



Global Plan for a Decade of Action for Fire Safety

International Fire Safety Standards Coalition

October 2021





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Published by the International Fire Safety Standards Coalition (IFSSC)

<https://ifss-coalition.org/>

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Produced by the Standards Setting Committee of the IFSSC.

ISBN 978 1 78321 447 1

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Executive summary

Fire is a global hazard – it impacts all people, all cultures, all countries and all businesses. Although human losses are concentrated more in low- and lower-middle-income countries, high-income countries are not immune, and the growing wildland fire threat and increasing urbanisation portend to increase future losses to societies, cultures, economies and the environment.



The magnitude of the global fire and burn problem is enormous – annually we experience more than 150,000 deaths, over 7,000,000 injuries, displacement of tens of thousands of people, and US\$ billions in human, property and business costs – the total of which has been estimated as high as 1%-2% of GDP within high-income countries. Furthermore, accelerated by climate change-induced drought conditions, increasing temperatures and winds, the global wildland fire situation is stark. Globally, loss due to wildland fire is presently greater than at any time in the past. Concerted, global action is needed to stem these impacts.

The **International Fire Safety Standards Coalition** believes that a *Decade of Action for Fire Safety* is essential and is seeking endorsement from the United Nations Economic Commission for Europe (UN ECE) and other global governments, non-governmental organisations, and private-sector entities.

The *Global Plan for a Decade of Action for Fire Safety* gives an overview of:

- the global fire problem
- the benefits of global efforts aimed at reducing fire risk and increasing fire resilience
- initiatives that work and
- linkages to other global activities and actions.

The goal of the *Decade of Action for Fire Safety* is:

To stabilise and then reduce the forecast level of fire fatalities, injuries, economic cost and environmental impact around the world by 2032 as global population increases.

In addition, the Plan outlines 15 objectives for a *Decade of Action for Fire Safety*, along with a list of over 60 representative action items, presented under five pillars of action.

Pillar 1
People



Pillar 2
Products



Pillar 3
Structures



Pillar 4
Infrastructure



Pillar 5
Communities



The actions can take place at the individual, community, city, national, regional, and/or global level. These can be supported and/or led by social entrepreneurs, non-governmental organisations (NGOs), governments and private-sector entities.

In concert with initiatives like the **World Health Organization's Decade of Healthy Ageing**, the WHO **Global Emergency and Trauma Care Initiative (GETI)**, the UN **2030 Agenda for Sustainable Development**, the UN **Sendai Framework for Disaster Risk Reduction 2015-2030**, and the World Bank's **Building Regulation for Resilience Program**, the *Decade of Action for Fire Safety* will help reduce the global impact of fire on people, businesses, communities, cultural heritage and the environment.

It provides a timeframe for action to encourage political and resource commitments to fire safety both globally and nationally. Donors could use the *Decade of Action for Fire Safety* as a stimulus to integrating fire safety into their assistance programmes.

Low-income and middle-income countries can use it to accelerate the adoption of sustainable and cost-effective fire safety programmes and standards. High-income countries can use it to make progress in improving their fire safety performance as well as using it as a platform to share their experiences and knowledge with others.



Gary Strong
Chair, IFSS Coalition

Acknowledgements

The *Global Plan for a Decade of Action for Fire Safety* was drafted by:

Brian Meacham (Meacham Associates)

with significant input from Gary Strong (RICS)

Also with contributions from IFSS Coalition Standards Setting Committee members:

Daniel Joyeux (Efectis)

Birgitte Messerschmidt (NFPA)

Dwayne Sloane (UL).

Helpful comments were also received from numerous IFSS Coalition representatives during the review period. The contributions and helpful input from all participants is graciously acknowledged.

IFSS Coalition

The **Coalition** was launched on 9 July 2018 at a meeting at the UN Economic Commission for Europe (UNECE). The **Coalition** is a group of professional, not-for-profit organisations responsible for researching, developing, publicising and implementing **IFSS-CP** globally for the construction and real estate sectors. The **Coalition** aims to bring about universal and consistent fire safety for our shared built environment globally, given that fire safety is a very high societal concern. This is to be achieved through the creation and adoption of **IFSS-CP**.

The **Coalition** did not identify any singular, pre-existing overarching fire safety principles that would be suitable for adoption on a worldwide basis and would work in conjunction with other guidelines.

Following the establishment of the **Coalition**, members confirmed that they were committed to creating the **IFSS-CP** and encouraging world markets to accept and adopt this holistic approach as the primary overarching framework for fire safety engineering design, construction, occupation and ongoing management in every jurisdiction across the world. **IFSS-CP** supports and endorses the UN sustainable development goals.

Following the publication of **IFSS-CP**, the **Coalition** members may choose to issue further technical guidance to their members on the adoption and implementation of **IFSS-CP** within their local market(s). The **Coalition** has begun liaising with governments and other stakeholders at a project, local, regional, state, national, supranational and international level to seek adoption of the **IFSS-CP**. The **Coalition** members at the date of publication include:

- ABC – Association of Building Compliance
- ACAI – Association of Consultant Approved Inspectors
- AEEBC – The Association of European Experts in Building and Construction
- AMCA – Air Movement and Control Association International
- API – Australian Property Institute
- APS – Association for Project Safety
- ASFP – Association for Specialist Fire Protection
- ASID – American Society of Interior Designers
- BCA – Building Control Alliance
- BSSIG – Building Surveyors Special Interest Group
- CABE – Chartered Association of Building Engineers
- CASLE – Commonwealth Association of Surveying and Land Economy
- CEBC – Consortium of European Building Control bodies
- CFPA-Asia – Confederation of Fire Protection Associations – Asia
- CIAT – Chartered Institute of Architectural Technologists
- CIBSE – Chartered Institution of Building Services Engineers
- CIOB – Chartered Institute of Building
- CIRIA – Construction Industry Research and Information Association
- CTBUH – Council on Tall Buildings and Urban Habitat
- CTIF – International Association of Fire & Rescue Services
- DFRS (Defence Fire Safety Regulator)
- Efectis
- EFSA – European Fire Safety Alliance
- EFSN – European Fire Sprinkler Network
- Engineers Australia
- EPIC – Engineering Panels in Construction

