tank or of any available source of water public or private, for the purpose of extinguishing or limiting the spread of such fire;
- (e) exercise the same powers for dispersing an assembly of persons likely to obstruct the fire fighting operations as if he were an officer-in-charge of a police station and as such if such an assembly were an unlawful assembly and shall be entitled to the same immunities and protection as such an officer, in respect of the exercise of such powers;
- (f) generally take such measures as may appear to him to be necessary for extinguishing the fire or for the protection of life or property.

11. Power of Director to make arrangements for supply of water

The Director may with the previous sanction of the state Government , enter into an agreement with the authority in charge of water supply in any area for securing an adequate supply of water incase of fire, on such terms as to payment or otherwise as may be specified in the agreement .

12. Power of Director to enter into arrangements of assistance

The Director may, with the previous sanction of the State Government enter into arrangements with any person who employs and maintains personnel or equipment or both for fire fighting purposes, to secure, on such term as to payment or otherwise as may be provided by or under the arrangements the provision by that person or assistance for the purpose of dealing with fire occurring in any area in which this Act is in force.

13. Preventive Measures

- 1. The State Government may by notification in the Official Gazette, require owners or occupiers of premises in any area or of any class of premises used for purposes

which its opinion are likely to cause a risk of fire, to take such precautions as may be specified in such notification.

2. Where a notification has been issued under sub-section (1), it shall be lawful for the Director or any officer of the force authorized by the State Government in this behalf to direct the removal of objects or goods likely to cause a risk of fire, to a place of safety; and on failure of the owner or occupier to do so, the Director or such officer may, after giving the owner or occupier a reasonable opportunity of making representation seize, detain or remove such objects or goods.

EXPENDITURE ON MAINTENANCE OF FORCE

14. Expenditure on the force

The entire expenditure in connection with the force shall be met out of the Consolidated Fund of the State : Provided that the State Government may recover from any local authority of any area in which this Act is in force such contribution towards the cost of the position of the force maintained in that area as the State Government may direct from time to time.

15. Levy of fire tax

1. There may be levied a fire tax on Land and Building which are situated in any area in which this Act is in force and on which property tax by whatever name called is levied by any local authority in that area.
2. The fire tax shall be levied in the form of surcharge on the property tax at such rate not exceeding... per cent of such property tax as the State Government may, by notification , in the Official Gazette, determine.

16. Mode of assessment, collection etc., of fire tax

1. The authorities for the time being empowered to assess, collect and enforce payment of property tax under the law authorizing the local authority of the area to levy such tax shall, on behalf of the State Government and subject to any rules made under this Act, assess, collect and enforce payment of the fire tax in the same manner as the property tax is assessed paid and collected; and for this purpose, they may exercise all or any of the powers they have under the law aforesaid and the provisions of such law including provisions relating to returns, appeals, reviews, revisions, references and penalties shall apply accordingly.
2. Such portion of the total proceeds of the fire tax as the State Government may determine shall be deducted to meet the cost of collection of the tax.

3. The proceeds of the fire tax collected under this Act reduced by the cost of collection shall be paid to the State Govt. in such manner and at such intervals as may be prescribed.

17. Fees

1. Where members of the force are sent beyond the limits of any area in which this Act is in force, in order to extinguish a fire in the neighborhood of such limits, the owner or occupier of the premises where the fire occurred or spread shall be liable to pay such fee as may be prescribed in this behalf.
2. The fee referred to in sub-section (1) shall be payable within one month of the service of a notice of demand by the Director on the owner or occupier and if it is not paid within that period, it shall be recoverable as an arrear of land revenue.

ACQUISITION OF FIRE FIGHTING PROPERTY

18. Prohibition against transfer of fire fighting property

No local authority of any area in which this Act is in force shall, after the commencement of this Act in that area, transfer or otherwise part with any fire fighting property without the previous sanction of the State Government.

19. Acquisition of fire fighting property

1. If after making such inquiry and investigation as it deems necessary and after giving the local authority an opportunity to make its representations, the State Government is of opinion that the standard of efficiency of the fire fighting personnel and equipment maintained by the local authority is not adequate to meet the normal requirements of the area, the State Government may acquire the fire fighting property of the local authority by publishing in the Official Gazette a notice to the effect that the State Government has decided to acquire such property on payments of its market value, a copy of such notice shall also be served on local authority.
2. When a notice as aforesaid is published in the Official Gazette, the property specified in such notice shall on and from the beginning of the date on which the notice is so published, vest absolutely in the State Government free from all encumbrances.

20. Principles and method of determining compensation

1. The amount of compensation payable in respect of any fire fighting property acquired under this Act shall be the market value of such property on the date of

issue of the notice referred to in section 19. that is, the price which is would have fetched in the open market if it had been sold on that date

2. The amount of compensation shall be determined in the manner and in accordance with the principles hereinafter set out, that is to say -
 - (a) where the amount of compensation can be fixed by agreement it shall be paid in accordance with such agreement;
 - (b) where no such agreement can be reached, the State Government shall appoint as arbitrator a person who is, or has been or is qualified for appointment as, a Judge of a High Court.
 - (c) the State Government may in any particular case nominate a person having expert knowledge as to the nature of the property acquired to assist the arbitrator and where such nomination is made, the local authority concerned may also nominate an assessor for the same purpose;
 - (d) at the commencement of the proceedings before the arbitrator, the state Government and the local authority shall state what in their respective opinion is a fair amount of compensation
 - (e) the arbitrator shall after hearing the dispute make an award determining the amount of compensation which appears to him to be just and in making the award he shall have regard to the circumstances of each case and the provisions of this section;
 - (f) nothing in the Arbitration Act, 1940 shall apply to arbitrations under this section.

21. Appeals from awards in respect of compensation

Where the State Government or local authority is aggrieved by an award of the arbitrator under section 20, it may within thirty days from the date of such award prefer an appeal to the High Court within whose appellate jurisdiction to the required property is situated.

22. Powers of arbitrator

The arbitrator appointed under section 20, while holding arbitration proceedings under this Act, shall have all the powers of a Civil Court, while trying a suit under the Code of Civil Procedure, 1908 in respect of the following matters, namely -

- (a) summoning and enforcing the attendance of any person and examining him or oath;

- (b) requiring the discovery and production of documents;
- (c) receiving evidence on affidavits; and
- (d) issuing commissions for examination of witness.

PENALTIES

23. Penalty for violation of duty etc

Any member of the force who -

- (a) is found to be guilty of any violation of duty or willful breach of any provision of this Act or any rule or order made thereunder, or
- (b) is found to be guilty of cowardice, or
- (c) withdraws from the duties of his office without permission or without having given previous notice of at least two months or
- (d) being absent on leave fails without reasonable cause to report himself for duty on the expiration of such leave, or
- (e) accepts any other employment or office in contravention of the provisions of section 29, shall be punishable with imprisonment which may extend to three months or with fine which may extend to an amount not exceeding three months' pay of such member or with both.

24. Failure to give information

Any person who without just cause fails to communicate information in his possession regarding an outbreak of fire shall be deemed to have committed an offence punishable under the first part of section 176 of the Indian Penal Code.

25. Failure to take precautions

Whoever fails without reasonable cause to comply with any of the requirements specified in notification issued under sub-section (1) of Section 13 or of a direction issued under sub-section (2) of that section shall be punishable with fine which may extend to five hundred rupees.

26. Willfully obstructing fire fighting Operations

Any person who willfully obstructs or interferes with any member of the force who is engaged in fire fighting operations shall be punishable with imprisonment which may extend to three months or with fine which may extend to five hundred rupees or with both..

27. False report

Any person who knowingly give or causes to be given a false report of the outbreak of a fire to any person authorized to receive such report by means of a statement, message or otherwise shall be punishable with imprisonment for three months or with fine not exceeding five hundred rupees or with both.

GENERAL AND MISCELLANEOUS**28. Training Centres**

The State Government may establish and maintain one or more training centers in the State for providing courses of instruction in the prevention and extinguishments of fire and may close down or re-establish any such center.

29. Bar to other employment

No members of the force shall engage in any employment or office whatsoever other than his duties under this Act unless expressly permitted to do so by the Director.

30. Transfer to other area

The Director or any officer authorized by the State Government in this behalf may, on the occasion of a fire or other emergency in any neighbouring area in which this Act is not in force, order the dispatch of the members of the force with necessary appliances and equipments to carry on fire fighting operations in such neighboring area and thereupon all the provisions this Act and the rules made there under shall apply to such area, during the period of fire or emergency or during such period as the Director may specify.

31. Employment on other duties

It shall be lawful for the State Government or any officer authorized by it in this behalf to employ the force in any rescue, salvage or other work for which it is suitable by reason of its training, appliances and equipments.

32. Liability of property owner to pay compensation

1. Any person whose property catches fire on account of any action of this own or of his agent done deliberately or negligently shall be liable to pay compensation to any other person suffering damage to his property on account of any action taken under section 10 of this Act by any officer mentioned therein or any person acting under the authority of such officer.
2. All claims under sub-section (1) shall be preferred to the District Magistrate within 30 days from the date when the damage was caused .

3. The District Magistrate shall, after giving the parties an opportunity or being heard, determine the amount of compensation due and pass an order stating such amount and the person liable for the same, and the order so passed shall have the force of a decree of a civil court.

33. Inquiry into origin of fire and report to Magistrate

Where any fire has occurred within any area in which this Act is in force, the senior-most officer in rank among the members of the force in that area shall ascertain the facts as to the origin and cause of such fire and shall make a report thereon to the Magistrate having jurisdiction in the place in which such fire occurs; and the said Magistrate shall in any case where he may deem fit summon witness and take evidence in order to further ascertain such facts.

34. Power to obtain information

Any Officer of the force not below the rank of officer in charge of a fire station may for the purpose of discharging his duties under the Act require the owner or occupier of any building or other property to supply information with respect to the character of such building or other property, the available water supplies and means of access thereto and any other materials, particulars and such owners or occupier shall furnish all the information in his possession.

35. Power of entry

1. The Director or any member of the force authorized by him in this behalf may enter any of the places specified in any notification issued under section 13 for the purpose of determining whether precautions against fire required to be taken on such place have been so taken.
2. Saving as otherwise expressly provided in this Act, no claim shall lie against any person for compensation for any damage necessarily caused by any entry made under sub-section (1).

36. Consumption of water

No charge shall be made by any local authority for water consumed in fire fighting operations by the force.

37. No compensation for interruption of water supply

No authority in charge of water supply in an area shall be liable to any claim for compensation for damage by reason of any interruption of supply of water occasioned only by compliance of such authority with the requirement specified in clause (d) of section 10

38. Police Offices to aid

It shall, be the duty of police officers of all ranks to aid the members of the force in the execution of their duties under the Act.

39. Information on outbreak of fire

Any person who possesses any information regarding an outbreak of fire shall communicate the same without delay to the nearest fire station.

40. Indemnity

No, suit prosecution or other legal proceedings shall lie against any person for anything which is in good faith done or intended dot be done in pursuance of this Act or any rule or order made thereunder.

41. Power to make rules

- (1) The State Government may, by notification in the Official Gazette, make rules for carrying out the purposes of this Act.
- (2) In particular and without prejudice to the generality of the foregoing power, such rules may provide for -
 - (a) the number and grades of officers and members of the force;
 - (b) the manner of appointment of members of the force;
 - (c) the form of the certificate to be issued to the members of the force;
 - (d) the conditions of the service of the members of force including their ranks, pay and allowances, hours of duty and leave, maintenance of discipline and removal from service.
 - (e) the circumstances in which and the conditions (including the levy of fee) subject to which members of the force may be dispatched to carry on fire fighting operations in neighbouring areas;
 - (f) the conditions subject to which members of the force may be employed on rescue, salvage or other work;
 - (g) the manner in which and the intervals at which the process of the fire tax levied under this Act shall be paid to the state Government.
 - (h) the manner of service of notice under this Act;
 - (i) the procedure to be followed in arbitration proceedings under section 20;
 - (j) the payment of rewards to persons, not being members of the force, who render services for fire fighting purposes;

- (k) the compensation payable to members of the force in case of accidents on to their dependents in case of death while engaged on duty;
- (l) for the employment of members of the force or use of any equipment outside the area or on special services and the fee payable therefore, and
- (m) any other matter which is to be or may be prescribed.

42. Repeal and saving

If immediately before the day on which this Act comes into force in an area, there is in force in that area any law or rule having the force of law which corresponds to this Act, such corresponding law in so far as it relates to any matter of which provision has been made in this Act shall on that day stand repealed;

Provided that such repeal shall not be deemed to limit, modify or derogate from the general responsibility of any local authority-

- (a) to provide and maintain such water supply and fire hydrants for fire fighting purposes as may be directed by the state Govt. from time to time.
- (b) to frame bye-laws for the regulation of dangerous trades;
- (c) to order any of its employees to render aid in fighting a fire when reasonably called upon to do so by any member of the force and
- (d) generally to take such measures as will lessen the likelihood of fires or preventing the spread of fires.

Annexure – 1A

RECOMMENDATION OF EXPERT COMMITTEE AND DECISION OF GOVERNMENT OF INDIA

1. INTRODUCTION

Condition of Fire Services in India at the end of the Second World War

The development of Fire Services in India was to a large extent influenced by India's political and historical association with Britain till the Second World War (1939-1945).

2. At the out-break of war in 1939, there were innumerable Fire authorities in Britain which were heterogeneous and ill-equipped to function as a National Force-so vital for the war effort. A hurried attempt was made to fuse them into an integrated National Organisation-the National Fire Service-which, inspite of all handicaps, did commendable work and helped to maintain the British morale at a high pitch throughout the duration of war. After the war was over, the responsibility for the administration of the Fire Services reverted to the Local Bodies because of a promise made by the Home Secretary at the time of constituting the National Fire Service. The lessons learnt during the war were, however, not wasted. The number of Fire authorities was drastically reduced, making each a viable one and the British Home Office established an Inspectorate of Fire Services, evidently with a view to ensure standardisation of equipment, brigade procedures, uniform, ranks and training and to ensure better co-ordination and co-operation among them.

The Expert Committee, 1950, Recommendations of - and Government of India's decision thereon

3. India did not have a National Fire Service during the war. In consequence, the Fire Brigades retained their heterogeneous character and the majority of them continued to remain ill-equipped at the end of the war. They had an added handicap of having to depend entirely upon imported equipment. The Government of India were fully conscious of this and were keen to bring about all possible improvement. The Ministry of Home Affairs, Government of India, therefore set up an "Expert Committee" in 1950. Main recommendations of that Committee are given at Appendix - 1'A' to this Compendium.
4. This was a good beginning indeed. The Government of India communicated their decision on the recommendation of the Expert Committee to all State Governments and Central Ministries vide Ministry of Home Affairs letter No. 33/50-CD, dated the 5th January, 1952. They accepted the recommendations at Serial Nos. 1, 2 and 6 to 10 in full and deferred their decision on recommendations at Serial Numbers 11 and 12, given at Appendix 1'A'. Their observation on other recommendations of the Expert Committee were:-
 - "3. The Government of India note that practically all State Governments are agreed on the point that provincialisation of Fire Services is sound in principle and should be the ultimate goal. The Government of India, however, feel that the administration of Fire Services is part of the responsibilities of Local Bodies, and a departure from the normal principle of decentralisation of responsibilities and duties would be justified in a matter of this nature only where Municipal authorities are found to be unable, inspite of every reasonable effort, to provide fire fighting facilities on a scale which the State Government consider necessary and are in a position to provide themselves. If State Govts. have the authority to enforce the recruitment by Local Bodies of only trained personnel (e.g. persons trained at the proposed Central Institution) and also have the power of inspection, then efficiency can be increased even without provincialisation of Fire Services.

