



A group of experts discuss ways India can improve its fire safety standards and protect lives.

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Introduction

Although efforts to control the coronavirus pandemic currently dominate daily life in India, the country still faces many other long-standing challenges when it comes to improving the health, safety and wellbeing of the population.

One of these ongoing challenges is improving fire safety standards in workplaces, public buildings and homes – and cutting the huge numbers of people who die in fires every year.

Indeed, in the months prior to the emergence of the Covid-19 pandemic earlier this year, India was rocked by yet another a series of high-profile fires that claimed dozens of lives.

The deadly blazes led to widespread calls for the central, state and union governments to do more to protect the occupants of commercial and residential buildings from the risk of fire.

In December 2019, for instance, a factory fire in Delhi's Anaj Mandi district claimed the lives of 43 workers and made headlines around the world. The victims – who were all poor migrant workers sleeping in an illegal factory – were unable to escape from the four-storey building as the fire exits were blocked.

Meanwhile, fire crews struggled to reach and fight the fire as the narrow and congested lanes around the building prevented them bringing their fire engines close to the blaze.

Another high-profile fire occurred in May 2019, when 22 young students died in a blaze at a coaching centre in Surat, in Gujarat.

The fire was reportedly started by an electrical short-circuit on the ground floor and the students were unable to escape from the floors above because the fire destroyed a wooden staircase.

It quickly emerged that the owner of the building had illegally constructed a makeshift dome on the third floor of the building, which housed the coaching centre for the students, and there was no fire safety equipment in the building.

We asked four experts from the Fire and Security Association of India (FSAI) how the country can improve its overall fire safety standards and cut the number of deaths from fires in industrial, commercial and residential buildings.

We spoke to:

- *AK Gupta Current Science 80 (1), 18-26, 2001*
- *Pankaj Dharkar, Member, Advisory Council & Governing Council, FSAI*
- *Dr. Rupesh Iyengar, President, Bengaluru Chapter, FSAI*
- *Dipen Mehta, Chairman, FSAI Journal*
- *Anas Rizvi, Chairman, Government Relationships (Safety), FSAI.*

Summary of workshop large outdoor fires and the built environment:

RK GUPTA:

Large outdoor fires present a risk to the built environment. Wildfires that spread into communities, referred to as Wildland-Urban Interface (WUI) fires, have destroyed communities throughout the world, and are an emerging problem in fire safety science. Other examples are large urban fires including those that have occurred after earthquakes.

Research into large outdoor fires, and how to potentially mitigate the loss of structures in such fires, lags other areas of fire safety science research. At the same time, common characteristics between fire spread.

What is the current situation regarding the overall standard of fire safety in India?

Dipen Mehta:

Overall, the general situation in terms of fire-fighting infrastructure, laws, guidelines and codes is now much better than before and these areas are being regularly upgraded.

When areas of cities are being newly developed, the authorities are properly planning the space for fire stations and ensuring there is sufficient space for the effective and efficient movement of fire vehicles to extinguish any fires that do occur. However, old areas of cities still lack this type of infrastructure and sometimes it's even impossible for fire vehicles and equipment to reach the location of a fire.

So there needs to be a careful review of these locations and the appropriate solutions must be provided and implemented.

Another concern is there are low numbers of educational institutes offering certified courses on fire-fighting.

There is also a general lack of continuous education and awareness among people about fire safety.

As a society we only tend to think about the need for fire safety when an tragic fire incident happens and the impact of these serious fires only stays in the public spotlight for a short period of time.

Anas Rizvi:

As India leaps into this new decade and we speak of developing 'smart cities', the country has yet to make some basic and significant improvements to fire safety.

We still lack the willingness and implementation of good fire safety at grassroots level.

With a population of 1.37 billion, the country is in dire need of educating the masses about fire safety rather than just relying on the respective government authorities or implementation agencies.

Unfortunately, we do not have a system in place where a basic education about fire safety is given from the school level upwards.

Yes, we have professional courses but those are specifically at university level to impart career growth for those involved in improving or maintaining fire safety.

Also, there is inadequate coordination between the government authorities that formulate the laws and codal provisions on fire safety and the agencies who implement the rules on the ground.

Dr. Rupesh Iyengar:

In the economically developed countries of the world safety and security have paramount importance.

People are more aware and educated about fire safety, largely because of the repercussions they will face if there are irregularities – such as license revoking and severe punishments.

However, India lacks these repercussions and sanctions. If a serious incident happens in India, in effect nobody cares.

It becomes the topic for a day or two then it all vanishes. Usually, no actions are taken or punishments handed out to prevent the incident from happening again.

There is also inadequate awareness among all stakeholders about fire safety, rescue and evacuation.

This includes poor knowledge of how to operate even simple portable and hand-held fire extinguishers which are 'first response' emergency equipment.