- FIA – Fire Industry Association
- FIG – Federation International de Geometre
- FM Approvals
- FPA – Fire Protection Association
- FPA Australia – Fire Protection Association Australia
- FSAI – Fire & Security Association of India
- FSEU – Fire Safe Europe
- FSF – Fire Sector Federation
- FSNA – Fire Safe North America
- GCCA – Global Cement and Concrete Association
- GESA – Global Emergency Services Action
- HKIS – Hong Kong Institute of Surveyors
- ICC – International Code Council
- IFE – Institution of Fire Engineers
- IFE (India) – Institution of Fire Engineers (India)
- IFMA – International Facility Management Association
- IFPO – Institute of Fire Prevention Officers
- IFSA – International Fire Suppression Alliance
- IFSM – Institute of Fire Safety Managers
- IMA – Insulation Manufacturers Association
- IPREA – Institute of Philippine Real Estate Appraisers
- ISK – Institute of Surveyors of Kenya
- IWFM – Institute of Workplace and Facilities Management
- KFPA – Kuwait Fire Protection Association
- LABC – Local Authority Building Control
- MBA – Modern Building Alliance
- NFIA – National Fire Industry Association
- NFPA – National Fire Protection Association
- NHBC – National House Building Council
- NIFHA – Northern Ireland Federation of Housing Associations
- NZIBS – New Zealand Institute of Building Surveyors
- PAM – Malaysian Institute of Architects
- PIMA – Polyisocyanurate Insulation Manufacturers Association
- RIBA – Royal Institute of British Architects
- RICS – Royal Institution of Chartered Surveyors
- RISM – Royal Institution of Surveyors Malaysia
- RMIT University
- RTPI – Royal Town Planning Institute
- SBCA – Structural Building Components Association
- SCDF – Singapore Civil Defence Force
- SCSi – Society of Chartered Surveyors Ireland
- SFPE – Society of Fire Protection Engineers
- SGSA – Sports Ground Safety Authority
- SIA – Singapore Institute of Architects
- SIBL – Singapore Institute of Building Ltd
- The World Bank
- Underwriters Laboratories Inc
- United Nations

Supporters

- CHQ Architects Ltd.
- FIRE Consultancy LTD
- FireWatch Solutions Inc
- Foster + Partners
- Meacham Associates
- Sherwin-Williams
- Siderise Insulation Ltd
- Thomas Bell-Wright International Consultants
- Wiz & Associates

1 Purpose

This Plan is intended as a guiding document that will facilitate coordinated and concerted action towards the achievement of the goal and objectives of the *Decade of Action for Fire Safety 2022–2032*. It provides the background and reasons behind the request for a declaration of a Decade of Action by the United Nations Economic Commission for Europe (UNECE) to apply to all UN regions globally.

This global Plan serves as a tool to support the development of regional, national and local plans of action, while simultaneously providing a framework to allow coordinated activities at the global level for implementation of the IFSS-CP standard and other actions.

It is directed at a broad audience including representatives of regional, national and local governments, civil society, professional bodies and private companies willing to align their activities with the global framework over the next decade.

2 The global fire problem

2.1 Magnitude of individual, economic and community impacts

The human toll of fire is immense. Globally, each year more than 150,000 people die, and more than 7,000,000 people sustain non-fatal injuries, from burns associated with fire and other sources.¹ This translates to a staggering global average of more than 400 deaths and 19,000 injuries from fire each day, which results in great physical, emotional, psychological and financial suffering to those directly impacted – as well as to society as a whole. Victims are injured, displaced from their homes, and lose their possessions. They may suffer post-traumatic stress issues. Loss of life, major injuries, financial hardship and displacement from homes can cause damage to families where the effects are felt for generations.

The cycle can be vicious, and some may never fully recover. The trauma and stress extend beyond families to loved ones and friends as well.



Informal homes consumed by fire. ©Justin Sullivan (2018)

A particular challenge is informal construction and settlements, which are often prone to rapid fire growth and spread, and which can displace thousands of people, even if casualties are low. The impact of some of the fires are clear, such as the informal settlement fire in Imizamo Yethu, Cape Town that left 10,000 people homeless and had direct costs of some \$8 million.² These fires place significant burdens on governments, NGOs and others, in addition to the devastation faced by the displaced persons.

A related challenge is that of fire safety in the workplace, which in low- and lower-middle income countries may consist of informal or inadequately regulated construction – from open markets with lightweight combustible construction to poorly constructed and maintained factories, warehouses and office buildings.³

¹ Unless otherwise noted, data cited in this Plan are taken from the RICS insight paper, [Developing a Global Standard for Fire Reporting](#), RICS, London (2020).

² Kahanji C., Walls R.S., Cicione A. (2019) *Fire spread analysis for the 2017 Imizamo Yethu informal settlement conflagration in South Africa*. Int J Disaster Risk Reduct. April 2019.

³ [Urban FRAME: Urban Fire Regulatory Assessment and Mitigation Evaluation Diagnostic](#), World Bank, Washington, DC. 2020.

In Bangladesh, for example, the cost to local companies of six warehouse fires was estimated at almost US\$365 million,⁴ without consideration of associated losses (e.g. direct and indirect losses through the supply chain, human losses, infrastructure impacts).

The cost of fire in terms of impact to business and property is also massive. In the US alone, the National Fire Protection Association (NFPA) estimated the 2014 annual costs associated with direct property loss caused by fire at US\$13.2bn and insurance costs at US\$23bn. In addition, analysis of over 470,000 global insurance claims from 2013 to 2018 by the insurer Allianz revealed that fire and explosion incidents cause the largest claims for insurers and the businesses they cover, resulting in an excess of US\$17bn worth of losses. Fires were also responsible for more than half (11) of the 20 largest non-natural catastrophe events analysed.

Furthermore, accelerated by climate change-induced drought conditions, increasing temperatures, and increasing winds, the global wildland fire situation is stark. Globally, loss due to wildland fire is presently greater than at any time in the past. In 2016, the US National Institute of Standards and Technology (NIST) estimated the total annualised economic burden of wildland fire in the US alone to be between US\$71 bn and US\$347 bn. In 2020, the wildfires in the Western US alone were **estimated at \$16.5 bn**. By the end of the 2019–2020 bushfire season in Australia, the estimated impacts were staggering: 18,983,588 hectares were burned, 3,113 houses and 33 lives were lost in 15,344, and damage was estimated to have had an A\$20 billion impact on the economy.