The Government of India also accept in principle the recommendation of the Expert Committee that there should be an uniform Fire Legislation in all States (subject to such modifications as local circumstances may require). For this purpose they proposed to draw up a Model Bill in due course and obtain the views of the State Governments before it is given final shape. When finalised, copies of the Bill will be circulated to all State Governments with the recommendations to have the measure enacted by their respective Legislatures.

 - "4. The Government of India accept this recommendation except as regards the formation of an All India Fire Service, as they feel that apart from other difficulties, the cadre would be too small to function efficiently.
 - "5. While the Government of India are unable to accept this recommendation of the Expert Committee, they feel that State Governments should make arrangements for the regular inspection of the fire

Annexure – 1B

BASIC REQUIREMENT FOR SETTING UP A FIRE STATION

Following minimum dimensions were recommended for each of the requirements of Fire Stations: -

Sr.No	Type of Accommodation	One appliance Station	Two Appliance Station	Three Appliance Station	Four Appliance Station	Five Appliances & Over Station.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Appliance room with doors according to local requirements,(Height will depend on the type of ladders/overall height of appliance in us but will not be less than 12')	30'10'X14'High	The floor area should be double of the one appliance station	The floor area given under one appliance station should be multiplied by 3	The floor area given under one appliance should be multiplied by 4	Multiply the floor area given under appliance station by the number of pumps.
2.	Office	120 sq.ft	120 sq.ft	180 sq.ft	180 sq ft	240 sq.ft.
3	Watch Room	120 sq.ft	120 sq.ft	120 sq.ft	120 sq.ft	180 sq. ft
4.	Store	180 sq ft	180 sq ft	200 sq.ft	200 sq.ft	300 sq.ft
5.	Work Room (for minor repairs)	150 sq.ft	200 sq.ft	200 sq.ft	250 sq.ft	300 sq.ft
6	Rest Room/Recreation Room (Appliance means all Fire Service Vehicles including ambulances.)	200 sq.ft	200 sq.ft	250 sq.ft	300 sq.ft	300 sq.ft
7	Drill Tower-cum-Hose Drying Tower	15'X15'X40' High	15'X15'X40' High	15'X15'X40' High	15'X15'X40' High	15'X15'X40' High
8	Petrol Store (According to existing petroleum Regulations)					

Sr.No	Type of Accommodation	One appliance Station (3)	Two Appliance Station (4)	Three Appliance Station (5)	Four Appliance Station (6)	Five Appliances & Over Station. (7)
9	Petrol Store	5000 gallons capacity with parapet wall not exceeding 3'and a depth not less than 3; with a sum of 2'X2'X2'		10000 gallons capacity with parapet wall not exceeding 3'and a depth not less than 3; with a sum of 2'X2'X2'		Two tanks of same capacity as for one pump station.
10	Hoe Washing Through	40'X3'X2' deep	40'X3'X2'deep	40'X3'X 2'deep	40'X3'X 2'deep	40'X3'X2' Deep
11	Smoke Chamber	8'X8'X8' high	8'X8'X8' high	8'X8'X8' high	8'X8'X8' high	8'X8'X8' High
12	Hydrants	One of each type	One of each type	One of each type	One of each type	One of each type
13	Record Room	Nil	Nil	150 sq.ft	150 sq.ft	180 sq.ft
14	Class Room	Nil	Nil	225 sq.ft	225 sq.ft	300 sq.ft
15	Drill Ground	200'X50'	200'X50'	200'X50'	200'X50'	200'X50'

16. **An area of 10 ft & 5 ft per person for the total number of person on duty at a time.

17. Sanitary Facilities To be provided at a scale of one lavatory and one bathroom for each 5 person on duty at any time subject to a minimum of 1 set .

18. Residential Accommodation

- (a) At Training Centre- Single accommodation, messing facility and other connected services for 100 persons should be provided as close as possible to the Aerodrome.
- (b) At all Station – Residential Accommodation for all Fire Service Staff should be provided as close to the Aerodrome as possible.

* The watch room should be on top of the station.

** In case of upper floors, separate sliding poles should be fitted between each floor.

Annexure - 2

13th FINANCE COMMISSION GRANT FOR CAPACITY BUILDING

(Reference: para 11.102 of 13th FC Report)

Sl. No.	State	2010-11	2011-12	2012-13	2013-14	2014-15	Total 2010-15
1.	Andhra Pradesh	6.00	6.00	6.00	6.00	6.00	30.00
2.	Arunachal Pradesh	1.00	1.00	1.00	1.00	1.00	5.00
3.	Assam	5.00	5.00	5.00	5.00	5.00	25.00
4.	Bihar	5.00	5.00	5.00	5.00	5.00	25.00
5.	Chhattisgarh	4.00	4.00	4.00	4.00	4.00	20.00
6.	Goa	1.00	1.00	1.00	1.00	1.00	5.00
7.	Gujarat	6.00	6.00	6.00	6.00	6.00	30.00
8.	Haryana	5.00	5.00	5.00	5.00	5.00	25.00
9.	Himachal Pradesh	4.00	4.00	4.00	4.00	4.00	20.00
10.	Jammu & Kashmir	4.00	4.00	4.00	4.00	4.00	20.00
11.	Jharkhand	5.00	5.00	5.00	5.00	5.00	25.00
12.	Karnataka	4.00	4.00	4.00	4.00	4.00	20.00
13.	Kerala	4.00	4.00	4.00	4.00	4.00	20.00
14.	Madhya Pradesh	5.00	5.00	5.00	5.00	5.00	25.00
15.	Maharashtra	5.00	5.00	5.00	5.00	5.00	25.00
16.	Manipur	1.00	1.00	1.00	1.00	1.00	5.00
17.	Meghalaya	1.00	1.00	1.00	1.00	1.00	5.00
18.	Mizoram	1.00	1.00	1.00	1.00	1.00	5.00
19.	Nagaland	1.00	1.00	1.00	1.00	1.00	5.00
20.	Orissa	5.00	5.00	5.00	5.00	5.00	25.00
21.	Punjab	5.00	5.00	5.00	5.00	5.00	25.00
22.	Rajasthan	6.00	6.00	6.00	6.00	6.00	30.00
23.	Sikkim	1.00	1.00	1.00	1.00	1.00	5.00
24.	Tamil Nadu	5.00	5.00	5.00	5.00	5.00	25.00
25.	Tripura	1.00	1.00	1.00	1.00	1.00	5.00
26.	Uttar Pradesh	5.00	5.00	5.00	5.00	5.00	25.00
27.	Uttrakhand	4.00	4.00	4.00	4.00	4.00	20.00
28.	West Bengal	5.00	5.00	5.00	5.00	5.00	25.00
Total		105.00	105.00	105.00	105.00	105.00	525.00

Annexure - 3

LIST OF MILLION-PLUS CITIES IN INDIA

(Reference: 2001 Indian Census Report)

S.No.	State	City	Population
1.	Andhra Pradesh	Hyderabad UA (Distts. 04, 05 & 06)	57,42,036
2.	Andhra Pradesh	Vishakhapatnam UA (Distts 31, 32 & 33)	13,45,938
3.	Andhra Pradesh	Vijayawada UA (Distts 16 & 17)	10,39,518
4.	Bihar	Patna UA	16,97,976
5.	Delhi	Delhi UA	1,28,77,470
6.	Gujarat	Ahmedabad UA (Distts 06 & 07)	45,25,013
7.	Gujarat	Rajkot UA	10,03,015
8.	Gujarat	Surat UA	28,11,614
9.	Gujarat	Vadodara UA	14,91,045
10.	Haryana	Faridabad (M. Corp.)	10,55,938
11.	Jharkhand	Dhanbad UA	10,65,327
12.	Jharkhand	Jamshedpur UA (Distts 17 & 18)	11,04,713
13.	Karnataka	Bangalore UA	57,01,746
14.	Kerala	Kochi UA	13,55,972
15.	Madhya Pradesh	Bhopal UA	14,58,416
16.	Madhya Pradesh	Indore UA	15,16,918
17.	Madhya Pradesh	Jabalpur UA	10,98,000
18.	Maharashtra	Mumbai (Distts 21, 22 & 23)	1,64,34,386
19.	Maharashtra	Nagpur UA	21,29,500
20.	Maharashtra	Nashik UA	11,52,326
21.	Maharashtra	Pune UA	37,60,636
22.	Punjab	Amritsar UA	10,16,079
23.	Punjab	Ludhiana (M. Corp.)	13,98,467
24.	Rajasthan	Jaipur (M. Corp.)	23,22,575
25.	Tamil Nadu	Chennai UA (Distts 01, 02 & 03)	65,60,242
26.	Tamil Nadu	Coimbatore UA	14,61,139
27.	Tamil Nadu	Madurai UA	12,03,095
28.	Uttar Pradesh	Agra UA	13,31,339
29.	Uttar Pradesh	Allahabad UA	10,42,229
30.	Uttar Pradesh	Kanpur UA	27,15,555
31.	Uttar Pradesh	Lucknow UA	22,45,509
32.	Uttar Pradesh	Meerut UA	11,61,716
33.	Uttar Pradesh	Varanasi UA	12,03,961
34.	West Bengal	Asansol UA	10,67,369
35.	West Bengal	Kolkata UA (Distts 10, 11, 12, 16, 17 & 18)	1,32,05,697

Annexure – 4

LIST OF ESSENTIAL EQUIPMENT SHOWING COST & SPECIFICATION FOR SETTING UP A FIRE STATION

SL	NAME OF APPLIANCE	Approx. Cost. (in lacs)	Suggested specification
	Water Tender (Multipurpose CO2, Foam & DCP)	35	IS 948, IS950, IS6067 Specification of SFAC is enclosed as Annexure-31
	Advance Rescue/ Emergency Tenders	100	IS 949, IS 956, IS6067 Specification of SFAC is enclosed as Annexure-32
	Rescue Tender	80	
	Ambulance		No BIS specification
a)	Trauma	100	
b)	Normal	50	
	Mini Water Tender mounted on a mini truck chassis. (without accessory)	10	
	Motor Cycle mounted Mist Technology Based Fire Party	9	No BIS specification
	Water Bouser Fabrication (cost of chassis to be added)	32	No BIS specification
	Breakdown Van (Approx. 16 Ton)	30	No BIS specification

SPECIALISED EQUIPMENT FOR A FIRE STATION

(AS PER REQUIREMENT ACCORDING TO VULNERABILITY)

SL	NAME OF APPLIANCE	Approx. Cost. (in lacs)	Suggested specification
1	Turn Table Ladder		BIS specification is under wide circulation
a)	60 Mtrs. Height	800	
b)	55 Mtrs. Height	700	
c)	32 Mtrs.	550	

SL	NAME OF APPLIANCE	Approx. Cost. (in lacs)	Suggested specification
2	Aerial Ladder Platform		No BIS specification
a)	70 Mtrs. Height	950	
b)	54 Mtrs. Height	850	
c)	42 Mtrs.	550	
3	Hazmat Van	400 - 1500	BIS specification is under wide circulation. Specification of SFAC is enclosed as Annexure- 33
(The price of Hazmat Van varies on the basis of Rescue Equipments in the van. Selection of equipment should be done according to local vulnerabilities)			
4	Advance Rescue/ Emergency Tenders	100	IS 949, IS 956, IS6067 Specification of SFAC is enclosed as Annexure- 32
5	Hose Laying Tenders (with 63 mm X 50 Nos. Hose)	20- 25	IS 2930
SL	NAME OF APPLIANCE	Approx. Cost. (in lacs)	Suggested specification
6	Lighting Van	(Depends on the vehicle Chassis selected & equipment placed)	No BIS specification
7	Control Post Van	(Depends on the vehicle Chassis selected & equipment placed)	No BIS specification
8	Canteen Van (Stainless Steel Equipments/ Water purifier & DG Set)	25 - 100	No BIS specification
9	Mobile Workshop for telecommunication equipments (Technical Personnel)	50	No BIS specification

SL	NAME OF APPLIANCE	Approx. Cost. (in lacs)	Suggested specification
10	Other Disaster Equipment Van	500 - 800	No BIS specification
	(The price of Other Disaster Equipment Van would depend on the selection of vehicle and on the basis of rescue equipments selected according to local vulnerabilities)		
11	Portable Pumps (without mist technology) One/Two delivery System, Normal & High pressure as per IS & EN)		IS 12717, IS942, IS943
a)	275 LPM @ 4.0 bar	01.5	
b)	550 LPM @ 5.0 bar	0.25	
c)	1400 / 1600 LPM @ 7.0 bar	0.50	
12	Portable Pumps with Water Mist Technology vehicle mounted	15	BIS specification under subject stage. Specification of SFAC is enclosed as Annexure- 34

Note : Specification given are minimum. If at the time of purchase equipments with higher specification is available, then concern Fire Service may opt for higher specification. Equipments not in the list can also be procured to strengthen Fire Services according to local need on the basis of vulnerability assessment.

LIST SHOWING APPROXIMATE COST OF COMMUNICATION EQUIPMENTS FOR FIRE SERVICES

SL	NAME OF APPLIANCE	Approx. Cost. (in lacs)	Suggested Specification
1.	Static Wireless Set	0.17	No BIS specification
2.	Mobile Wireless Set	0.14	No BIS specification
3.	Walkie Talkie with spare battery	0.14	No BIS specification
4.	Repeaters	0.65	No BIS specification

Note : Specification given are minimum. If at the time of purchase equipments with higher specification is available, then concern Fire Service may opt for higher specification. Equipments not in the list can also be procured to strengthen Fire Services according to local need on the basis of vulnerability assessment.

Annexure – 5

CURRICULUM OF BASIC TRAINING OF FIREMAN

Oral

(i) Chemical Extinguisher

Types in use and types of fires on which each one can be used ; care and maintenance

(ii) Ladders

Types in use with limitations of each : care and maintenance; Duties of each member of crew in standard drills.

(iii) First Aid

Treatment in cases of shock, wounds, burns, bleeding, fractures and respiratory failure.

(iv) Hose and Hose Drills

Types of delivery and suction hose; construction, care and maintenance; methods of testing, cleaning drying, repairing and slowing; duties of each member of crew in standard drills.

(v) Foam and Foam Equipment

Types of foam and foam making appliances and their uses – care and maintenance.