Deadly blazes have become common in India and the fire risks are increased by problems such as poor fire protection equipment, a lack of windows in buildings, missing emergency exits, outdated electrical systems and residential complexes that are illegally being used as commercial buildings.

Past incidents show that most fires are usually caused by small, obvious faults and reasons, such as electrical short circuits, gas cylinder explosions, human negligence and ill-formed habits.

All of these fire hazards, risks and shortcomings need to be addressed to make buildings safer. The growth of illegal colonies and properties has also made the situation worse.

Anas Rizvi:

In the aftermath of any major fire there are a lot of discussions and deliberations about whether we have sufficient codal provisions and fire safety laws adequate for a country with such a vast population and vast geographical, social and cultural diversity.

We have the National Building Code of India 2016 and part four of this covers the requirements for fire prevention, life safety in relation to fire and fire protection of buildings.

The code specifies occupancy-wise classification, constructional aspects, egress requirements and protection features that are necessary to minimise danger to life and property from fire.

It specifies the demarcations of fire zones; restrictions on constructions of buildings in each fire zone; classifications of buildings based on occupancy; and types of building construction according to the fire resistance of the structural and nonstructural components.

It also contains restrictions and requirements necessary to minimise danger to life from fire, smoke, fumes or panic before buildings can be evacuated.

The code also covers fire protection and prevention, life safety and emphasises the need for fire drills (both planned and unplanned) for high-rise structures.

Also, following a fire incident at an oil depot at Jaipur in 2009 which left 12 people dead, over 200 injured, caused damage running to several crores and caused an adverse environmental impact, a powerful committee under the chairmanship of MB Lal was formed and this suggested several key fire safety-related reforms for the petroleum sector.

In addition, following the earthquake at Bhuj in 2001, the Model Building Bye Law 2003 came into force, and this empowers the chief fire officer to inspect and issue a 'no objection' certificate for a building under his jurisdiction. If this is not granted, the building does not get the necessary operational licence.

However, there is a regular need for reviews of and upgrades to fire laws as our cities and towns undergo changes in terms of rising population, expansions and development activities.

Dipen Mehta:

We are lacking in education related to fire safety. Specific and continuous fire safety topics should be covered in the curriculum right from schools up to higher education.

Educational activities should include mock fire drills and demonstrations of how to handle different type of fires.

Students must be taught how to handle electrical fires, fires due to liquefied petroleum gas (LPG) and so on.

The number of educational institutes that provide certified professional courses for firefighting is also too low.

The importance of fire departments should be increased and this should be raised to the level of the police and emergency service departments.

*The number of fire drills in public places – particularly during festivals – should be increased to spread public awareness about fire safety precautions. *

Fire safety should be promoted as a ‘life safety’ issue and integrated with other important aspects of public safety, such as safety in the home and on the roads.

I would say that awareness of fire safety is nearly absent in India.

Moreover, the communities that manage housing and commercial premises need to regularly organise fire awareness programmes with assistance from the relevant authorised persons and agencies.

Dr. Rupesh Iyengar:

In the event of a fire tragedy our law system fails to provide speedy justice to send a powerful message to those who are to blame for the incident and to create a sense of fear among them towards the fire authorities.

However, our approach towards fire safety should be proactive rather than reactive. Generally, the government, organisations and the public only seek to act or demand action after a major fire incident, not before.

The areas where fires are caused and occur should be identified before a fire breaks out and the rules and regulations must be followed stringently in every sector.

If we think about the deadly factory fire in Anaj Mandi in December 2019 - where fire brigade couldn't even reach the location easily - we need to understand that India has a large population and our cities have evolved considerably.

So we need innovations such as underground electrical wiring as electrical short circuits are a major cause of fires in our country.

Dr. Rupesh Iyengar, President, Bengaluru Chapter, FSAI

What kind of steps should the centre, state and union territory governments and city authorities be taking to improve fire safety in all buildings, including workplaces and homes?

Dipen Mehta:

A building's fire alarm and detection system should be connected with the city's fire system. Furthermore, a systematic procedure should be outlined for periodically assessing and monitoring fire risks.

Fire safety audits should be made mandatory everywhere. They are a good tool to assess fire safety standards but there are no clear provisions in any legislation regarding the scope or frequency of fire safety audits.

We also need to make changes to our fire safety infrastructure. We need to increase the number of fire stations, taking into account factors such as increases in population density and population growth.

We need dedicated access lanes for the quick movement of emergency vehicles, such as fire brigade trucks.

Under the 'Smart City' project, smart control rooms should be able to guide emergency vehicles through the shortest route and act as one-point coordination between various departments, such as the police, traffic police, fire, ambulance and security forces.

Anas Rizvi:

There has to be a strong coordination between the agencies that frame the laws and codes on fire safety and those who implement them – they cannot work in isolation.