In addition, because of concerns regarding the contribution of the built environment to carbon emissions and climate change, some unintended consequences have developed.



Grenfell Tower Fire (Natalie Oxford, 2017)
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It is well understood that up to 60% of global energy is used in heating, cooling and servicing buildings, and up to 40% of carbon emissions are emitted from buildings. Evidence suggests that buildings – which are still heavily fossil fuel energy dependent – accounted for 6% of 2010 global greenhouse gas emissions. These emissions affect human health directly through air pollution and subsequent respiratory effects and must be reduced. However, in many countries, reducing the carbon footprint of buildings has created unintended fire safety challenges.⁵ For example, making buildings more energy efficiency through thermal insulation is important, but improper design and installation of materials and assemblies can significantly increase fire risks.

This was witnessed with the tragic 2017 Grenfell Tower fire in London, where fire spread quickly through the non-compliant façade system. In England, the impacts of this fire – in which 72 lives were lost – persist to this day. In addition, emphasis is being placed on the use of more sustainable materials, such as timber, which is

⁴ Md. Mizanuzzaman. 'Loss and Damage Assessment in the Context of Fire Hazards: A Study on Selected Garment Factories in Bangladesh'. International Journal of Finance and Banking Research. Vol. 2, No. 2, 2016, pp. 24-39.

⁵ Meacham, B.J. and McNamee, M. (2020). **Fire Safety Challenges of 'Green' Buildings and Attributes**, NFPA, Quincy, MA.

also combustible and must be properly configured and protected when used as part of building construction. Unfortunately, many building regulations around the world have been slow to fully address these potentially competing objectives of sustainability and fire resilience.⁶ Furthermore, the costs of retrofitting buildings, restructuring the building regulatory approach to fire safety, and economic impacts throughout the construction section have been significant.



*Incendie de Notre Dame à Paris. vue depuis le ministère de la recherche.
(Credits: Marind)*

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Culturally, fires can have a devastating effect on communities, even nations, when fire destroys historic and culturally important buildings, such as the **National Museum of Brazil**, the **Notre Dame Cathedral in Paris**, the **Shuri Castle in Japan**, and the 17th Century **Wangdue Phodrang Temple in Bhutan**. The loss of important historic buildings and/or their contents often means irreplaceable cultural loss: while buildings can be reconstructed, the cultural import that has been lost cannot be replaced.

2.2 Distribution of fire risk – people, assets, heritage and environment

A high percent of fire deaths and injuries occur in low- and lower-middle income countries (LMICs), which claim more than half the world's registered population. The vast majority (over 80%) of fire deaths and injuries occur in residential homes and settlements. Fire-related injuries are among the leading causes of death for people between 18-25 and 65-90 years of age. Death rates are falling in some countries, but the difference between developed and emerging nations is still stark, as reflected in Figure 1 below.

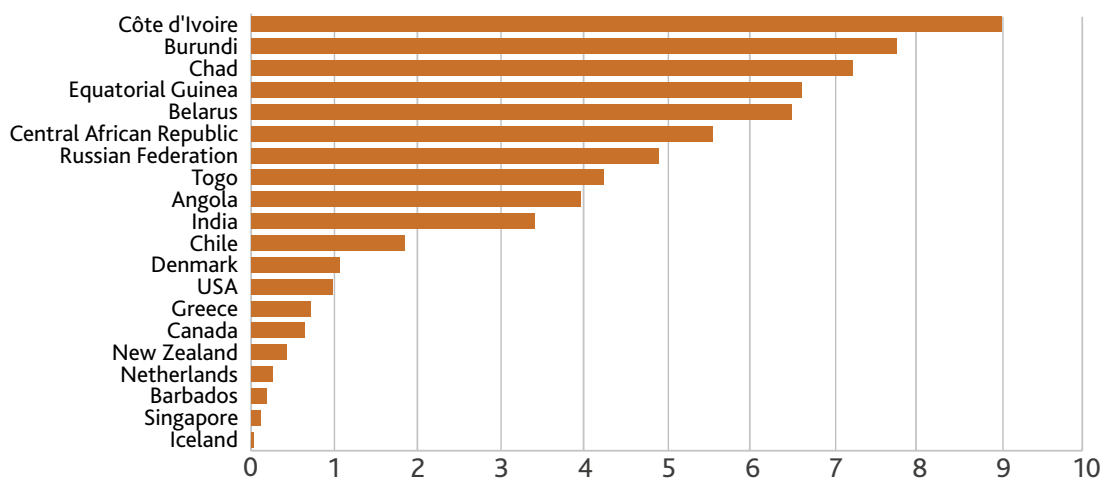


Figure 1: Fire fatality rates per 100,000 persons (WHO data – analysis by author)

⁶ Meacham, B.J. (2016). 'Sustainability and Resiliency Issues and Objectives in Performance Building Regulations'. *Building Research and Information*, Volume 44, Issue 5-6.

Unless immediate and effective action is taken, fire-related injuries in Africa alone are predicted to become a leading cause of death, resulting in an estimated one million deaths each year by 2050. This is, in part, a result of rapid increases in population and urbanisation and technological innovation without sufficient improvement in fire safety strategies, land use planning, and understanding of materials and products, all of which increase fire risk.

Concern about fire in the workplace is a significant global issue. The **2019 Lloyd's Register Foundation World Risk Poll** reports that when asked about specific sources of risk to their safety while working, one in four workers (25%) cited fire as their most significant concern. As noted in the report:

'Looking at the results by region, fire was the second-most-mentioned risk behind trips and falls in most regions of Africa... Fire was also the second most-mentioned risk in the Middle East and throughout most of Asia, potentially reflecting the number of high-profile workplace fires in those regions over the past decade. For example, in Bangladesh — where numerous workplace fires have killed and injured thousands over the years — 50% of workers identified fire as a risk.'