(vi) Hydrants and Hose Fittings

Types and sizes of hydrants; hose fittings, like couplings, breachings, collecting heads, branches and nozzles, strainers, stand-pipes; hose wrappers and bandages; hose ramps, branch holders; care and maintenance.

(vii) Knots and Lines

Types of lines; methods of testing; care and maintenance. Following 12 knots and their uses :--

- (a) Overhaul knot or thumb knot.
- (b) Reef knot
- (c) Clove hitch
- (d) Rolling hitch
- (e) Round turn and two half hitches

- (f) Single sheet bend
- (g) Sheep shank
- (h) Cat's Paw
- (i) Bow line
- (j) Running bow line
- (k) Bow line on the bight
- (l) Chair knot;

(viii) Pumps and Pump Drills

Types of pumps and priming systems; identification of parts; care and maintenance; duties of each member of crew in standard drills.

(ix) Practical Firemanship

Method of "entry" into and searching a building or locating a fire; precautions to be observed when working in smoke laden places.

(x) Small Gear

Uses of special gear, like door openers, persuaders, braking-in-tools, axes, preventers, rakes, scoops, cutting shears, hand -pumps, etc.

(xi) Water Room Procedure

Method of dealing with calls to fire and other emergencies; standard messages.

(xii) Water Supplies and Relays

Types of water supplies and essential requirements for making their use for fire fighting; tapping of water mains; relay systems by collector and series pumping; normal relay distances.

Practical

(i) Breathing Apparatus

Harnessing a breathing set.

(ii) Chemical Extinguishers

Method of operating and recharging after use.

(iii) Ladders

Ascending and descending; handling hook ladder with pompler belt and performing one man

or two men drill.

(iv) *First Aid

Bandaging at different parts of body; artificial respiration.

(v) Hydrant, Hose and Hose Drills

Operating hydrants; lifting, laying; making-up, adding replacing or removing of hose length, carrying hose lines to upper floors or on ladders.

(vi) Knots and Lines

Practical tying up of the following knots :--

- (aa) Overhaul knot or thumb knot.
- (bb) Reef knot
- (cc) Clove hitch
- (dd) Rolling hitch
- (ee) Round turn and two half hitches
- (ff) Single sheet bend
- (gg) Sheep shank
- (hh) Cat's Paw
- (ii) Bow line
- (jj) Running bow line
- (kk) Bow line on the bight
- (ll) Chair knot;

(vii) Pumps

Operation of pumps with different priming systems.

(viii) Rescue Drills

Picking-up, lowering and carrying down insensible persons by Fireman's lift and lines rescue,--

(ix) Squad Drills

Performing squad drill, marching in step, turning right, left and about, turning in inclination and forming squad.

**handling of and transport of injured persons shall be added*

Annexure – 6

CURRICULUM FOR PROMOTION TO LEADING FIREMAN

(I) Breathing Apparatus and Resuscitation

Written and/or oral Types in use with their limitation circumstances in which sets are to be used – conditions when resuscitation is necessary standard test.

Practical demonstration Practical demonstration in harnessing a breathing set ort using a resuscitation apparatus.

(ii) Chemical Extinguishers

Written and/or oral -- Types of extinguishers in use and fires on which each one can be used; advantages and disadvantages and general methods of maintenance; standard tests.

Practical demonstration -- Method of operation; recharging after use.

(iii) Escape Ladders, Extension Ladders and Hook Ladders, with Drills

Written and/or oral -- Types in use with their limitation care and maintenance; duties of each member of crew in performance of standard drills; standard tests;

Practical demonstration -- Slipping and pitching; handling of hook ladders with pompier belt and ascending and descending on ladder.

(iv) First Aid

Written and/or oral -- Method of approach and subsequent treatment in cases of shock, wounds, burns, bleeding, fractures and respiration failures

*Practical demonstration -- Methods of bandaging at different parts of body and artificial respiration.

(v) Foam and Foam Equipment

Written and/or oral -- Types of foam making appliances in use with their limitations; circumstances, when these can be used; care and maintenance; standard tests.

Practical demonstration -- Practical demonstration on how to use each equipment.

(vi) Hose and Hose Drills

Written and/or oral -- Types of delivery and suction hose in use its construction with care and maintenance; method of testing, cleaning, drying, repairing and stowing; duties of each member of crew in performance of standard three-men and four-men drills; standard tests.

Practical demonstration -- Lifting, laying, making-up, adding, replacing or removing of hose as also carrying lines on upper floors on ladder.

(vii) Hydrants and Hose Fittings

Written and/or oral -- Types of hydrants in use with sizes and construction of outlets; hose fittings, like couplings, breeching, collecting heads, branches with different types of nozzles, strainers, standpipes, hose wrappers, hose bandages, hose ramps, branch holders and their uses; standard test of hydrants.

Practical demonstration -- Operation of hydrants and different hose fittings.

(viii) Knots and lines

Written and/or oral -- Types of lines in use, method of testing and different uses to which different knots can be put to standard test.

Practical demonstration -- Practical tying up of various knots.

(ix) Pumps and Pump Drills

Written and/or oral -- Types of pumps with priming systems in use; advantages and disadvantages; duties of each member of crew in case of standard pump drill.

Practical demonstration -- Operation of pumps and standard pump drill.

(x) Practical fireman ship

Written and/or oral -- Methods of entry into and searching a building, locating a fire and precautions to be observed when working in smoke laden building.

(xi) Rescue Drills

Practical demonstration -- Picking up, lowering and carrying down insensible persons; rescue by fireman's lift and line rescue.

(xii) Small Gear

Written and/or oral -- Uses of special small gear, like door openers, persuaders, bracking-in-tools, cutting plants; rescue gear; jacks and pulleys; axes and preventers, etc.

(xiii) Squad Drill

Practical demonstration - Conducting practical squad drill with formation of squad, marching in step, turning with right and left inclination methods of March-past and presentation of parades.

(xiv) Topography

Written and/or oral -- Knowledge of the layout of the town/city with names of prominent localities, main roads, connecting such localities, names of different bazaars and important lanes; general spread of the fire hazards in the area served by the Fire Station concerned.

(xv) Watch room procedure

Written and/or oral -- Functions of watchroom; methods of keeping records of incoming and outgoing messages; mobilizing procedure; method of dealing with fire and emergency calls; standard messages.

(xvi) Water problems

Written and/or oral -- Types of water supplies, essential requirements for making their use for fighting pressures in water mains, capacities of pumps for tapping water mains.

(xvii) Water relay

Written and/or oral -- Meaning of collector and series pumping; normal relay distance; method of detecting disturbances in relay hose-lines.

(c) DRAFT RULES FOR PROMOTION

- (i) All promotions to different ranks in the Fire services up to the rank of Divisional Officer, shall be made out of the candidates who are eligible in all respects having successfully passed the appropriate examination for such promotion and not otherwise.
- (ii) For being termed as “successful” at any examination, the candidate shall have to score 50 per cent marks and above of the total marks.

- (iii) Seniority amongst the passes shall be considered along with seniority in service and those who pass in previous years shall be termed as seniors to those who pass in subsequent years for promotion. Candidates to be sponsored for training at the Regional/State Training Centres or National Fire Service College, should be drafted according to seniority, as far as possible, from amongst those eligible for respective courses.
- (iv) Only in exceptional and very rare cases shall the appointing authority have the discretion of waiving the condition of passing a promotion examination in case of an otherwise eligible candidate, if circumstances then prevailing warrant such consideration. In such a case, the appointing authority may preferably arrange selection for appointment by interviewing candidates by a Board of not less than three officers.
- (v) For promotion to the ranks of Leading Firemen, the eligible candidates must pass a departmental written and oral and practical examination of the standard as laid down in the syllabus above. This examination should be conducted by a Board of officers having as Asstt. Divisional Officers or a Senior Station Officer with not less than 5 years' service as Chairman and two Station Officers or Sub Officers with not less than years' service as members.

**handling of and transport of injured persons shall be added.*

Annexure – 7

SYLLABUS FOR SUB-OFFICERS' COURSE

- Capacity** : 40 Seats
- Duration** : 25 Weeks (including 4 weeks of Practical Attachment, with Major Fire Brigades of the country, anywhere in India. The Private and Defence candidates are required to undergo additional practical attachment for a period of 8 weeks).
- Objectives** :
1. This course is useful for the personnel who are likely to be promoted to the rank of Sub-Officer and for those who want to make Fire Service as their profession.
 2. To provide elementary knowledge needed for protection of life and property from fires and other natural disasters.
 3. To familiarize the trainee officers with the different fire fighting organizations.
 4. To train on the operation and maintenance of the appliances and equipments.
 5. To expose the trainee officers with the actual fire situations.
- Eligibility** :
- Age** : Between 18 to 23 years for private candidates with 5 years relaxation in age for SC/ST candidates. Below 40 years for sponsored candidates and relaxable by 5 years for SC/ST candidates..
- Educational Qualifications** : The Private candidate should have passed HSSC/Intermediate (10+2) Examination from any recognized board or institution and a sponsored candidate should have passed Matriculation or its equivalent examination.
- Physical Standards** :
- Height : 165 cms.
- Weight : 50 Kgs.
- Chest : Normal 81 cms. Expanded 86 cms.

SELECTION PROCEDURE FOR PRIVATE CANDIDATES

Private candidates are selected through All India Entrance Examination, Advertisement and detailed information is published in all leading Newspapers of the country, normally during the month of June and the Entrance examination is conducted in the month of October every year.

COURSE CONTENTS

Aircraft Fire & Rescue, Breathing Apparatus, Building Construction, Basic Physics & Chemistry, Discipline, Fire Extinguisher, Electricity and their Fire Hazards, First Aid & Ambulance Aid, Means of Escape, Fire Service Administration, Fixed Fire Fighting Installation, Foam & Foam making equipment, Hose & Hose Fitting, Hydrant & Hydrant Fittings, Hydraulics, Knots & Lines, Ladders, Pumps & Pump Operation, Rescue Drill and Rescue Work, Practical Firemanship, Resuscitation, Rural Fire, Salvage, Small & Special Gears, Ship Fire, Special Services, Squad Drill & P.T., Watch Room Procedure & Mobilizing, Water Relay, Water Tender, Practical Drill with Hose, Hydrant, Pump, Foam, Foam making equipments, Ladders, Knots & lines, Use of small gears, Hose fitting and salvage equipments, Rescue techniques.

(Note : This course is presently run by National Fire Service College, Govt. of India, Nagpur (Maharashtra))

Annexure – 8

SYLLABUS FOR STATION OFFICERS' & INSTRUCTORS' COURSE

- Capacity** : 30 Seats
- Duration** : 25 Weeks (including 2 weeks Industrial Visit).
- Objectives** :
1. To train the Fire Service Personnel who are in charge of the fire station or likely to hold independent charge of fire station.
 2. To look after the fire prevention & protection in the station jurisdiction.
 3. To impart training in the theory and practice of the fire prevention and modern fire protection methods.
 4. Preparedness for Disaster Situation.
- Eligibility** :
- Age** : Below 45 years Sponsored candidates only (5 years relaxation for SC/ST candidates).
- Educational and Technical Qualifications :**
- a) Should have passed Matriculation or its equivalent.
 - b) Should have passed the Sub-Officers' course of this College and served for a minimum period of three years as Leading Fireman or Sub-Officer or in the equivalent rank in an approved fire service organization.
 - c) Should possess a driving license for heavy motor vehicle. In case, a candidate does not possess this license, he should acquire the same before the Diploma of college is awarded to him.
- Physical Standards :**
- Height : Not less than 165 cms.
- Weight : Not less than 50 Kgs.
- Chest : Normal 81 cms. Expanded 86 cms.

Course Contents :

Aircraft Fire & Rescue, Air Conditioning and Refrigeration, Breathing Apparatus, Building Construction and Structural Protection, Physics & Chemistry of Combustion, Discipline, Electricity, Explosives, Fire Extinguishers, Fire Service Administration, First Aid & Ambulance Aid, Fixed Fire Fighting Installation, Foam & Foam making equipment, Fire Hazards in Special Risk Area and Fire Protection, Fire Service Communication, Fire Prevention and Inspection Procedure, Gas Fires, Hose & Hose Fittings, Hydrant and Water Relay, Hydraulics, Internal Combustion Engines, Investigation of Fires, Ladders, Pumps Plan Reading, Practical Firemanship, Rescue Drills, Resuscitation, Rural & Forest Fires, Salvage, Ship Fires, Small Gears, Special Services, Storage of Hazardous Goods, Squad Drill and P.T., Water Tender, Maintenance of Equipment & Appliances, Fire Prevention and Fire Protection, Fire Protection Survey, Lecturette.

Practical Drill with Hose, Hydrant, Pump, Foam, Foam making equipments, Ladders, Small Gears, Hose Fitting, Salvage Equipments and Rescue Techniques.

(Note : This course is presently run by National Fire Service College, Govt. of India, Nagpur (Maharashtra))

(Details of Course Contents for Station Officers' Course)**(i) Breathing apparatus**

Written -- Types in use with brief description of working principles; circumstances in which each type can be used; care and maintenance.

Oral and practical -- Harnessing and actual use in smoke or gas laden chamber and standard test.

(ii) Building construction

Written -- Types of buildings; properties of various building materials and their behaviour in heat and fire, different construction of walls, roofs, floors, stairs, hearths and chimneys with flues, doors, windows, etc; their advantages and disadvantages in relation to fire risk. Placing of lifts, stairs, fire escapes, etc. in relation to occupancies.

(iii) Chemical extinguisher

Written -- Types in use with constructional details working principles with limitations of use their advantages and disadvantages; care and maintenance.

Oral and practical --	Operational working; procedure of recharging after discharge and standard test.
(iv) Chemistry and Heat	
Written --	Principles of chemistry; heat and combustion; fundamental chemical reactions with risk involved; risks with important chemical compounds and volatile liquids.
Oral and practical --	Laboratory experiments of production of heat, combustion and evolution of gases due to chemical reactions.
(v) Discipline	
Written --	General rules of discipline; its importance in Fire Service and how it can be maintained; procedures in dealing with disciplinary matters.
(vi) Electricity	
Written --	Principles of electricity and fire risks in relation to generation, distribution, domestic and industrial electrical hazards.
Oral and practical --	Creation of sparks due to static charge, short circuits and leakages.
(vii) Escape ladder (optional if not in use)	
Written --	Types in use with brief description of constructions and working with appropriate identification of parts; care and maintenance.
Oral and practical --	Standard drills in slipping, pitching, bridging, correct methods of ascending and descending; standard tests.
(viii) Exercises (situation and tactical)	
Oral and practical --	Exercises in practical fire fighting, with fire ground conditions incorporating various fire drills using different fire appliances and ladders and message work; night exercises.

(ix) Fire Service Administration

Written -- Fire Station administration; maintenance of records of hose, occurrences, watchroom work, fire engines and other appliances; preparation of report of fires; special services and periodical returns.