Fire safety enforcement agencies should also encourage public participation in formulating fire safety policies.

They also need to take a dynamic approach to fire safety based on typographical conditions and social factors.

There should also be regular fire safety enforcement visits and fire inspections and drills.

The country's print and electronic media should also play a bigger role in spreading basic awareness about the essential do's and don't's of preventing and reacting to a fire.

Dr. Rupesh Iyengar:

Unless you comply with the statutory fire laws and regulations you cannot erect a building.

However, the problems around fire safety begin afterwards at the operational side of a building.

After clearance certificates are given to operate, then there is nothing in place to ensure that the fire safety systems in the building are operating or not, or to ensure and check that the rules are being followed.

All stakeholders – including statutory bodies, associations like FSAI, end users and builders – need to take follow-up steps to ensure adequate standards of fire safety in a building once it is occupied and operational.

Fire safety laws, codes and standards exist but poor awareness and lack of knowledge are the major reasons behind the weak implementation of the fire safety standards.

The government should constitute a separate department dedicated to fire safety that can regularly inspect buildings to check if the rules are being fully complied with or not.

What steps should businesses be taking to improve fire safety?

Dipen Mehta:

We should be constructing fire-safe buildings with fire-resistant materials and installing suitable gas or smoke detection systems, fire alarms and a fire-fighting system.

We also need to implement fire compartmentalisation in buildings to prevent and limit the spread of fire through horizontal and vertical spaces.

Electrical and fire installations should be certified by authorised persons and agencies as this will help to identify and monitor the risk of electrical short circuits that could trigger fires.

Only qualified persons and companies should be authorised to carry out fire inspections in buildings.

The no-objection certificates issued for a building by the local authorities should be renewed after verifying that the building is being used for the originally intended purpose and following any significant change to the building's pattern.

Pankaj Dharkar:

Relevant premises should have the required fire warning and alarm system and the occupants must be provided with first-aid and rescue training.

There is inadequate awareness of fire safety, rescue and evacuation among all stakeholders, including poor knowledge of how to operate even basic portable and hand-held fire extinguishers, which are the essential first response emergency fire-fighting appliances.

Timely and quicker disposal of flammable waste – and preventing waste from accumulating in buildings or near to them – is another important fire safety precaution that all businesses must adopt.

*Pankaj Dharkar, Member, Advisory Council & Governing Council,
FSAI*

It seems in many cases action is only taken to improve fire safety after a major fire.

How can we change that approach to be more proactive about fire safety in India?

Dipen Mehta:

As a country we continue to violate all the norms and ignore precautions to prevent fire accidents. Proper, regular maintenance and working conditions are being ignored even in premises where a fire has previously occurred.

We are not carrying out proper analysis of the root causes of fires. We are only interested in blaming each other and passing on the responsibilities to others.

We are not vigilant about our fire safety duties and we need to learn from the past and we need to change this attitude.

Our civic sense needs to improve and it can only be done by using the education system to properly educate people about fire safety from an early age.

Anas Rizvi:

Prevention is always better than cure – there is no way you can replace a lost life. So we must ensure we are well prepared in case of a fire incident to minimise the loss in terms of life and property.

As for necessary actions, after every major fire incident there is an investigation, the formation of committees and fact-finding exercises are conducted but the fires keep on happening.

We need to learn from our mistakes and we need to develop a proper action plan and implement it fully.

Do you think India has been making progress in fire safety, and if so, can you give any examples?

Dipen Mehta:

The nation is making progress on fire safety but the speed for achieving the desired progress is not satisfactory.

Fire departments are being equipped with modern fire-fighting equipment – like drones and robots – to extinguish fires from a remote location if direct access is difficult and this means the lives of firefighters are not put being placed at risk by getting too close to the fires.

But the amount of this type of equipment available to firefighters is quite low. So the government should make adequate budgetary provisions to expand the amount of modern fire-fighting equipment available to the country's brigades.

Anas Rizvi:

There has certainly been a significant improvement in India as far as fire safety is concerned.

There have been upgrades in the law along with a sense that public awareness of fire safety is beginning to improve. For example, there have been instances where residents of a building or area have voluntarily started their own fire drills.

Also, I think that government agencies have become more stringent when it comes to deciding whether or not to issue a no-objection certificate to buildings, based on the effectiveness of the fire safety measures that have been provided for it.

About the Fire and Security Association of India (FSAI):

The FSAI is a non-profit making organisation that represents the fire protection, security and risk management industry and its professionals in India.

The FSAI's aims and objectives include working closely with the Indian government to improve the country's fire safety regulatory regime; embedding life safety and security within the country's economic development; encouraging a proactive mindset towards fire safety and security among the country's population; and promoting the widespread use of effective fire safety and security systems.