Smoke plumes from 2020 fires, Oregon, USA (Credit: NASA Worldview)

Increasingly, wildland fire is a global threat – one that does not discriminate based on income level. As global populations grow, human settlements often expand into the wildland, creating the wildland-urban interface (WUI). While wildland fire has always been a threat, and countless cities have been destroyed by fire over the centuries, advancements in urban planning and building construction materials and approaches have evolved to help mitigate the exposure. However, with the rapid urban expansion

that is underway and projected to continue globally, coupled with climate change, the WUI fire risk is increasing. Furthermore, building fires can result in significant impacts to the environment through emission of fire effluents, many of which can be hazardous or toxic when associated with industrial facilities, with firefighting water runoff, which can be exacerbated by chemical additives.⁷

Societally, significant fires that destroy essential services – such as hospitals, energy production facilities, agricultural and food processing facilities, medicine and critical materiel warehouses – or which result in multiple fatalities, can have tremendous socio-economic impacts on communities. For example, the destruction of the medical storage facility in Ghana in 2015 had far-reaching impacts. The facility supplied equipment and medicine for treating HIV/AIDS, Ebola, tuberculosis and other diseases for 216 districts in Ghana, and the impact of the fire was an estimated loss of medical supplies valued at US\$68 million, and the loss of three months' worth of drug reserves.⁸

⁷ McNamee M., Marlair G., Truchot B., Meacham B. (2020) **Research Roadmap: Environmental Impact of Fires**. Fire Protection Research Foundation, Quincy, MA.

⁸ Owusu-Sekyere E., Adjuik R.Y., Wedam E. (2017). **The Central Medical Store Fire Disaster: A Test for Institutional Compliance in Disaster Prevention in Ghana**. SAGE Open. 2017;7(2).

3 Benefits of global fire risk reduction

The global benefits of fire risk reduction are significant. They include reduced human suffering, reduced losses to property and economies, reduced environmental impacts and reduced social inequity. This translates into safer and more resilient people, buildings and communities.

3.1 Reduced human trauma, suffering and social inequity

Reducing fire-related casualties and fatalities will reduce physical and emotional trauma and suffering. Fire can be terrifying; it can rapidly grow and spread, outpacing the ability of persons to escape, and leave death and destruction in its wake. Those who survive a fire often have to deal with psychological issues in addition to physical injury. Bereaved family and friends can suffer for decades. Those who are displaced from their homes and lose their possessions often do not have the resources to secure basic shelter, clothing and daily needs. Even for those who have not experienced fire in the home, concerns about fire in the workplace can create anxiety and stress, which can extract an enormous toll.

Fire disproportionately impacts the most vulnerable population groups, from those living in poverty, informal housing and poorly maintained housing, to the very young and the very old, who are unable to take steps to reduce fire threats or to take action to save themselves in the case of fire. While the most vulnerable are at risk worldwide, the numbers of at-risk persons are most rapidly increasing in those parts of the world experiencing rapid urbanisation – many of which are in low- and middle-income countries.

Between 1990 and 2015, the urban environment in less developed countries increased by a factor of 3.5.⁹ By 2050, **it is estimated** that up to 2/3 of all people will be living in cities. Such rapid urbanisation can bring with it numerous hazards and risks, including increased fire hazards. This is especially a concern where regulatory capacity is insufficient to implement and enforce comprehensive building fire safety regulations, and where widespread use of informal buildings or informal settlements exist.¹⁰ Urbanisation can and should be embraced as an opportunity to reduce poverty,¹¹ and at the same time to reduce hazards from fire associated with informal construction, unsafe heating and cooking appliances, unsafe workplaces, inadequate firefighting resources, and inadequate access to emergency healthcare.

3.2 Reduced property and economic losses

Enhancing the fire resilience of buildings, infrastructure and communities can result in proportional decreases in property loss, direct and indirect economic impacts.

9 Angel et al., *Atlas of Urban Expansion—2016 Edition, Volume 2: Blocks and Roads*, New York: New York University, Nairobi: UN-Habitat, and Cambridge, MA: Lincoln Institute of Land Policy, 2016.

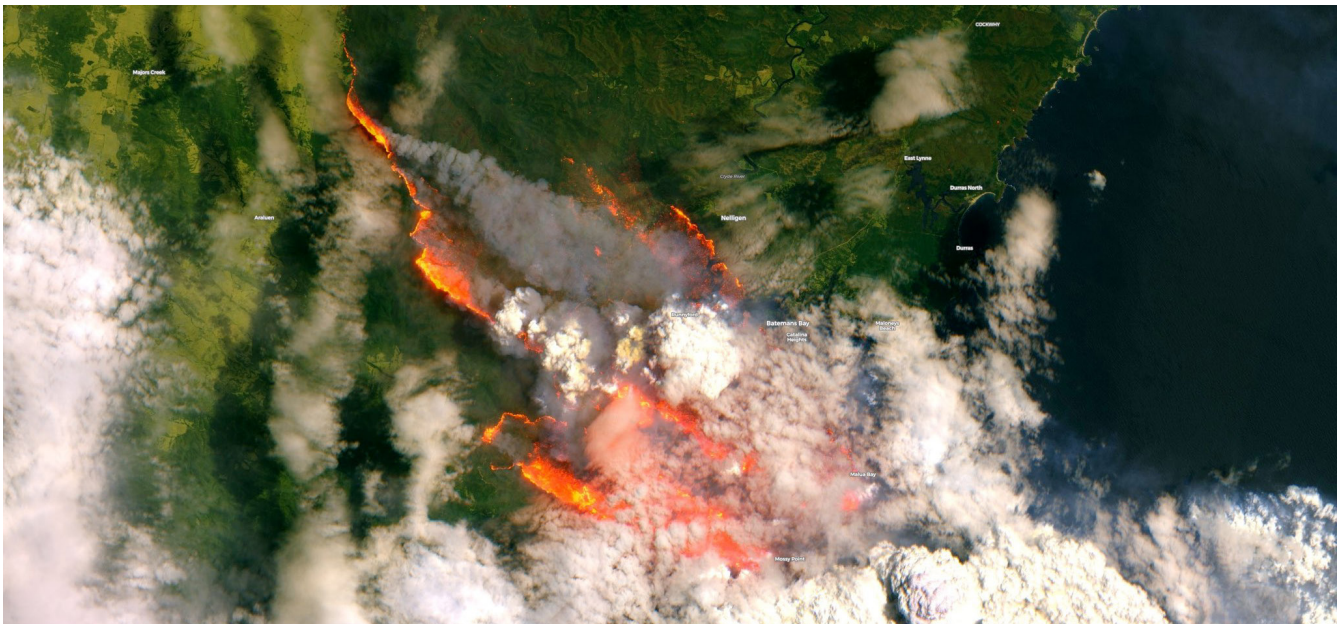
10 World Bank. 2020. *Urban FRAME: Urban Fire Regulatory Assessment and Mitigation Evaluation Diagnostic*. World Bank, Washington, DC. © World Bank.