(x) *First Aid

Written -- General procedure; treatment of shock, wounds, burns and scalds, haemorrhage, fractures, etc. method of artificial respiration and bandaging. Oral and practical -- Demonstration of methods of treatment; artificial respiration and bandaging.

(xi) Fixed Fire Fighting Installation

Written -- Systems of Dry risers, rising mains, internal hydrants, fire resisting doors and shutters and their uses.

(xii) Foam and foam equipment

Written -- Types and composition of foam and their properties, expansion ratio, stability, methods of creating mechanical and chemical foam with advantages and disadvantages. Construction and working principles of foam making equipment like foam branches, multiple jet and inline inductors, foam pourers and towers etc; care and maintenance.

Oral and practical -- Standard drills with foam equipment and standard tests.

(xiii) Gas Fires (optional)

Written -- Properties of different gases, the hazards relating to gases, hazards of domestic gas installations.

(xiv) Hook ladder

Written -- Constructional features; identification of parts; care and maintenance of ladder and belt.

Oral and practical -- One man and/two men standard drills to 4th floor with hose and rescue lines; standard tests.

(xv) Hose

- | | |
|-----------------------|--|
| Written -- | Construction of delivery and suction hose; operational misuse; methods of testing; cleaning, drying and repairing, care and maintenance. |
| Oral and practical -- | Repairing and darning of hose, standard tests. |

(xvi) Hose Drills

- | | |
|-----------------------|---|
| Oral and practical -- | Three and four men standard drills; carrying, running, laying and making up of hose; adding, removing, replacing and raising to upper floors. |
|-----------------------|---|

(xvii) Hose fittings

- | | |
|-----------------------|--|
| Written -- | Construction of delivery and suction couplings, branches, nozzles, spray, diffuser, stream form and revolving branches, basement sprays, collecting and dividing breechings, suction collection heads, etc; their use, care and maintenance. |
| Oral and practical -- | Demonstration with each type of hose fitting. |

(xviii) Hydrants

- | | |
|------------|--|
| Written -- | Construction of different types of hydrants, sizes of outlets and outlet fittings; methods of connecting to fire pumps, marking and hydrant pits and covers; care and maintenance. |
|------------|--|

(xix) Internal combustion engines

- | | |
|-----------------------|--|
| Written -- | Principles of Internal combustion engine; types of ignition systems; electrical system; use of fuel, care and maintenance. |
| Oral and practical -- | Demonstration of actual moving parts in dismantled i.e. engines. |

(xx) Knots and Lines

- | | |
|------------|--|
| Written -- | Types and composition of lines; working load, braking load and testing load; various knots and their uses; care and maintenance. |
|------------|--|

Oral and practical --	Typing of various knots; splicing and whipping of lines; standard tests.
(xxi) Ladders	
Written --	Types in use with brief description of construction and working with appropriate identification of parts; care and maintenance.
Oral and practical --	Standard drills in slipping and pitching; correct methods of ascending and descending; standard tests.
(xxii) Physical & Squad Drills	
Oral and practical --	Conduct of squad and physical drills with appropriate sequence and words of command; methods of presentation of parades and march past.
(xxiii) Pumps	
Written --	Types use with constructional details and working principles; types of primers and methods of priming; testing and fault finding; care and maintenance.
Oral and practical --	Demonstration of operating pumps of different types and priming systems, from hydrants and from an open source of water supply; standard tess.
(xxiv) Pump Drills	
Oral and practical --	Standard drills with hose; hose reels; foam making equipments and places including upper floors; visual signals and whistle signals.
(xxv) Plan Reading (optional)	
Written --	Importance of plan reading; methods of reading with explanation of common symbols in use.
(xxvi) Practical Firemanship	
Written --	Qualities of a fireman; his important duties at Fire Station and Fire Ground.
Oral and practical --	Methods of entry, rescue, roomsearching, working in

darkness and in thick smoke; line signals.

(xxvii) Rescue drills

Oral and practical --

Picking up, lowering and carrying insensible persons with Fireman's life and lines rescues.

(xxviii) Refrigeration (optional)

Written --

Principles of refrigeration; properties and hazards of different refrigerants and actions to be taken in case of leakage.

(xxix) Resuscitation

Written --

Description of resuscitation sets, methods of working and circumstances when used; care and maintenance.

Oral and practical --

Demonstration in use of resuscitation set.

(xxx) Rural Fires

Written --

Causes of rural fires; precautions to be taken in rural areas; methods of fighting rural fires.

(xxxi) Salvage

Written --

Meaning of salvage; how fire loss can be reduced by salvage; salvage equipments and their uses.

Oral and practical --

Demonstration in salvage sheeting, indoor and outdoor chutes, drawing and mopping.

(xxxii) Small Gear

Written --

Types and uses of breaking in tools, door-openers, persuaders, bolt croppers, rescue gear, jacks and pulley blocks, axes, preventers, rakes, saws, etc.

Oral and practical --

Demonstration in the operation of small gear.

(xxxiii) Special appliances

Written --

Brief description and working principles of oxy-acetylene cutting plant, blower and exhauster machine, portable lighting sets, etc; their uses and precautions to be taken.

Oral and practical --

Operation of special gear.

(xxxiv) Special Services

Written --

Rescue of trapped persons from sewers, lifts, collapsed buildings and drowning; rescue of animals; methods to be used and precautions to be taken.

(xxxv) Sprinklers, Drenchers and CO2 Installations

Written --

Brief description and working principles of 'wet', 'dry' and 'alternate' systems of sprinklers and drenchers, CO2 methylbromide etc; installation; methods of spacing locating and uses, care and maintenance.

(xxxvi) Turn Table Ladders (Optional, if not in use)

Written --

Description and working principles of turn table ladders their advantages, situations when these can be used and precautions to be taken when in use; care and maintenance.

Oral and practical --

Demonstration of operating the ladder with varying loads, uneven surfaces and weather conditions, standard tests.

(xxxvii) Watch Room Procedure

Written --

Functions of watch room; method of working with fire alarm and telephone systems; fire alarm and control room messages; mobilizing procedure; maintenance of records, etc.

Oral and practical --

Demonstration of receiving and transmitting messages, log keeping and mobilization of Fire Force in major incidents.

(xxxviii) Water Problems

Written --

Study of pressure; heads, rate of flow, capacity and friction loss in relation to behaviour of water under pressure; discharge pressures of pumps and different nozzles.

Oral and practical -- Demonstration of discharge of water from different nozzles at varying pressures; effect of jet and spray and length of throw.

(xxxix) Water Supply

Written -- Principles of ‘series’ and ‘collector’ pumping; methods of arranging relays.

Oral and practical -- Demonstration of ‘series’ and ‘collector’ pumping.

(xl) Lecturette (optional – For Instructors)

Written -- Methods of imparting instructions and conducting training on various subjects on fire fighting, fire prevention, etc.

(xli) Special Risks

Group I

Hazardous storages in warehouses

Written -- Warehouses and storage sheds for hazardous goods and their construction from fire risk point of view, methods of storage and precautions to be taken.

Group II

Ships and Dock Risks

Written -- Principles of nautical stability of floating objects and safety limits; causes of fires in ships and methods of fire fighting.

Group III

Aircraft fires and rescue

Written -- Construction of aircraft; locations, emergency exits, fuel tanks, batteries, etc; usual causes of fires in aircraft; methods of rescue and of fire fighting.

* “Structure and Functions of Human Body”, “Asphyxia” and “Triage”
 “Handling and Transportation of Injured persons” shall be added.

Annexure – 9

SYLLABUS FOR DIVISIONAL OFFICERS' COURSE

- Capacity** : 20 Seats
- Duration** : 22 Weeks (including 2 weeks visit to industrial establishments as the trainee officers attached to a recognized Fire Service anywhere in India where they can have the facility to visit Industries).
Course designed for Upper Level Management.
- Objectives** : To impart advances level of training in the Field of Fire Engineering and Fire Service Management for the officers of supervisory level of the Fire Services of the country, enabling them to take over charge as a Middle Management cadre or Additional Divisional or Divisional Fire Officer and also capable to run the Fire Service with efficiency and in such a manner so as to save the lives & Nation's Property from fire and various disasters.
- Eligibility** : **Age** : Below 50 years Sponsored candidates only (No relaxation of age limit for SC and ST).

Educational and Technical Qualifications :

- a) Should have passed Matriculation or its equivalent examination.
- b) Should have obtained Diploma of National Fire Service College or its equivalent and must have served in a well established Fire Service for at least 3 years in the capacity of Station Officer or equivalent rank.

OR

Candidates having 10 years of experience in a well established and approved Fire Service in case the candidate passed Matriculation as basic educational qualifications. Out of 10 years experience at least 5 years should be as Station Officer or equivalent rank and the remaining period as Leading Fireman

/ Sub Officer or equivalent rank.

OR

Candidates having 8 years of experience in a well established and approved Fire Service in case the candidate having graduation as basic educational qualifications. Out of 8 years experience at least 4 years should be as Station Officer or equivalent rank and the remaining period as Leading Fireman / Sub Officer or equivalent rank.

c) He must possess driving license for Heavy Motor Vehicle.

Physical Standards :

Physically fit for the strenuous training.

Height : Not less than 165 cms.

Weight : Not less than 50 Kgs.

Chest: Normal 81 cms. Expanded 86 cms.

COURSE CONTENTS:

Air Conditioning, Heating and Ventilation System, Air Craft Rescue and Airport Protection, Appliance Design, Automatic Fire Detection System, Building Construction and Structural Fire Protection, Court of Law, Chemistry of Fire, Communications and Mobilisation and Computer Applications, Explosive and Radioactive Materials, Electricity and its Fire Risks, Fire Drills, Fire Safety Legislation and Inspection, Fixed Fire Protection Installation, Fire Protection Survey of various Risks and Inspection of Public Entertainment and Assembly Places, Dust and Gas Explosion and Gas Detection System, Hydraulics, Investigation of Fire and Arson, Management, Command, and Control of Fire Service, Mechanics, Plan Reading, Storage and Transportation of Hazardous Materials, Method of Instruction, Evaluation Technique of Fire Fighting, Appliances and equipment and Special Fires.

(Note : This course is presently run by National Fire Service College, Govt. of India, Nagpur (Maharashtra))

Annexure – 10

SYLLABUS FOR MEDICAL FIRST RESPONDERS COURSE

OBJECTIVES : To train the first Responders of various organizations in response action to be undertaken during and post- Disaster phases in first-aid and medical case.

DURATION : 20 Working days (5 days per week @ 6 hours per day)

Sl. No.	Subject	No. of Hours			Total Hours
		L	D	P	
1.	Medical First Responder Definition of MFR, Organisational Composition, Duties & Responsibilities of MFR, Definition of Medical Health, Service Scheme in India, Personal protection equipment, Used during Patient, Assessment & Pre-hospital Treatment.	1	1	1	3
2.	Incident Information to be obtained when receiving a Call for Assistance, Factors to consider for responding a call, steps to assess the scene, Information to be included in the initial report. Steps to secure the Scene, Tools used to gain access to the victim under Different conditions.	1	1	2	4
3.	Human Body & Basic Systems Define anatomical position, Identify and describe the location of wound, Identify five regions of body, Body cavities & the organs they contain, Abdominal Quadrants, Identify organs located in each quadrant.	2	1	-	3
4.	Patient Assessment - Procedures a medical first responder should complete when arriving at the scene, six phases of patient Assessment, Six steps of initial assessment, Complete Physical examination of Patient.	1	1	2	4

Sl. No.	Subject	No. of Hours			Total Hours
		L	D	P	
5.	<p>Wounds Bleeding & Shock</p> <p>Methods of controlling external bleeding, signs and symptoms of shock, Pre-hospital treatment of Shock, Pre-hospital treatment of Internal bleeding, Steps to treat a wound (Open and Closed Wounds), Pre-hospital treatment for eye, ear, nose and mouth Injuries, Abdominal & Genital injuries, Use of the Bandage for controlling bleeding.</p> <p>Pre-hospital treatment for:</p> <p>(a) Impaled object in ear or cheek (b) Bleeding neck injuries (c) Avulsions (d) Amputations</p>	3	1	6	10
6.	<p>Fracture, Dislocation and Sprain</p> <p>Definition of open and closed fracture signs and symptoms of Fracture, Definition of Dislocation, Sprain and Strain, Reasons for Immobilization of fracture, sprain and dislocation, Pre-hospital Treatment for fracture and sprain of extremities hips and pelvis, Signs and symptoms of skull fracture, spinal injury and Chest. Injury and their pre-hospital treatment.</p>	1	1	2	4
7.	<p>Burns & Scalds</p> <p>Matching of signs & symptoms of three types of burns according to their depth, Rule of Nines to determine, Total Body Surface Area, Pre-hospital treatment of chemical & Electrical burns.</p>	1	1	2	4
8.	<p>Poisoning</p> <p>Signs and symptoms of ingested poisons, injected poisons, Inhaled poisons, Absorbed poisons and their pre-hospital treatment, Signs and symptoms of alcohol poisoning and pre-hospital treatment.</p>	2	-	-	2

Sl. No.	Subject	No. of Hours			Total Hours
		L	D	P	
9.	Artificial Respiration, CPR and FBAO Artificial respirations methods, Recognising foreign body airway obstruction, managing FBAO, Abdominal Thrusts, Chest Thrusts, CPR Techniques.	4	4	10	18
10.	Emergency methods of moving victims Different emergency methods of moving patient, techniques for immobilizing a patient, using backboards, situations that might require to make emergency move of victims.	2	2	6	10
11.	Triage Categories of triage with their associated colours, Bench Mark of START system of triage.	1	1	3	5
12.	<i>Transportation of Casualties and Stretcher Drill</i>	½	1	2½	4
13.	<i>Use and Practice of Triangular and Roller Bandages</i>	½	1½	3	4
14.	<i>Course Introduction</i>	2	-	-	2
15.	<i>Familiarisation of tools, equipments, accessories</i>	1	3	8	12
16.	<i>Unt Test</i>	3	-	-	3
17.	<i>Pre-final exercise & debriefing</i>	-	-	3	3
18.	<i>Final exercise</i>	-	-	3	3
19.	<i>Opening & closing of course</i>	2	-	-	2
20.	<i>Daily course evaluation</i>	10	-	-	10
21.	<i>Films</i>	-	5	-	5
	Total	39	25½	55½	120

Annexure – 11

SYLLABUS FOR BASIC DISASTER RESPONSE COURSE FOR FIRST RESPONDERS

OBJECTIVES : To train the participants in Basic Disaster Response Mechanism to be able to perform First response activities in an emergency situation.