11 See, for example, Christiaensen, Luc; De Weert, Joachim; Todo, Yasuyuki. 2013. *Urbanization and poverty reduction -- the role of rural diversification and secondary towns* (English). Policy Research working paper; no. WPS 6422. Washington, DC: World Bank. and Mingxing Chen, Yuwen Sui, Weidong Liu, Hui Liu, Yaohuan Huang (2019), *Urbanization patterns and poverty reduction: A new perspective to explore the countries along the Belt and Road*. Habitat International. Volume 84, Pages 1-14.

With some estimates placing the cost of fire upwards of 1% of GDP in high-income countries, and considering that this magnitude of cost may impact countries globally, the financial and economic impacts of fire are enormous. At present it is estimated that 70% of global wealth is invested in real estate. As the global population continues to grow from the current 7.5 billion to over 8.5 billion as predicted by the end of 2035, and to 9.7 billion as predicted by 2050, the number of rapidly expanding existing cities, new cities, new and more numerous tall buildings, and new infrastructure will grow proportionately, as will potential economic losses when fire occurs. This growth in new construction, together with introduction of new materials and technologies, increasing building density, and changes in use/repurposing of existing buildings and infrastructure, may increase the fire risk associated with the design, construction and management of buildings and infrastructure.

This is particularly true where expansion includes inadequately protected combustible construction, increased sources of potential ignition (from building electrical systems to lithium-ion batteries in devices and for energy storage), inadequate firefighting water infrastructure and inadequately supported fire services.

Furthermore, with climate change resulting in increasing temperatures and more areas under drought conditions, and the expansion of more populated areas into the wildland, the potential for widespread loss of buildings, infrastructure and communities located within the wildland-urban interface (WUI) areas will likely increase. As of August 2021, wildfires in Greece were destroying towns and causing a '**disaster of unprecedented proportions**', and in the US State of California, the 'Dixie Wildfire' has become the largest wildfire ever in the state, levelling buildings and raising fears that 2021 will be **the worst fire year on record**. In the US alone, the nationwide expansion of the WUI from 1990 to 2010 was significant in terms of both number of new houses (41% growth) and land area (33% growth), making it the **fastest-growing land use type** in the conterminous US. The situation is even more extreme in regions of the world with rapid urban development that is encroaching into the wildland. Concerted efforts are needed to stem the fire risks in these wildland-urban interface environments.



Bateman Bay, Australia, December 2019. (Copernicus EMS; Sentinel 2/ESA)

3.3 Reduced impact on the environment

The environmental impact of fire can be considered as any fire outcome that affects the physical, chemical, biological, cultural or socio-economic components of the environment, whether direct or indirect.¹² In addition to carbon emissions and the associated impact on climate change potential, direct impacts can include:

- non-carbon contamination of the air by products of combustion distributed via the fire plume
- contamination of soil and water from the deposition of products of combustion and
- contamination from fire suppression agents and firefighting water runoff containing toxic products.

Environmental impact of fire results from fires in the wildland, fires within the built environment, and increasingly, the combination in the wildland-urban interface (WUI). The increasing number, frequency and magnitude of wildland fires means increasing amounts of carbon emissions, losses of natural environment, and in some cases, additional impacts from firefighting chemicals. In the built environment, every building that burns increases carbon emissions from both the fire and the processes, transport and materials used for reconstruction.








Industrial fire at a plastics factory in Leamington Spa, UK, August 2021
(Credit: SWNS)

Industrial fires present additional hazards based on the fire effluents that may be released from the combustion of toxic and hazardous materials stored or used in operations on site. By increasing the fire resilience of buildings, infrastructure and communities to fires that initiate within the built environment or in the wildland, and reducing the carbon emissions and release of toxic and hazardous effluents, significant protection of the environment can be achieved.

¹² Meacham, B.J. and McNamee, M., Eds. *Handbook of Fire and the Environment: Impacts and Mitigation*, Springer (In press – expected publication February 2022).

4 Initiatives that work

Fire-related fatalities, injuries, property and environmental damage can be prevented. Experience suggests that an adequately-funded lead agency and a national plan or strategy, with measurable targets, are crucial components of a sustainable response to fire safety. Interventions that are proven to make a difference, when implemented efficiently and effectively, are outlined below.^{13, 14}

	Focus	Initiatives
	People	<ul style="list-style-type: none"> • Training and education for members of the public on the causes of fire and burns, the very rapid spread of fire and smoke, and safety and evacuation planning. • Setting and enforcing higher criminal sentencing limits for those who disregard fire safety. • Improving health and safety from wildland fire and fire effects. • Improving post-fire care for victims of fire.
	Products	<ul style="list-style-type: none"> • Developing and distributing safe consumer appliances into the marketplace, especially for low- and lower- and middle-income countries (e.g. heating and cooking appliances). • Developing low-cost, fire-resistive construction.
	Structures	<ul style="list-style-type: none"> • Setting and enforcing laws, regulations and codes requiring the use of fire safety standards and best practice in building fire safety. • Designing more fire-safe and fire-resilient new (formal/regulated) buildings and infrastructure. • Introducing requirements for appropriate training, education, qualifications and competency of fire safety professionals and technicians within the building regulatory system. • Increasing focus on an enforcement framework that ensures compliance with fire safety regulations, codes and standards. • Creating requirements for robust fire risk assessment and management programmes, with appropriately trained, educated, qualified and competent practitioners. • Managing fire risk during construction in new and existing buildings. • Requiring independent fire safety audits for new construction projects and existing buildings/infrastructure. • Enforcing effective fire safety management through regulation and in the private sector through the use of nonregulatory intervention measures.
	Firefighting Infrastructure	<ul style="list-style-type: none"> • Improving resources for fire and rescue services. • Improving fire suppression infrastructure. • Improving wildland fire suppression capacity.
	Communities	<ul style="list-style-type: none"> • Incorporating fire safety features into land-use, urban planning and transport planning. • Implementing fire data collection and analysis systems, and effective use of data to inform regulations and other fire safety interventions. • Promoting a higher level of regulations, codes and standards for resilience of the built environment, including wildland-urban interface. • Improving the fire safety features of existing buildings and infrastructure.

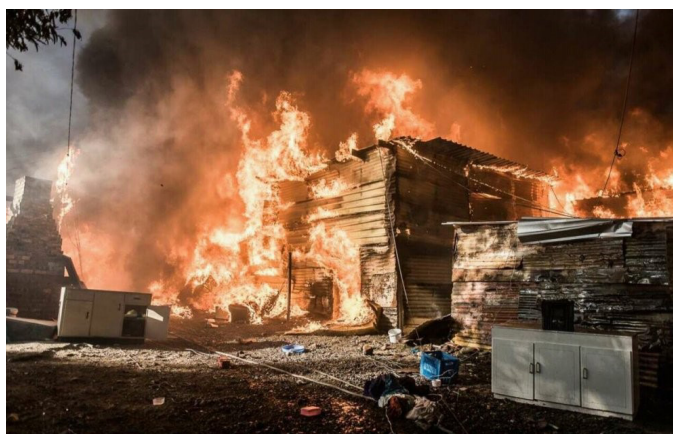
¹³ The NFPA Fire & Life Safety Ecosystem, NFPA, Quincy, MA, USA.

¹⁴ IFSS Coalition. 2020. *International Fire Safety Standards: Common Principles*, 1st edition.

When a comprehensive and robust building fire safety regulatory system is in place, fire risks can be managed efficiently and effectively, and people, property and community are safer.

Laws, Acts and Ordinances establish the legal basis for implementation and management of fire safety in buildings, and for allocating appropriate resources for firefighting. Legislation is often seen as something industry would rather have less of and is therefore talked about as a necessary evil. This is not actually true; what industry wants is certainty, and poor or uneven implementation of legislation is a source of uncertainty. Furthermore, if legislation is inadequate in the first instance, marketplace standards then come from the moral compass and commercial pressures. Good legislation, with uniform application, provides for certainty and a level playing field and is therefore welcomed by industry as well as the public.

Public awareness campaigns play an incredibly important role in making the public aware of how they can better safeguard themselves. They also support the enforcement of legislative measures and standards for fire safety, by increasing awareness of fire risks and of the penalties associated with breaking the law.



Informal settlement fire, South Africa (Photo copyright Justin Sullivan, 2018, reprinted with permission)



Wildland fire encroaching on neighbourhood. Source: US FEMA (US government)

Fire safety provisions within building and fire regulations (codes) establish a minimum baseline for fire performance expectations for new construction. Training, education, qualifications and credentialing mechanisms establish the baseline skills and knowledge for practitioners in the system – from tradespersons to technicians, architects to engineers, fire prevention officers to code enforcement officials, manufacturers to insurers, and all others who play a role.

Robust resources for the fire service facilitate the staffing, apparatus and suppression infrastructure that is needed to effectively respond to and control fires when they occur.

5 Gaining momentum for increasing fire safety

There is growing awareness that the current fire safety situation constitutes a crisis with devastating health, social and economic impacts that threaten the generational health and development gains that have been achieved. Fire safety is not a new issue, but over the last five years activity at an international level has gained new momentum.

A number of high-profile building fires have occurred across the spectrum from low- to high-income countries: Bangladesh, India, Brazil, China, Australia, England, France. This reflects the magnitude of the fire safety situation:

- its social, cultural, public health and economic impacts
- specific risk factors
- ineffective strategies
- implementation of interventions and maintenance and
- lack of resources (especially in low- and lower- and middle-income countries).

In addition, wildland (bush) fires have been increasing in frequency and magnitude around the world. Australia, Europe and North America have each experienced numerous devastating wildland fire seasons over the past five years.

Fires such as these have served to provide momentum for the adoption of a public UN General Assembly Resolution that calls on Member States and the international community to include fire safety as a global policy issue, making specific recommendations for action. The United Nations Economic Commission for Europe (UNECE) supported the creation of the International Fire Safety Standards Coalition (IFSSC) in July 2018 in answer to this call, with the production of the **IFSS Common Principles** as a first outcome.

Even so, current initiatives and levels of investment are inadequate to halt or reverse the predicted rise in fire-related deaths and injuries as a result of global population increase, climate change and interacting factors. The IFSSC notes that despite evidence of growing awareness of and commitment to fire safety issues, political will and funding levels are far from commensurate with the scale of the problem.

The Coalition concludes that the crisis requires ambitious vision, increased investment, and better collaboration, and commends this *Plan for Decade of Action for Fire Safety* as a major opportunity for crystallising action plans and catalysing the next action steps.

6 Why a Decade of Action for Fire Safety?

The International Fire Safety Standards Coalition agrees that a call for a *Decade of Action for Fire Safety* is essential. A *Decade of Action for Fire Safety* would provide an opportunity for long-term and coordinated activities in support of international, regional, national and local fire safety.

The science of fire knows no geographical, socio-economic or political boundaries. Key partners in global fire safety agree that the time is right for a cultural shift of accelerated investment in fire safety, particularly in low-income and middle-income countries. There also needs to be a sharing of knowledge and expertise, development of sustainable fire safety strategies and programmes (which rethink the relationship between buildings and people), encouragement to use and enforcement of improved fire safety standards, and also a change of approach to measurement of national progress in fire safety policy. Major risk factors are understood, as are effective counter-measures to address them. Collaborative structures are in place to bring together key international players, funders and civil society, and there is a requirement for a funding mechanism to support accelerated investment and activity. Sufficient resources and political will are the key elements still lacking.

A *Decade of Action for Fire Safety* would provide a timeframe for action to encourage political and resource commitments to fire safety both globally and nationally. Donors could use the *Decade of Action for Fire Safety* as a stimulus to integrating fire safety into their assistance programmes. Low-income and middle-income countries can use it to accelerate the adoption of sustainable and cost-effective fire safety programmes and standards, while high-income countries can use it to make progress in improving their fire safety performance as well as a platform to share their experiences and knowledge with others.

As an example, this type of plan is already established in other industries. In March 2010 the United Nations General Assembly resolution proclaimed a **Decade of Action for Road Safety 2011–2020** (A/64/255) with a goal of stabilising and then reducing the forecasted level of road traffic fatalities around the world by increasing activities conducted at national, regional and global levels. The Resolution called upon Member States to implement road safety activities, particularly in the areas of road safety management, road infrastructure, vehicle safety, road user behaviour, road safety education and the post-crash response. While supporting the regular monitoring of progress towards the achievement of global targets relating to the Decade, it noted that national targets relating to each area of activity should be set by individual Member States. The Resolution requested that the World Health Organization and the United Nations regional commissions, in cooperation with other partners in the **United Nations Road Safety Collaboration** and other stakeholders, prepare a global plan for the decade as a guiding document to support the implementation of its objectives.