DURATION : 40 Working days (5 days per week @ 6 hours per day)

Sl. No.	Subject	No. of Hours			Total Hours
		L	D	P	
1.	Definition, Types of Disasters, General Effect of Disasters, Associated characteristics, Associated problems of Disasters, Counter measures & Grouping of Response measures.	4	-	-	4
2.	Dovetailing of Disaster response functions with the existing agencies at Central, State and Local level. Latest trend in Disaster Management.	4	-	-	4
3.	Role of various agencies such as Fire Services, Police, Para-military, Defence Services, Home Guards, Civil Defence volunteers and NGOs' etc. as First Responders in Disaster Response operations.	4	-	-	4
4.	Organisation structure, role and function of disaster management response, terms for different scenaria such as Search & Rescue, Flood Rescue, First Aid and medical care, weapons of mass destructions, Chemical emergency, fire fighting, communication, logistic and documentation etc.	6	-	-	6
5.	*Incident command system (ICS), definition, organization of ICS, Incident Commander, Incident, Command Post, Scope of operation.	4	-	-	4

Sl. No.	Subject	No. of Hours			Total Hours
		L	D	P	
6.	Emergency Control Room, Control, Co-ordination, response and relief operation. Working management of Control Room and Communication system in the disaster affected area.	2	4	4	10
7.	First Responders Kit/Equipments : Personnel Protective Equipments, Team Kit etc.	1	1	3	5
8.	Communication for First Responders : Handling and operation of communication equipments such as line communication, Radio communication, Satellite communication, Ham Radio etc.	2	1	4	7
9.	**First Aid and Medical Care : Physiology, Circulatory system, Respiratory system, Fractures, Wound, Shock, Bandages & Transportation of Casualties.	6	6	18	30
10.	Rescue Techniques : Knots and lashings, Emergency methods of rescue, rescue equipments, ladders, pulley, blocks tackles, rescue from height.	6	6	18	30
11.	Chemical Emergency Handling Techniques: Classification and Identification of chemicals, Introduction to chemical threats, Hazards associated with chemicals and their handlings.	4	6	10	20
12.	Fire Fighting Techniques : Theory of combustion, different types of fire, extinguishers and application areas, B.A. Set, Pump and Pump operation, familiarization with fire fighting equipments and appliances, foam & foam making equipments, familiarization with fire detection and suppression system.	8	6	16	30
13.	Handling of weapons of (WMD) mass destruction emergencies : Introduction to WMD, safety measures from WMD incidents, types and characteristics of WMD agents.	6	6	18	30

Sl. No.	Subject	No. of Hours			Total Hours
		L	D	P	
14.	Flood Rescue : Flood and their causes, name and parts of Boat, Rules of river and words of commands, Flood rescue equipments.	3	3	8	14
15.	Law & Legislation : Law & Legislation in India and abroad	2	-	-	2
16.	Course Introduction	2	-	-	2
17.	Familiarisation of tools, equipments, accessories	1	3	8	12
18.	Unit Test	3	-	-	3
19.	Pre final exercise & debriefing	-	-	3	3
20.	Final Exercise	-	-	3	3
21.	Opening & closing of course	2	-	-	2
22.	Daily course evaluation	10	-	-	10
23.	Films	-	5	-	5
	Total	80	47	113	240

* Incident Command System shall be read as Incident Response System (IRS)

** "Burns and Scalds" and Artificial Respiration shall be added.

Annexure – 12

SYLLABUS FOR SEARCH & RESCUE FOR FIRST RESPONDERS

OBJECTIVES : To train the participants in search and Rescue Technical to be able to perform First response activities in an emergency situation.

DURATION : 20 Working days (5 days per week @ 6 hours per day)

Sl. No.	Subject	No. of Hours			Total Hours
		L	D	P	
1.	Disaster & Associated Problems	1	-	-	1
2.	Composition & function of Search and Rescue Team	1	-	-	1
3.	Operational Safety	-	2	-	2
4.	Utility of Knots & Lashings	1	1	3	5
5.	Construction materials, structures and damages types	-	2	-	2
6.	Use of ladder in rescue work	1	1	2	4
7.	Search & location techniques	1	1	2	4
8.	Structural Triage & marking system	1	1	7	9
9.	Handling & transportation of casualties	1	1	7	9
10.	Derrick, sheers & Gyn.	1	1	2	4
11.	Shoring types, construction & Safety precautions	1	1	3	5
12.	Preparation of various types of rope bridges, mono lines and commando bridge.	1	1	3	5
13.	Hold fasts and Anchorages, types & use	1	1	3	5
14.	Use of ladder in rescue work & rescue from high rise buildings, learning ladder and hinge method, lowering stretcher on the ropes, lowering stretcher on one or two ladders, two/four point method of rescue from voids, flying fex method of rescue, Chute method of rescue.	1	2	5	8

Sl. No.	Subject	No. of Hours			Total Hours
		L	D	P	
15.	Use of B.A. set	1	1	2	4
16.	Use of oxy-acetylene set	½	½	1	2
17.	Use of pulley blocks & tackles	½	½	1	2
18.	Rescue strategies and techniques	1	1	4	6
19.	Lifting and stabilizing the load	1	1	2	4
20.	Method of rescue of trapped person from lift, sewer, well and damaged building	1	1	2	4
21.	Course introduction	2	--	--	2
22.	Familiarisation of tools, equipments, accessories	1	3	8	12
23.	Unit Test	3	--	--	3
24.	Pre final exercise & debriefing	--	--	3	3
25.	Final exercise	--	--	3	3
26.	Opening & closing o course	2	--	--	2
27.	Daily course evaluation	10	--	--	10
28.	Films	--	5	--	5
	Total:	39	24	57	120

Annexure – 13

SYLLABUS OF ADVANCED SEARCH & RESCUE COURSE

COURSE OBJECTIVE

To train trainers and volunteers in advance techniques of Search and Rescue (SAR) by employing modern state-of-the-art equipment for Rescue during disasters.

ENABLING OBJECTIVE

On completion of training the participants will be able to perform the following:

- Understand the concept of Search & Rescue.
- Use of modern SAR equipment.
- Organise training in SAR.

COURSE CONTENT

- Principles of Search and Rescue.
- Search & Locating techniques.
- Rescue strategies and techniques.
- Rope rescue.
- Tools Equipment and accessories.
- Structural triage and marking.
- Operational safety.
- Principles of shoring.
- Debris tunneling.
- Confined space rescue.
- Improvised rescue devices.

LEVEL OF PARTICIPANTS

This course is designed for Civil Defence trainers, Home Guard Platoon Commanders, Paramilitary forces (Havaldar and above), JCO's from Armed Forces and Security personnel from Industries.

AGE LIMIT : Below 45 yrs.

DURATION : 3 weeks

(Note : This course is presently run by National Civil Defence College, Govt. of India, Nagpur (Maharashtra))

Annexure – 14

SYLLABUS FOR FIRE FIGHTING COURSE FOR FIRST RESPONDERS

OBJECTIVES : To train the participants in Fire Fighting operations to First response activities in an emergency situation.

DURATION : 20 Working days (5 days per week @ 6 hours per day)

Sl. No.	Subject	No. of Hours			Total Hours
1.	Theory of Combustion: Factors governing rate of combustion spontaneous ignition, heat, energy its characteristics. Co-efficient of linear. Expansion, Transmission of heat, latent Heat, Inflammable liquids, Definitions of Specific gravity, vapour density, inflammable Limits, flash point and ignition	2	-	1	2
2.	Building Construction: Definition of terms, building materials, their behaviour in a fire, factors effecting stabilities of wall, staircase, roofs in case of collapse, causes and signs of building Collapse, Study of various members viz. Doors, windows, floors, roofs, staircases, Beams etc. exposure hazards & methods of its reduction.	3	-	-	3
3	Fire Extinguishers and their application	1	1	2	4
4	Electricity – Definition of common terms, properties, uses and generation of electricity, transformers, motors, static electricity, short circuit use and general hazards and its prevention.	1	1	-	2
5	Hose: Types of delivery and suction hose, construction, characteristics of fire fighting hose, causes of decay and prevention storage, operational misuse, washing, cleaning, testing	1	1	4	6

Sl. No.	Subject	No. of Hours			Total Hours
	and repairing of delivery and suction hose and hose binding. Hose Drill: How to handle laying & making up a hose, adding replacing, removing and raising to upper floor.				
6	Hydrant: Essential requirement of underground fire hydrants, detailed study of sluice valve, screw down and pillar hydrant, gears, operation and inspection and testing Hydrant Drill: Three & four men drill.	1	1	2	4
7	Hose Fitting: Detailed description and study of Hose fitting etc. couplings, branches, nozzles, and special types of branches and nozzles, stand pipe, collecting head and breaching and adaptors and miscellaneous hose fittings.	1	1	-	2
8.	Knots & Lines: Types of lines, their uses, care and maintenance. Demonstration and practice of important knots, lashings, splicing & whipping commonly used in fire fighting & rescue operation.	1	1	2	4
9	Foam & Foam equipments: types, description of equipment & demonstration of various foam branches & inductors.	2	2	2	6
10	Ladder (Extension) Description & Construction features of extension ladder, pitching, climbing, leg lock & arm hold hints, care and maintenance, standard test, four men drill carrying down casualties. Rescue drill, picking up, lowering, carrying of unconscious persons, rescue from height by Firemen lift.	1	1	3	5

Sl. No.	Subject	No. of Hours			Total Hours
11	Pumps: types of pumps, advantages & disadvantages, maintenance, standard test & practical pump operation. Six men trailer & Motor Pump Drill. Water Relay: Types, advantages & disadvantages. Important points for relay operation, Demonstration and practice of laying out of Hoses.	2	2	4	8
12	Breathing Apparatus: Types, merits & demerits of the sets, operational use, care, maintenance and their testing	1	2	8	11
13	Fixed Fire Fighting Installation: rules for installation, internal & external hydrants, rising mains, sprinklers and drenchers, detectors etc.	2	2	-	4
14	Familiarization on Aviation fire, Mines fire, Forest fire, Oil fire, Marine fire, High rise Building, Rail fire, Gas fire etc.	18	-	-	18
15	Course Introduction	2	-	-	2
16	Familiarization of tools, equipments and Accessories	1	3	8	12
17	Unit Test	3	-	-	3
18	Pre final exercise & debriefing	-	-	3	3
19	Final exercise	-	-	3	3
20	Opening & closing of course	2	-	-	2
21	Daily course evaluation	10	-	-	10
22	Films	-	5	-	5
	Total	55	23	42	120

Annexure – 15

SYLLABUS FOR HAZARDOUS MATERIAL EMERGENCY FOR FIRST RESPONDERS

Objective : To train the participants on hazardous material emergency handling techniques to be able to perform first response activity in an emergency situation

Duration : 20 Working days (5 days per week @ 6 hours per day)

SYLLABUS

Sl. No.	Subject	No. of Hours			Total Hours
		L	D	P	
1.	Chemical & it's Physical properties- State of Matter, elements and compounds: Definitions-melting, boiling, freezing points: Vapour pressure, sublimation, density, vapour density, specific gravity, corrosively chemical reaction's(exothermic & Endothermic), flash point, Autoignition temperature, flammable range, toxic products of combustion. Definition of Hazardous materials: solubility oxidizers, organic peroxides, compressed gas, flammable solids and cryogenes.	2	2		4
2.	Classification of Hazardous Chemicals-Explosive and Flammables, Agricultural, chemicals, Oxidizers, cryogenes etc.	2	-	-	2
3.	Characteristics of Hazardous materials: Chemical, Biological, Radiation, Fire Explosive, toxic, corrosive hazards, Hazards due to chemical reactivity.	3	3	-	6
4.	Principles of Toxicology: Route of exposure-Inhalation, absorption, ingestion and injection, Dose-response relationship. (dose terms, dose response curve): Factors influencing toxicity-duration and frequency, route of exposure, inter species variation, intra species variation-age and maturity, gender and	3	-	-	3

Sl. No.	Subject	No. of Hours			Total Hours
		L	D	P	
	hormonal status, genetic make up and state of health. Environmental factors and chemical combination affecting response.				
5.	Exposure Guidelines: Type TLV, TWA, STEL, ceiling, peaks skin notation, IDLH, mixtures: Dispersion of chemicals in the environment -basic dispersion patterns (Air borne contaminants, surface water, soil and underlying rocks, ground water) Effect of chemical in the environment-dilution and degradation,: environmental isolation, chemical transport Meteorological influences on chemical dispersion.	3	-	-	3
6.	Recognition and Identification of Hazardous materials of Hazardous Chemical identification aids and recognition of containers	2	2	-	4
7.	Health effects of Hazardous chemicals: respiratory tract, skin, eyes, nervous system liver, kidneys, blood, reproductive system types of toxic effects (Teratogenic, mutagenic and carcinogenic)	3	-	-	3
8.	Medical Intervention of hazardous chemicals, Heat exposure, rash cramps, exhaustion & heat strokes Signs, symptoms & emergency treatment.	2	-	-	2
9.	Introduction of Personal Protective Equipment – Respiratory protective devices and classes: Air purifying respirators, Air line respirators and Self-Contained Breathing Apparatus (SCBA) Levels of Protective clothing.	2	6	8	16
10.	Personal Protective Equipment: Entry & Exit Medical procedures	1	1	3	5
11.	Response Planning-Elements of Pre-incident Planning Support from other agencies and deployment parameters.	1	2	-	3

Sl. No.	Subject	No. of Hours			Total Hours
		L	D	P	
12.	Confinement and containment of Hazardous materials: diversion, diking, retaining & releases In to water, Primary tools to control leaks from drums, pipes, tank trucks & leak, stopping devices	1	2	6	9
13.	*Incident of Command in control: Unified command Structure, Duties of Incident Command team, Role & responsibilities.	2	-	-	2
14.	Execution Planning: Conduct, coordination & Planning resources for evacuation.	1	-	-	1
15.	Decontamination: Types – Gross, Technical & emergency Decontamination, Decontamination of Patients	1	2	5	8
16.	Transportation of Hazardous materials- By Rail, Road & Air: Materials Safety Data Sheet (MSDS) & Shipping Papers	1	1	-	2
17.	Chemical Detection Instruments: Multi-gas meters, PID, FID, Calorimetric sample tubes & chemical agents Monitors	1	1	2	4
18.	Environmental Protection Legislation against Hazardous chemicals	1	-	-	1
19.	Course Introduction	2	-	-	2
20.	Familiarization of tools, equipments, accessories	1	3	8	12
21.	Unit Test	3	-	-	3
22.	Pre-final exercise & Debriefing	-	-	3	3
23.	Final exercise	-	-	3	3
24.	Opening & closing of course	2	-	-	2
25.	Daily course evaluation	10	-	-	10
26.	Films	-	5	-	5
	TOTAL	52	30	38	120

* Incident Command Team shall be read as Incident Response Team (IRT)

Annexure – 16

SYLLABUS FOR WEAPONS OF MASS DESTRUCTION FOR FIRST RESPONDERS

Objective : To train the participants In weapons of mass destruction techniques to be able to perform first response activities in an emergency situation

Duration : 20 Working days (5 days per week @ 6 hours per day)

SYLLABUS

Sl. No.	Subject	No. of Hours			Total Hours
		L	D	P	
1	Introduction to Weapons of Mass Destruction (WMD), WMD Examples	1	-	-	1
2	Introduction to Personal Protection Equipment (PPE)	1/2	1/2	2	3
3	PPE: Entry and Exit Medical	½	1/2	2	3
4	PPE: level and Self-contained Breathing Apparatus (SCBA)	1/2	1-1/2	3	5
5	Identifying a WMD Incident and the Response Objective	2	-	-	2
6	Event and response risk Analysis, Planning the response, risk Analysis	3	-	-	3
7	*Incident Command System (ICS)	2	-	-	2
8	Identifying and Mapping the Response	1	1	-	2
9	Evacuation	1	1	1	3
10	Demobilization	1/2	1-1/2	1	3
11	PPE: Level A and gross Decontamination	1/2	1-1/2	2	4
12	Technical decontamination	1/2	1-1/2	2	4
13	Introduction to Bombs-Initiators of WMD events.	½	1/2	-	1
14	Recognition and Retreat, Personal and Group Security	1	-	-	1
15	Crime Scene Preservation	1	1	1	3
16	Blast Injuries	1	-	-	1
17	Introduction to Chemical Threats	1	-	-	1
18	Recantation of Hazardous Chemical	1	-	-	1

Sl. No.	Subject	No. of Hours			Total Hours
		L	D	P	
19	Hazardous Chemical Identification Aids	-	1	-	1
20	Chemical Detectors	1	1	1	3
21	Containers Recognition and Mitigation	-	1	-	1
22	Health Effects of Hazardous Chemicals	1	-	-	1
23	Medical Intervention for Hazardous Chemical	1	-	-	1
24	Patient Decontamination	1	1	1	3
25	Introduction to Biological Threats, Recognition of Biological Hazards, Health effects; of Biological Threats.	1	-	1	2
26	Biological Detection and Sampling	1	1	-	2
27	Biological Incident Mitigation Protocols Table top	1	1	1	3
28	Biological Incident PPE and Decontamination	½	1/2	2	3
29	Radiation and Radioactive Material	1	-	-	1
30	Health effects of Ionizing Radiation	1	-	-	1
31	Radiation Protection and Safety Practices, Decontamination	1	1	1	3
32	Terrorists' Use of Radiological Materials	1	-	-	1
33	Radiation Detection	1	1	2	4
34	Radiation Protection and Safety Practices Tabletop, Radiological Dispersal Devices	1	1	1	3
35	START Triage	11/2	1/2	1	2
36	Critical Incident Stress Management	1	-	-	1
37	Public Information and the Media	1	-	-	1
38	Course Introduction	2	-	-	2
39	Familiarization of tools, equipments, accessories	1	3	8	12
40	Unit Test	3	-	-	3
41	Pre-final exercise & Debriefing	-	-	3	3
42	Final exercise	-	-	3	3
43	Opening & closing of course	2	-	-	2
44	Daily course evaluation	10	-	-	10
45	Films	-	5	-	5
	TOTAL	52-1/2	28-1/2	39	120

* Incident Command System shall be read as Incident Response System (IRS)

Annexure – 17

SYLLABUS FOR COURSE ON FLOOD RESCUE FOR FIRST RESPONDERS

OBJECTIVES : To train First Responders of various organisations in response action to be undertaken during and post-disaster phases in flood rescue operations.

DURATION : 20 working days (5 days per week @ 6 hours per day)

Sl. No.	Subject	No. of Hours			Total Hours
		L	D	P	
1	Flood, their causes prevention, etc.	2	-	-	2
2.	Rules of river & name & parts of boat and word of command	1	1	2	4
3	Anchors & Principles of anchorage	1	1	1	3
4	Lifebuoy, Life-line, Life-Jackets & breast line Throw	1	1	4	6
5	Buoyancy Calculation	2	-	-	2
6	Ropes : Knots & Lashings	1	1	4	6
7	Embankment, Causes, Failure of Embankment emergency repairs, etc.	1	1	6	8
8	OBM Types, Care & Maintenance, Speed boats	1	1	-	2
9	Construction of Improvised Swimming & Floating Aids	1	2	11	14
10	Flood Rescue Practical : Rowing & exercise Boating including	1	2	30	33
11	Course Introduction	2	-	-	2
12	Familiarisation of tools, equipments, accessories	1	3	8	12
13	Unit Test	3	-	-	3
14	Pre-final exercise & debriefing	-	-	3	3
15	Final Exercise	-	-	3	3
16	Opening & Closing of course	2	-	-	2
17	Daily Course Evaluation	10	-	-	10
18	Films	-	5	-	5
	TOTAL	30	18	72	120

Annexure – 18

SYLLABUS OF COLLAPSED STRUCTURE SEARCH AND LOCATION COURSE

COURSE OBJECTIVE

To train trainers and disaster response personnel in operation of acoustic and visual search and locating devices.

ENABLING OBJECTIVE

On completion of the training the participants will be able to perform the following;

- Describe steps for search and locating
- Use acoustic and visual search devices
- Conduct training on victim search and location

COURSE CONTENT

- The concept of basic victim search and location.
- Composition of search team
- Modes, types and patterns of conducting a search.
- Steps for identifying probable victim locations.
- Acoustic devices for search and location
- Visual devices for search and location
- INSARAG marking system
- Care and maintenance of search devices.

LEVEL OF PARTICIPANTS

Personnel from Civil Defence, Fire Services, Home Guards, Police, Central Paramilitary forces and NGO's designated to perform search and rescue missions.

AGE LIMIT : No age limit

DURATION : 1week

(Note : This course is presently run by National Civil Defence College, Govt. of India, Nagpur (Maharashtra))

Annexure – 19

SYLLABUS OF CHEMICAL DISASTER FIRST RESPONDERS COURSE

COURSE OBJECTIVE

To train local emergency responders in preparing and responding to a hazardous materials incident.

ENABLING OBJECTIVE

On completion of training the participants will be able to perform the following:

- Identify hazardous materials.
- Select and employ proper PPE
- Conduct Responder Operations against hazardous chemical event.

COURSE CONTENT

- Threat from hazardous chemicals.
- Principles of toxicology.
- Identification of hazardous chemicals.
- Health effects of hazardous chemicals.
- Response planning.
- Safety in handling & transportation of chemicals.
- Confinement & containment of hazardous chemicals.
- Medical intervention.
- Use of PPE.
- Chemical detection instruments.
- Decontamination Procedures.
- Incident command and control.
- Evacuation Planning.

LEVEL OF PARTICIPANTS

This programme is suitable for Civil Defence & Home Guard Officers, Industrial Security personnel, Fire Officers, Disaster Managers and Volunteer Officers from NGO's. Knowledge of Basic Science is essential.

AGE LIMIT : Below 40 yrs.

DURATION : 2 weeks

(Note : This course is presently run by National Civil Defence College, Govt. of India, Nagpur (Maharashtra)

Annexure – 20

SYLLABUS OF BIOLOGICAL INCIDENT FIRST RESPONDER'S COURSE

COURSE OBJECTIVE

To train local emergency responders in preparing and responding to a Biological hazard incident.

ENABLING OBJECTIVE

On completion of training the participants will be able to perform the following:

- Understand nature of biological hazards.
- Select and employ proper PPE
- Conduct Responder Operations against biological hazard event

COURSE CONTENT

- Introduction to Biological threats.
- Terrorist use of Biological agents.
- Recognition of Biological hazards.
- Health effects of Bio-hazards.
- Biological agent detection & sampling
- Biological incident PPE.
- Decontamination procedures.
- Role of local health authorities.
- Critical incident stress management.
- Public information and media.

LEVEL OF PARTICIPANTS

This programme is suitable for Civil Defence & Home Guard Officers, Industrial Security personnel, Fire Officers, Disaster Managers and Volunteer Officers from NGO's. Knowledge of Basic Science is essential.

AGE LIMIT : No age limit.

DURATION : 1 week

(Note : This course is presently run by National Civil Defence College, Govt. of India, Nagpur (Maharashtra)

Annexure – 21

SYLLABUS OF FLOOD/ CYCLONE DISASTER RESPONSE COURSE

COURSE OBJECTIVE

To train officers and personnel of organizations to act as Trainers and leaders of Disaster Response teams during emergencies.

ENABLING OBJECTIVE

On completion of the training programme, the participants will be able to perform the following:

- Organise flood/ cyclone disaster training.
- Act as Leader of Disaster Response Teams.
- Operate flood rescue equipment.
- Organise immediate relief measures.

COURSE CONTENT

- Definition & types of Disasters.
- Causes of Floods in India.
- Causes of Cyclones/hurricanes.
- Problem of Landslides.
- Control of Relief operations.
- Rescue Operations in flood/cyclone.
- Use of Field machines for Rescue.
- Operation of Boats and OBM's.
- Methods of Shoring
- Improvised Floating aids.
- Preparation of Rope bridges.
- Disposal of Dead bodies and Carcasses.
- Management of post Disaster services.
- Emergency Operation Centers. (EOC)

LEVEL OF PARTICIPANTS

The course is designed for Civil Defence/ Home Guards Instructors, Paramilitary forces personnel, Fire service personnel, Trainers from State Emergency Relief Services and NGO's.

AGE LIMIT : Below 45 Yrs.

DURATION : 5 weeks

(Note : This course is presently run by National Civil Defence College, Govt. of India, Nagpur (Maharashtra)

Annexure – 22

SYLLABUS OF EARTHQUAKE DISASTER RESPONSE COURSE (EDR)

COURSE OBJECTIVE

To train Responders in Earthquake Disaster Response Management so as to enable them to serve as Leaders of various teams organized post earthquake.

ENABLING OBJECTIVE

On completion of the training programme, the participants will be able to perform the following:

- Understand the science of earthquakes.
- Undertake Search and Rescue Operations.
- Organise Relief and Recovery measures.

COURSE CONTENT

- Science of Earthquakes.
- Problem of SAR in Earthquakes.
- Principles of Search & Rescue (SAR)
- Study of Building collapse.
- Use of Ropes for rescue.
- Utility of Emergency Shoring.
- Precautions on entering damaged buildings
- Use of Breathing Apparatus
- Debris tunneling
- Use of small tools and equipment
- Lifting and stabilizing loads.
- Casualty Triage
- Organising of Relief & Recovery measures.

LEVEL OF PARTICIPANTS

The course is designed for Civil Defence Instructors, Home Guard Platoon Commanders, Havaldar and above from military/ paramilitary forces, Revenue Staff engaged in Disaster Relief Management at State/District level and Members of NGO's.

AGE LIMIT : Below 45 Yrs.

DURATION : 3 weeks

(Note : This course is presently run by National Civil Defence College, Govt. of India, Nagpur (Maharashtra)

Annexure – 23

SYLLABUS OF EMERGENCY RESPONSE TO RAIL TRANSPORT ACCIDENT

COURSE OBJECTIVE

To train officers, Trainers and volunteers in techniques of extrication, rescue and incident management during rail transport accident.

ENABLING OBJECTIVE

On completion of the training programme, the participants will be able to perform the following:

- Extrication and Rescuetechniques in rail accidents.
- Use of Rescue equipments.
- Organize training onManagement of railaccident.

COURSE CONTENT

- Assessment of Rail Assets.
- Principles of Rescue in Rail Transport accidents.
- Techniques of Gaining Access.
- Extrication methodologies.
- Rescue strategies and technques.
- Rescue Tools, Equipment & Accessories.
- START Triage.
- Incident Management and Command System.
- Volunteer first aid and victim stabilization.
- Scene security and salvage.
- Rope rescue techniques.

LEVEL OF PARTICIPANTS

The course is designed for Railway Personnel, CD trainers and volunteers, Para-military forces and NGO's.

AGE LIMIT : No age limit

DURATION : 2 weeks

(Note : This course is presently run by National Civil Defence College, Govt. of India, Nagpur (Maharashtra)

Annexure – 24

SYLLABUS OF TRAINING OF TRAINERS IN RADIOLOGICAL & NUCLEAR EMERGENCIES COURSE

COURSE OBJECTIVE

To train Civil Defence & Home Guards volunteers in order to make them capable of acting as responders in the event of Radiological Emergencies.

ENABLING OBJECTIVE

On completion of training the participants will be able to perform the following:

- Understand Radiological Emergencies & their consequences.
- Perform the responder actions and decontamination.
- Evaluate the requirements of the Shelters.
- Operate radiation detection equipments and donning & doffing of PPE.

COURSE CONTENT

- Radiation and Radioactive material.
- Health Effects of Ionization and Radiation.
- Radiological weapons and their effects.
- Protection against Radiation and Safety practices.
- Organisation of CD services in Radiological Emergencies.
- Assessment of Shelter protection.
- Improvised individual/ family shelter.
- Management of Shelters by Volunteer population.
- Radiation Detection Procedures & instruments.
- Personal Protective Equipment (PPE)
- Civil Defence Operations in Radiological emergency.
- Decontamination : Gross & Technical

LEVEL OF PARTICIPANTS

The programme will benefit Civil Defence & Home Guard Trainers of different States engaged in training against Nuclear disasters. They should have preferably passed 12th standard with science subjects and have working knowledge of English.

AGE LIMIT : Below 40 yrs.

DURATION : 1 week

(Note : This course is presently run by National Civil Defence College, Govt. of India, Nagpur (Maharashtra)

Annexure – 25

SYLLABUS FOR BREATHING APPARATUS COURSE

- Capacity** : 12 Seats
- Duration** : 12 Working days.
- Objective** : To impart training in Breathing Apparatus for the Fire Service Personnel who are very often require to carry out rescue work.
To exercise on Fire Fighting Operations in an atmosphere which does not support life.
The Breathing Apparatus being highly sophisticated life saving equipments, requires specialized training for its users for saving lives and property during various disaster.
- Eligibility** : **Age** : Should be between 20 and 40 years.
Educational and Technical Qualifications :
i) Should have passed Matriculation and its equivalent examination preferably with Science subjects.
ii) Should have passed at least Sub-Officers' Course from N.F.S.C.
- Physical Standards :**
Physically fit for the strenuous training.
Height : 165 cms.
Weight : 50 Kgs.
Chest : Normal 81 cms. Expanded 86 cms.

COURSE CONTENTS:

Physiology of Breathing and Circulation of Blood, General Requirement of Breathing Apparatus and their functions, Practical use of Breathing Apparatus, Maintenance, Recharging, Testing and Fault Finding in Breathing Apparatus.

Signaling, Supervising Procedure during operational use of Breathing Apparatus. Use of Guy Lines and Tally Boards, Study of irrespirable Atmosphere, Effects of Hot and Humid Atmosphere, Assembly of sets and wearing procedures.

(Note : This course is presently run by National Fire Service College, Govt. of India, Nagpur (Maharashtra)

Annexure – 26

SYLLABUS FOR FIRE PREVENTION COURSE

- Capacity** : 20 Seats
- Duration** : 6 Weeks (including industrial visit of one week, the trainees are attached to a major Fire Service anywhere in India).
- Objective** : This course is intended to impart training for the personnel in Managerial/Executive cadre in Industrial establishments who are directly concerned with the technical and operational aspects of Fire Prevention, Protection and Fire Fighting.
- Eligibility** : **Age :**
- a) Not less than 30 years.
 - b) Should be sponsored by reputed Industries / Organisation.
 - c) Should be holding the rank of Factory Inspectors / Engineer / Plant Designer / Architect / Security Officer / Insurance Surveyor / Safety Manager in well established industry.
 - d) Should be physically fit to participate in drills and practicals.

COURSE CONTENTS:

Assessment of Fire Hazard, Automatic Fire Detection and Alarm System, Causes of Fires and Arson Detection, Chemistry of Combustion, Dust Explosion, Fire Drills in Industrial Establishments, Fire Insurance, Fire Prevention Design Exercises, Fire Prevention Legislation, Fire Protection, Fire Protection Design in Industries, Fire Protection in Petro Chemical Industry, Fire Pumps, Fire Risk of Electricity, Fixed Fire Fighting Installations, Hazardous Goods, Hose and Hose Fittings, Industrial Buildings, Inflammable Liquids, Vapors and Gases, Lighting and Heating Systems, Management Risks, Means of Escape, Portable Fire Appliances, Radioactive Materials, Report Writing, Salvage, Ventilation System, Water Supply.

Practical:

Drills and Demonstration of Hose, Ladders, Pump-Operation, Portable Fire Extinguishers, Fire Fighting Operation and Rescue Techniques.

(Note : This course is presently run by National Fire Service College, Govt. of India, Nagpur (Maharashtra)

Annexure – 27

EQUIPMENT FOR HAZARDOUS MATERIAL EMERGENCY FOR FIRST RESPONDERS FOR ONE TRAINING INSTITUTION

A. Personal Equipment (Level D) (each member):

1. Overall
2. Gloves
3. Shoes chemical resistant, steel toe and shank.
4. Boots, outer, chemical-resistant (disposable)
5. Safety glasses or chemical splash, goggles, poly carbonate lenses.
6. Helmet
7. Water bottle with sling.

B. Personal Protective Equipment:

I. Level A (20 sets)

1. Self contained breathing apparatus
2. Total – encapsulating chemical protective suit
3. Gloves, outer, chemical-resistant
4. Gloves, inner, chemical-resistant

II. Level B(20 sets)

1. Self contained Breathing Apparatus (SCBA)
2. Hooded chemical resistant clothing with elastic wrist and booties.
3. Gloves inner chemical resistant
4. Gloves outer chemical resistant.
5. Boot covers outer, chemical resistant (Disposable)

III. Level C (20 sets)

1. Air purifying respirators with spare.
2. Hooded chemical resistant clothing with elastic wrist and ankles.
3. Gloves outer chemical resistant.
4. Gloves inner chemical resistant.

IV. NBC Suits 20 sets.**C. NBC Specialised Equipment.**

Sl. No.	Equipment	Number
1.	Teletector (u R/h to 1000 R/h range)	1
2.	Gm survey meter	6
3.	Contamination monitor	6
4.	Mini Rad meter	6
5.	Portable alpha monitor	6
6.	Direct reading dismeter (one per member)	30
7.	TLD (one per member)	30
8.	Plastic bags/ cordoning tape, minimum	6 sets
9.	Decontamination Kit	5 sets
10.	Iodate Tablets(KIO_3)	1000
11.	Battery operated Air Sampler with filter papers	6
12.	C.D. Kit danger make	6
13.	Poison in water detecting kit	2
14.	LEL meter (Explosive meter)	6
15.	PH Tester	6
16.	PH paper	6 box
17.	Distress signal unit (DSU)	40
18.	*First Aid Kit NBC Type 'A'	10
19.	First Aid Kit NBC Type 'B'	10
20.	Leak tester for B.A. set	2
21.	Portable decontamination apparatus	10
22.	Decontamination solution	10 lts.
23.	Decontamination gears (plastic sheets, brushes, buckets, Fire hose, containers, portable pump)	10 sets
24.	Body bags	30
25.	Emergency Response Guide Book	10
26.	Safety Torch	30
27.	Safety line with chemical resistant 30 meter long	30
28.	High Visibility Test	30
29.	Traffic cones	20
30.	20 kg. Containers of soda ash and soda hydroxide	10
31.	20 lts. Container of AFFF	10

32.	Plastic drums 20 lts.	4
33.	Pipe squeezer	10
34.	Leak storing devices	4 sets
35.	Chlorine leak capping kit	2 sets
36.	Non sparking tool (pipe nrinekes, hammer, curate, opener screw drivers set)	5 sets
37.	Non sparking brush, brooms shovels & crow bar	5 sets
38.	Medical tag	50
39.	Multi gas detector with cut gum bottle	6
40.	First Aid Kit (as per MFR)	5
41.	Chemical agent monitor	10 packets
42.	Cotton soaps for sample collection (20 Nos. in each packet)	10 packets
43.	Sample collecting plastic bag big size (20 Nos. in each packet.	10 packets
44.	Sample collecting plastic bag small size (20 Nos. in each packet)	10 packets
45.	Latex gloves disposable (100 in each packet)	2
47.	Ultra violet photo – ionization detector	10

D. FIRST AID KIT

Recommended Contents for a First Aid Kit

Sl.No.	Items	
1.	Activated Charcoal (for poisoning emergencies)	20
2.	Adhesive strip bandages –assorted sizes (packs of 20)	2
3.	Adhesive tape (leucoplast, 2")	2
4.	Adhesive tape (leucoplast, 4")	2
5.	Airway – Oral (80 mm)	2
6.	Airway – Oral (60 mm)	2
7.	Airway – Oral (40 mm)	2
8.	Alcohol – rubbing 70%	100 ml
9.	Alcohol – wipes	10
10.	Ambu Bag (adult)	1
11.	Ambu Bag (paediatric)	1
12.	Antacid tablets	20
13.	Antibiotic ointment (soframycin)	1
14.	Antiseptic spray	1
15.	Artery forceps	1

16.	Aspirin tablets	20
17.	Bandages Elastic 3"	2
18.	Bandages Elastic (crepe, 6")	2
19.	Bandages roll 3"	10
20.	Bandages roll 6"	10
21.	Bandages Triangular	10
22.	Blanket woolen	1
23.	Blood Pressure instrument	1
24.	Burn Spray	1
25.	Calamine lotion	100 ml
26.	Cotton roll 500 Gm	2
27.	Cotton swabs	20
28.	Disposable latex or vinyl gloves (6" & 7")	10
29.	Eye pads	10
30.	Face mask for CPR (Adult)	2
31.	Face mask for CPR (Child)	2
32.	First aid guide	1
33.	Flashlight	1
34.	Forceps (stainless steel, non toothed) 12.5 cm	1
35.	Gauze pads – (sterile cotton) 2"x4"	20
36.	Gauze pads –(sterile veseline)	10
37.	Hot-water bottle	1
38.	Oxygen Cylinder, light weight Aluminium 110 lit.(Optional)	1
39.	Oxygen cannula Nasal	5
40.	ORS sachet	5
41.	Pain Spray	1
42.	Paper writing pad & pencil	1
43.	Paper drinking cups	5
44.	Pnematic Splint set	1
45.	Safety pins	10
46.	Scissors (stainless steel) 12.5 cm	1
47.	Soap	1
48.	Slings (elbow, shoulder)	5
49.	Stethoscope	1
50.	Sugar or glucose solution`	100 gm

51.	Thermometer-oral	1
52.	Tongue Depressor (disposable)	5
53.	Torch	1
54.	Torniquete (elastic)	1
55.	Triage ribbon (green/ red/ black/ yellow) 5 each	20
56.	Bite Sticks	5
57.	Goggles for Eye Protection	1
58.	Medical Equipment Carrying Box	2

i) Vehicles :

1.	Equipment Towing Tender	4
2.	Ambulance	2
3.	Mobilisation Truck	2

EQUIPMENT FOR WEAPONS OF MASS DESTRUCTIONS FOR FIRST RESPONDERS FOR ONE TRAINING INSTITUTION

D. Personal Equipment (Level D) (each member):

1. Overall
2. Gloves
3. Shoes chemical resistant, steel toe and shank.
4. Boots, outer, chemical-resistant (disposable)
5. Safety glasses or chemical splash, goggles, poly carbonate lenses.
6. Helmet
7. Water bottle with sling.

E. Personal Protective Equipment:

V. Level A (10 sets)

1. Self contained breathing apparatus
2. Total – encapsulating chemical protective suit
3. Gloves, outer, chemical-resistant
4. Gloves, inner, chemical-resistant

VI. Level B(10 sets)

1. Self contained Breathing Apparatus (SCBA)
2. Hooded chemical resistant clothing with elastic wrist and booties.
3. Gloves inner chemical resistant

4. Gloves outer chemical resistant.
5. Boot covers outer, chemical resistant (Disposable)

VII. Level C (10 sets)

1. Air purifying respirators with spare.
2. Hooded chemical resistant clothing with elastic wrist and ankles.
3. Gloves outer chemical resistant.
4. Gloves inner chemical resistant.

VIII. NBC Suits 120 sets.

F. NBC Specialised Equipment.

Sl. No.	Equipment	Number
1.	Teletector (u R/h to 1000 R/h range)	1
2.	Gm survey meter	6
3.	Contamination monitor	6
4.	Mini Rad meter	6
5.	Portable alpha monitor	6
6.	Direct reading dismeter (one per member)	30
7.	TLD (one per member)	30
8.	Plastic bags/ cordoning tape, minimum	6 sets
9.	Decontamination Kit	5 sets
10.	Iodate Tablets(kIO ₃)	1000
11.	Battery operated Air Sampler with filter papers	6
12.	C.D. Kit danger make	6
13.	Poison in water detecting kit	2
14.	LEL meter (Explosive meter)	6
15.	PH Tester	6
16.	PH paper	6 box
17.	Distress signal unit (DSU)	40
18.	First Aid Kit NBC Type 'A'	10
19.	*First Aid Kit NBC Type 'B'	10
20.	Leak tester for B.A. set	2
21.	Portable decontamination apparatus	10
22.	Decontamination solution	10 lts.
23.	Decontamination gears (plastic sheets, brushes, buckets, Fire hose, containers, portable pump)	10 sets

24.	Body bags	30
25.	Emergency Response Guide Book	10
26.	Safety Torch	30
27.	Safety line with chemical resistant 30 meter long	30
28.	High Visibility Vest	30
29.	Traffic cones	20
30.	20 kg. Containers of soda ash and soda hydroxide	10
31.	20 lts. Container of AFFF	10
32.	Plastic drums 20 lts.	4
33.	Pipe squeezer	10
34.	Leak stopping devices	4 sets
35.	Chlorine leak capping kit	2 sets
36.	Non sparking tool (pipe nriekes, hammer, curate, opener screw drivers set)	5 sets
37.	Non sparking brush, brooms shovels & crow bar	5 sets
38.	Medical tag	50
39.	Multi gas detector with cut gum bottle	6
40.	First Aid Kit (as per MFR)	5
41.	Chemical agent monitor	10 packets
42.	Cotton soaps for sample collection (20 Nos. in each packet)	10 packets
43.	Sample collecting plastic bag big size (20 Nos. in each packet)	10 packets
44.	Sample collecting plastic bag small size (20 Nos. in each packet)	10 packets
45.	Latex gloves disposable (100 in each packet)	2
46.	Flame ionization detector	2
47.	Ultra violet photo – ionization detector	10

D. FIRST AID KIT

Recommended Contents for a First Aid Kit

Sl.No.	Item	
1.	Activated Charcoal (for poisoning emergencies)	20
2.	Adhesive strip bandages –assorted sizes (packs of 20)	2
3.	Adhesive tape (leucoplast, 2")	2
4.	Adhesive tape (leucoplast, 4")	2
5.	Airway – Oral (80 mm)	2
6.	Airway – Oral (60 mm)	2

7.	Airway – Oral (40 mm)	2
8.	Alcohol – rubbing 70%	100 ml
9.	Alcohol – wipes	10
10.	Ambu Bag (adult)	1
11.	Ambu Bag (paediatric)	1
12.	Antacid tablets	20
13.	Antibiotic ointment (soframycin)	1
14.	Antiseptic spray	1
15.	Artery forceps	1
16.	**Aspirin tablets	20
17.	Bandages Elastic 3"	2
18.	Bandages Elastic (crepe, 6")	2
19.	Bandages roll 3"	10
20.	Bandages roll 6"	10
21.	Bandages Triangular	10
22.	Blanket woolen	1
23.	Blood Pressure instrument	1
24.	Burn Spray	1
25.	Calamine lotion	100 ml
26.	Cotton roll 500 Gm	2
27.	Cotton swabs	20
28.	Disposable latex or vinyl gloves (6" & 7")	10
29.	Eye pads	10
30.	Face mask for CPR (Adult)	2
31.	Face mask for CPR (Child)	2
32.	First aid guide	1
33.	Flashlight	1
34.	Forceps (stainless steel, non toothed) 12.5 cm	1
35.	Gauze pads – (sterile cotton) 2"x4"	20
36.	Gauze pads –(sterile veseline)	10
37.	Hot-water bottle	1
38.	Oxygen Cylinder, light weight Aluminium 110 lit.(Optional)	1

39.	Oxygen cannula Nasal	5
40.	ORS sachet	5
41.	-*- Pain Spray	1
42.	Paper writing pad & pencil	1
43.	Paper drinking cups	5
44.	Pnematic Splint set	1
45.	Safety pins	10
46.	Scissors (stainless steel) 12.5 cm	1
47.	Soap	1
48.	Slings (elbow, shoulder)	5
49.	Stethoscope	1
50.	Sugar or glucose solution`	100 gm
51.	Thermometer-oral	1
52.	Tongue Depressor (disposable)	5
53.	Torch	1
54.	Torniquete (elastic)	1
55.	Triage ribbon (green/ red/ black/ yellow) 5 each	20
56.	Bite Sticks	5
57.	Goggles for Eye Protection	1
58.	Medical Equipment Carrying Box	2

ii) Vehicles :

1.	Equipment Toeing Tender	1
2.	Ambulance	1
3.	Mobilisation Truck	1

EQUIPMENT FOR FLOOD RESCUE FOR ONE TRAINING INSTITUTION

A. Personal Equipment (Each member)

a.	Helmet	30
b.	Water bottle with sling	30
c.	Eye Protection	30
d.	Ear Protection	30
e.	Safety steel-toe boots	30
f.	Safety Whistle	30

g.	Knee pads	30
h.	Work gloves	30
i.	Overalls	30
j.	Personal Safety Line (sash cord) 15" length	30

B. SPECIALISED FLOOD RESCUE EQUIPMENT

1.	Rescue back boards	6
2.	Light weight high pressure pumps	2
3.	Diving suit	6
4.	Under water BA set	6
5.	Floating Pump	2
6.	Inflatable boat (12 persons)	6
7.	Fiber boat (12 persons)	6
8.	Lifebuoy	10
9.	Life Jackets	20
10.	Multicable winch	6
11.	Karabiners	10
12.	Basket Stretcher	6
13.	Portable Generator with flood light	1
14.	Portable Sheltr (10'x14',10'x23')	6
15.	Pneumatic Rope Launcher	2
16.	Out Board Motor	2
17.	Loudhailer/Megaphone	2
18.	Walkie-Talkie	6

A. MISCELLANEOUS FLOOD RESCUE EQUIPMENT

i)	Picks	6
ii)	Shovels (or Phawrahs)	6
iii)	Sledge hammer	6
iv)	Light Axe	6
v)	100 ft. length 12 mm BOB rope	
vi)	Torches Electric Water Proof	10
vii)	Hurricane Lanterns	10
viii)	Tarpaulin 12ft. x 12 ft.	6
ix)	Set of rope tackle (3 sheeve-2 sheeve)	
x)	20 ft. length of BOB ropes 1 /12 inch	10

xi)	Rubber gloves (pair) (Tested upto 25,000 voltage)	6
xii)	Scaffold poles for sheer legs	6
xiii)	Debris baskets	10
xiv)	Buckets	10
xv)	Leather gloves (pairs)	10
xvi)	First Aid Pouches	10 sets

Contents:

1. Bandages Triangular
2. Canes for tightening improvised tourniquets
3. Dressing Sheels
4. Dressing first aid
5. Labels, casualty identity (packet of twenty)
6. Safety pins large (cards of six)
7. Scissors
8. Tourniquet

D. FIRST AID KIT

Recommended Contents for a First Aid Kit

Sl.No. Items

1.	Activated Charcoal (for poisoning emergencies)	20
2.	Adhesive strip bandages –assorted sizes (packs of 20)	2
3.	Adhesive tape (leucoplast, 2")	2
4.	Adhesive tape (leucoplast, 4")	2
5.	Airway – Oral (80 mm)	2
6.	Airway – Oral (60 mm)	2
7.	Airway – Oral (40 mm)	2
8.	Alcohol – rubbing 70%	100 ml
9.	Alcohol – wipes	10
10.	Ambu Bag (adult)	1
11.	Ambu Bag (paediatric)	1
12.	Antacid tablets	20
13.	Antibiotic ointment (soframycin)	1
14.	Antiseptic spray	1
15.	Artery orceps	1
16.	** Aspirin tablets	20

17.	Bandages Elastic 3"	2
18.	Bandages Elastic (crepe, 6")	2
19.	Bandages roll 3"	10
20.	Bandages roll 6"	10
21.	Bandages Triangular	10
22.	Blanket woolen	1
23.	Blood Pressure instrument	1
24.	Burn Spray	1
25.	Calamine lotion	100 ml
26.	Cotton roll 500 Gm	2
27.	Cotton swabs	20
28.	Disposable latex or vinyl gloves (6" & 7")	10
29.	Eye pads	10
30.	Face mask for CPR (Adult)	2
31.	Face mask for CPR (Child)	2
32.	First aid guide	1
33.	Flashlight	1
34.	Forceps (stainless steel, non toothed) 12.5 cm	1
35.	Gauze pads – (sterile cotton) 2"x4"	20
36.	Gauze pads –(sterile veseline)	10
37.	Hot-water bottle	1
38.	Oxygen Cylinder, light weight Aluminium 110 lit.(Optional)	1
39.	Oxygen cannula Nasal	5
40.	ORS sachet	5
41.	-*- Pain Spray	1
42.	Paper writing pad & pencil	1
43.	Paper drinking cups	5
44.	Pnematic Splint set	1
45.	Safety pins	10
46.	Scissors (stainless steel) 12.5 cm	1
47.	Soap	1
48.	Slings (elbow, shoulder)	5
49.	Stethoscope	1
50.	Sugar or glucose solution`	100 gm
51.	Thermometer-oral	1

52.	Tongue Depressor (disposable)	5
53.	Torch	1
54.	Torniquete (elastic)	1
55.	Triage ribbon (green/ red/ black/ yellow) 5 each	20
56.	Bite Sticks	5
57.	Goggles for Eye Protection	1
58.	Medical Equipment Carrying Box	2
B. Vehicles :		
1.	Equipment Towing Tender	2
2.	Ambulance	1
3.	Mobilisation Truck	1

** Shall be administered on the advice of Medical Doctors only.*

*** Shall be read as soluble Aspirin Tablets.*

-- Shall be read as Analgesic Spray*

Annexure – 28

LIST OF OTHER SPECIALISED EQUIPMENT FOR RESCUE OPERATIONS FOR FIRE AS WELL AS OTHER DISASTERS

SL	NAME OF APPLIANCE	Approx. Cost. (in lacs)	Suggested specification
1.	Foam Tender (without chasis)	-	IS 10460
2.	Dry Powder Tender (2000 Kgs) (without chasis)	15-16	IS 10993
3.	Mobile Workshop for repair of Fire Appliances (Technical Personnel)	50	No BIS specification
4.	Portable Hi Press Back Pack (Water Mist Technology)	3	No BIS specification
5.	Hydraulic Cutters with complete power unit	4.5	Specification of SFAC is enclosed as Annexure-35
6.	Spreaders (Heavy Duty) with complete power unit	4.7	
7.	Power Cutter (HD)	4.50	No BIS specification
8.	Victim Locating Camera	12	No BIS specification
9.	Fire Entry Suits	1	Specification of SFAC is enclosed as Annexure-36
10.	Aluminized Fire Proximity suits	0.40	Specification of SFAC is enclosed as Annexure-37
11.	Light Weight Stretcher	0.03	No BIS specification
12.	Self contained B.A. Sets	0.80	IS 10245 (Pt. 1 to 4)
13.	Special Branches	0.30	No BIS specification
14.	Rescue Rams (HD)	3	No BIS specification
15.	Eye protection equipments	.05	No BIS specification
16.	Protective Gloves for hot & cold protection	.01	No BIS specification
17.	Water Gel Fire Burn Blanket	0.08	No BIS specification

SL	NAME OF APPLIANCE	Approx. Cost. (in lacs)	Suggested specification
18.	Safety Torches (Intrinsically safe)	0.08	No BIS specification
19.	Safety Life line for Fire Fighter	0.02	No BIS specification
20.	Double Vision Power	0.10	No BIS specification
21.	Diving Suits (Dry type)	3	No BIS specification
22.	Life Saving Jackets	0.05	No BIS specification
23.	Safety Boots (with steel toe & chemical resistance)	0.08	No BIS specification
24.	Gas Masks for Various types of Gases	.05	No BIS specification
25.	Protective clothing	1	No BIS specification
26.	Fire Boats	8	Specification of SFAC is enclosed as Annexure-38
27.	Flood Rescue Boats	10 - 15	Specification of SFAC is enclosed as Annexure-39
28.	Self Powered Saw for Wood	0.25	No BIS specification
29.	Multi purpose Diamond Saw for Concrete, metals, etc.	3.75	Specification of SFAC is enclosed as Annexure-40
30.	Electric Chain Saw	1.75	No BIS specification
31.	Electric Saw Circular	1.75	No BIS specification
32.	Self powered chain saw	1	Specification of SFAC is enclosed as Annexure-41
33.	Aluminum Extension ladder (20')	0.20	Specification of SFAC is enclosed as Annexure-42
34.	Pneumatic Lifting Bags (10-15 Ton)	0.38	Specification of SFAC is enclosed as Annexure-43
35.	Light Inflatable Tower for emergency lighting at incident sites	2	Specification of SFAC is enclosed as Annexure-44
36.	Infra red Thermal Imaging Camera	7 – 14	Specification of SFAC is enclosed as Annexure-45

SL	NAME OF APPLIANCE	Approx. Cost. (in lacs)	Suggested specification
37.	Electric Winch (Capacity 1.5 Ton)	0.20	No BIS specification
38.	Life Detector Type-I & II	16	Specification as per NDRF
39.	Victim location equipment and Breaching system	20	- do -
40.	Video camera with accessories	0.20	- do -
41.	Hand held gas detector	5.80	- do -
42.	Multigas Detector	1.50	- do -
43.	Angle Cutter (electric) 14" dia	0.44	- do -
44.	Replacement Diamond Tipped Blades for angle cutter	0.118	- do -
45.	Replace Composite Blades for angle cutter	0.01	- do -
46.	Circular Saw (electric) 164" dia	0.27	- do -
47.	Replacement Carbide Tipped Blade for circular saw	0.15	- do -
48.	Air lifting bag set with air cylinders	7	- do -
49.	Multi Cable winch	2.5	- do -
50.	Bullet Chain saw 16"	1.90	- do -
51.	Hammer Drill Concrete	0.25	- do -
52.	Gas cutter 450mm	0.032	- do -
53.	Regulator for Gas cutter	.004	- do -
54.	Rubber pipe Duplon 100m rolls	0.03	- do -
55.	Oxygen Cylinder	0.045	- do -
56.	Acetylene Cylinder	0.015	- do -
57.	Replacement 12" dia diamond tipped blades	0.21	- do -
58.	Ramset with matching foot pump	1.50	- do -
59.	Hydraulic Jack 20 Tons	055	- do -
60.	Electric drill	0.047	- do -

SL	NAME OF APPLIANCE	Approx. Cost. (in lacs)	Suggested specification
61.	Electric drill bit set	0.02	- do -
62.	Chipping Hammer	0.50	- do -
63.	Chipping Hammer bit flat	0.012	- do -
64.	Chipping Hammer bit pointed	0.019	- do -
65.	Rotary Hammer drill	0.22	- do -
66.	Rotary Hammer drill bit	0.017	- do -
67.	Keyhole saw complete with set of four saws	0.037	- do -
68.	Reciprocating saw	.21	- do -
69.	Reciprocating saw blade Wood	0.05	- do -
70.	Reciprocating saw blade Metal	0.05	- do -
71.	Cordless Hammer drill	.235	- do -
72.	Cordless Hammer drill bit set	0.018	- do -
73.	Spare battery for cordless hammer drill	0.05	- do -
74.	Fire extinguisher Portable	0.028	- do -
75.	Leak tester for testing respiratory equipment	5	- do -
76.	Distress signal unit	0.10	- do -
77.	Portable Generator 10.5 KVA	1.50	- do -
78.	Portable Generator 210.5 KVA	0.73	- do -
79.	Oxygen concentrator	0.65	- do -
80.	Pulse Oxymeter	0.40	- do -
81.	Nebuliser	0.025	- do -
82.	Portable Anaesthesia kit	0.18	- do -
83.	Portable ultra sound Machine	4	- do -
84.	Automatic blood analyzer	2	- do -
85.	Multi parameter Monitor	1.40	- do -
86.	Portable defibrillator with recorder	1.30	- do -

SL	NAME OF APPLIANCE	Approx. Cost. (in lacs)	Suggested specification
87.	Portable suction equipment	0.06	- do -
88.	ECG Machine with analyzer	0.72	- do -
89.	Manual suction unit	0.045	- do -
90.	Satellite Phones	3	- do -
91.	Base Station 25 watts	0.25	- do -
92.	Portable Radio Set	0.30	- do -
93.	Portable Shelters 10' x 14'	0.36	- do -
94.	Portable Shelters 10' x 23'	0.60	- do -
95.	Personal diving kit (Diving suit Breathing apparatus weight belt gloves dive fins)	2.50	- do -
96.	High pressure breathing air compressor	7.25	- do -
97.	Under Water torch	0.35	- do -
98.	Under water communication set	4.80	- do -
99.	Under water Video Camera	0.78	- do -
100.	Floating pump	1.75	- do -
101.	Inflatable boat with OBM (FRP)	4	- do -
102.	Rescue Boat	2	- do -
103.	Inflatable motor rescue boats small (10 seated)	3.50	- do -
104.	Life buoys	0.03	- do -
105.	Inflatable motor rescue boats big (210 seated) Boat Assault Universal Type with OBM 50 HP	2	- do -
106.	Synthetic Life Jackets	0.03	- do -
107.	Pneumatic Emergency outlet/slide/chute	-	-
108.	Fiber Stretcher / Fiber fork stretcher	-	-

Note : Specification given are minimum. If at the time of purchase equipments with higher specification is available, then concern Fire Service may opt for higher specification. Equipments not in the list can also be procured to strengthen Fire Services according to local need on the basis of vulnerability assessment.

Annexure – 29

RECOMMENDATIONS FOR INSTITUTIONAL FACILITIES

Amenities

- Classrooms with modern facilities for 30 – 40 participants
- Facilities for outdoor practical training.
- Fully computerized lab for fire prevention training.
- A fully equipped 70 - 100 seats theatre with tiered seating and the option of a divider wall to make two smaller theatres.
- A core assembly area and breakout space adjacent to the main facility etc.

Outdoor Training Structures

The Institute should have practical training area which will encompass state-of-the-art training mock-ups, including confined spaces building, rescue tower, the burn building, auto extrication area, hazardous materials training site etc.

Confined Spaces Building

The confined space building is built above ground but simulates rescue in a manhole below street level. Trainees enter from the top while staircases and doors at each of the three levels create a safety net for immediate evacuation or medical treatment if required.

The Rescue Tower

This five level structure allows:

- Multiple emergency response scenarios such as interior search and high-rise fire fighting.
- Aerial platform training.
- Technical rope rescue and ladder-training.
- A smoke room that directs simulated smoke to either a section of the tower or throughout the building to enhance training scenarios. The dense smoke is generated from a water based product, making it safe for training and education purposes.

The Burn Building

Trainees should experience real fire conditions up to 900 degrees fahrenheit in this intensely supervised and remotely monitored setting. The design of the burn building has incorporated “sacrificial” masonry panels and other innovations that allow the structure to withstand the trauma of training without structural failure.

Auto Extrication Area

Auto extrication area should allow the instructors to educate using challenging motor vehicle training scenarios in a safe environment. The area is spacious and can support heavy extrication scenarios such as tractor trailers or school bus extrication.

Hazardous Materials Training site

The Hazmat training site should be located close to the main campus and should spread out over a 15 – 20 acre site. The special operations training site includes the following features to simulate realistic scenarios:

- Transport trucks
- Busses
- Rolling terrain
- An out-building to simulate HAZMAT storage facilities

The facilities may also include

High rise industrial buildings, domestic premises, commercial and factory units etc. where operational personnel can practice their fire fighting and rescue skills: a stretch of motorway complete with a divider and footpath, as well as a section of railway track and a level crossing where specialist rescue techniques can be practiced; a helicopter landing pad, an aircraft fuselage, and an oil refinery complex and the site has facilities including a ship where specialist techniques for fire fighting in an engine room, cargo hold and passenger accommodation can be trained for and developed.

Important points

- The training institute should have world class collapsed building training facility which now enables fire fighters to train in realistic scenarios.
- The institute for fire service training would be a key part of the fire service training infrastructure and should continue to receive support from all stakeholders including central government to enable a safe and effective response to be made

to local, national and international emergencies.

- The training institute should play an important role in training local Fire service trainers and ensure quality training and maintain their skills.
- The fire service training institute should be a key partner in delivering the Governments' Critical National Infrastructure working alongside other emergency services and agencies.

Core Group

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