According to the UN, progress made during the *Decade of Action for Road Safety 2011–2020* laid the foundation for accelerated action in the years ahead. Among achievements is the inclusion of road safety on the global health and development agenda, broad dissemination of scientific guidance on what works, strengthening of partnerships and networks, and mobilisation of resources. So effective was the *Decade of Action for Road Safety 2011–2020*, that In August 2020 the UN General Assembly adopted **resolution 74/299 Improving global road safety**, proclaiming a **new Decade of Action for Road Safety 2021–2030**, with the ambitious target of preventing at least 50% of road traffic deaths and injuries by 2030.

Progress during the Decade of Action for Road Safety 2011-2021 included:

- a large number of participating countries (175 by 2018)
- of the 175 countries participating in the 2018 report, 123 have road traffic laws that meet best practice for one or more key risk factors
- during the period 2014 – 2018:
 - 10 additional countries (45 in total) have aligned with best practice on drink-driving legislation
 - 5 additional countries (49 in total) on motorcycle helmet use
 - 4 additional countries (33 in total) on the use of child-restraint systems and
 - 3 additional countries (105 in total) on the use of seatbelts.
- progress was made in the planning, design and operation of roads and roadsides, and in the take-up of a range of tools, notably the International Road Assessment Program (iRAP), which is a star rating tool for road networks:
 - as of 2018, 114 countries carried out systematic assessments or star ratings of existing roads.
- progress was made in improving access to post-crash care to reduce the consequences and severity of injury once a crash occurs:
 - as of 2018, 109 countries have access to a telephone number to contact emergency care and 97 countries have a formal process to train and certify prehospital care providers.

The parallels of road safety with fire safety are immense.

- Data on the actual situation with fire safety, risk, and cost – globally – is lacking.
- Systems to collect, analyse and report fire data in many countries – and globally – are lacking.
- Legislation, regulation and regulatory capacity for fire safety in building, and in the wildland urban interface (WUI), are lacking in many countries, in particular low- and lower-middle-income countries.
- Fire risks are increasing globally with rapid urbanisation, new materials and combinations of materials in construction, new localised energy sources in buildings (e.g. energy storage systems (ESS) and photovoltaic systems (PVS)), and more.
- Access to and uptake of tools for fire risk reduction is lacking in many countries.

Likewise, the challenges to addressing the problems are similar, and the consequences of a lack of safety culture result in unnecessary losses. *A Decade of Action for Fire Safety* would be a significant step towards addressing these global challenges and needs.

7 A framework for the Decade of Action for Fire Safety

The guiding principles underlying the *Decade of Action for Fire Safety* reflect a sustainable and fire-resilient approach for society, buildings, infrastructure and communities. This approach embodies a socio-technical systems approach that considers people, technologies, institutions, and their interactions, and is therefore able to accommodate:

- the complexities of human behaviour and vulnerabilities
- technical opportunities in fire risk mitigation
- impacts of technology failure in the causes of fire and
- the building and fire regulatory system and the support infrastructure that is in place.

The starting point is the acceptance of human and natural behaviour, the limits of technology, and the understanding that unwanted fires can never be completely avoided. From this starting point, a 'safe system' approach can be adopted, which aims to ensure that accidents or deliberate fire setting do not result in serious human injury. The approach considers that human limitation is an important basis upon which to design the fire safety system, and that other aspects of the system (such as the development of the built environment and the firefighting resources, and the regulatory and support systems) must be harmonised on the basis of these limitations. Building users, buildings and the environment are addressed in an integrated manner, through a wide range of interventions, with greater attention to building management and design principles than in traditional approaches to fire safety.

This approach means shifting a major share of the responsibility from users of buildings to those who design, construct and manage the fire safety system (the dutyholders). System designers include architects, developers, contractors, politicians and legislative bodies. However, there are many other players who also have responsibility for fire safety, such as owners, corporations, the judicial system, schools, and nongovernmental organisations. The individual building users also have a responsibility to abide by laws and regulations.

The framework for the *Decade of Action for Fire Safety* also recognises the importance of ownership of the risk at national and local levels, and of involving multiple sectors and agencies. Activities towards achieving the goal of the Decade should be implemented at the most appropriate level and the involvement of a variety of sectors (transport, health, fire and rescue services, police, justice, urban planning, etc.) should be encouraged. Nongovernmental organisations, civil society, professional bodies, research organisations, and the private sector should be included and encouraged in the development and implementation of national and international activities towards meeting the Decade's goals.

7.1 Goal, objectives and actions

The goal of the *Decade of Action for Fire Safety* is:

To stabilise and then reduce the forecast level of fire fatalities, injuries, economic cost and environmental impact around the world by 2032 as global population increases.

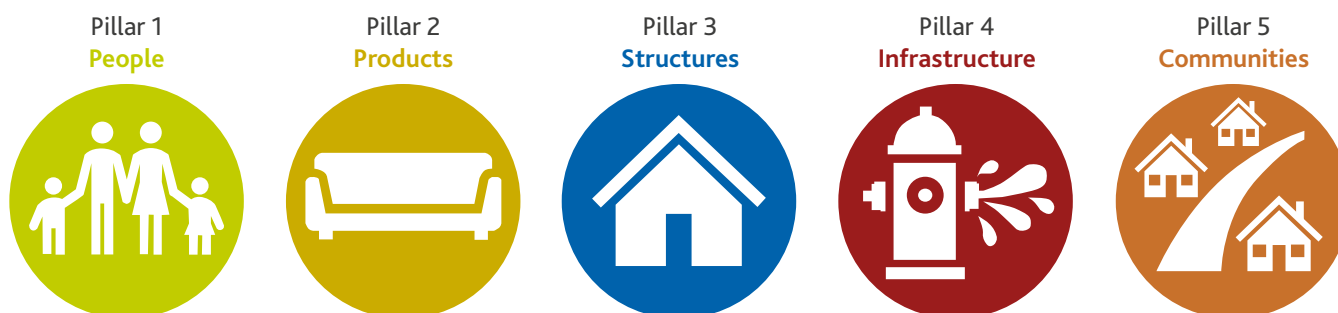
The **objectives** are to:

1. Encourage every country to have a strong and adequately resourced national fire safety focus.
2. Establish an ambitious yet feasible target for reduction of fire-related fatalities and injuries by 2032, by building on the existing frameworks of regional and national and local initiatives.
3. Improve the quality of or implement fire data collection at the local, national, regional and global levels.
4. Monitor progress and performance on a number of predefined indicators at the national, regional and global levels.
5. Encourage increased funding for fire safety, including education and training, and better use of existing resources, including through ensuring a fire safety component within infrastructure projects.
6. Facilitate development and implementation of contextualised public service messaging, training and education on measures to increase individual, family and community fire safety.
7. Facilitate development and distribution of fire-safe heating and cooking appliances appropriate to the needs of low- and middle-income countries (LMICs).
8. Facilitate the development of fire-safe building materials, technologies and systems appropriate to the needs of all communities, from low-income to high.
9. Develop and implement sustainable fire safety standards, guidance, strategies and programmes that are contextualised for local implementation and maintenance.
10. Strengthen the management infrastructure, capacity and professionals employed in technical implementation of fire safety activities at the national, regional and global levels.
11. Strengthen the fire service capacity and firefighting infrastructure to meet increasing needs and the interface with rescue and hospital capacities.
12. Facilitate sustainable and fire-resilient communities through integrated infrastructure, planning and building regulation, fire service support and community support.
13. Where currently lacking, develop and implement effective regulatory frameworks that will enforce compliance of laws, regulation, codes and standards.
14. Assure that regulatory framework adequately considers life safety in buildings and in relation to wildlife fires; and asset preservation in terms of economy, community welfare and heritage, and environmental impact.
15. Continually review fire data collected, and make evidence-based changes to regulatory frameworks as appropriate.

7.2 Pillars of action

It is envisioned that several actions can be undertaken in support of meeting the goal and objectives of the *Decade of Action for Fire Safety*. Actions can take place at the individual, community, city, national, regional and/or global level. These can be supported and/or led by social entrepreneurs, nongovernmental organisations, governments and private-sector entities.

The actions are grouped into five **pillars of action**, which can be supported and/or led at one or more of the levels.



In the following sections, the focus is on **actions** rather than the level of development/implementation, since some actions may have applicability across several levels (i.e. community to global). In all cases, appropriate contextualisation of the actions within the environment of focus is critical, since the suggested activities can only serve as a guide. Development, implementation and maintenance of the various information and mitigation efforts need to take place within the context of the individuals, groups, community, city and/or country of focus.

Within any given country, the actions should be considered within the context of an **integrated national strategy for fire safety**. Key aspects of such a strategy are presented in section 7.3.



7.2.1 Pillar 1 – People

Pillar 1 offers a set of actions that can be implemented to help individuals and groups (**people**) to:

- increase their understanding of fire
- learn what they can do to reduce their exposure to fire and flames
- reduce their vulnerability to unwanted fire if it occurs
- gain access to emergency medical care in the case of burns, smoke inhalation and other fire impacts to persons
- gain access to post-fire counselling and support services and
- obtain just and fair settlements.



Pillar 1 actions	Importance
Undertake research related to fire safety risk factors, prevention measures and safety in case of fire actions in the context of the need. A particular focus is to define the hazards and risk within the context of the individuals, groups and communities of focus. This would include identifying groups with vulnerabilities and evaluating fire risk. This should include aspects associated with behaviours and activities that could increase fire risk (i.e. fire setting behaviours, smoking, outdoor fire pits or barbeque, etc.) as well as those necessary to reduce fire risk (i.e. fire prevention and evacuation training).	The fire hazard and risk situation need to be well understood to inform potential mitigations.
Undertake community needs assessment related to fire safety risk factors, prevention measures and safety in case of fire. Priority should be given to vulnerable population groups, such as the very young, the aged, those with physical, mental or emotional impairments, and those living in informal construction and/or informal settlements.	The local context and need must be understood before appropriate solutions can be developed. This step can inform prioritisation.
Develop contextually appropriate awareness and training materials focused on fire safety risk factors, prevention measures and safety in case of fire.	Awareness messaging and training must be framed within the local context. They should also be focused on sustaining awareness of measures that can be taken, from prevention through evacuation.
Develop contextually appropriate community and public service campaigns to increase and maintain awareness of fire safety risk factors, prevention measures and safety in case of fire to help positively impact and influence attitudes, opinions and behaviours.	
Implement contextually appropriate training and educational programmes around sustained awareness of fire safety risk factors, prevention measures and safety in case of fire to help positively impact and influence attitudes, opinions and behaviours.	
Develop hospital fire trauma care systems and evaluate the quality of care through the implementation of good practices on trauma care systems and quality assurance.	Programmes for care of injured and bereaved are critical post-fire needs.
Provide early rehabilitation and support to injured patients and those bereaved by fire, to minimise both physical and psychological trauma.	
Encourage the establishment of appropriate medical insurance schemes to finance rehabilitation services for fire victims.	
Encourage thorough investigation of fires and the application of an effective legal response to deaths and injuries in support of fair settlements and justice for the injured and bereaved.	Access to fair judgements and compensation is important for recovery.

Potential resources for pillar 1 actions

Globally there are a number of organisations and/or documents that can provide valuable insight into the further development of pillar 1 actions. The following is a brief, representative list of potential resources for additional information, guidance and/or support.

- **Arup Framework for Fire Safety in Informal Settlements**
- National Fire Protection Association, **Learn Not to Burn® program**
- **World Health Organisation Injuries and Violence Resources**
- **IFSS Common Principles**
- World Bank. 2020. **Urban FRAME: Urban Fire Regulatory Assessment and Mitigation Evaluation Diagnostic**. World Bank, Washington, DC. © World Bank.
- **Fire Protection Handbook**, National Fire Protection Association, Quincy, MA, USA.



7.2.2 Pillar 2 – Products

Pillar 2 presents a set of actions that can be implemented to help reduce fire hazards and risks associated with appliances, contents and building components (**products**). This set of actions is focused on identifying and reducing:

- the use of open flame devices and appliances for heating, cooking, and related functions
- hazards associated with potentially unsafe electrical devices and appliances and
- hazards associated with the improper use and installation of building contents, materials and assemblies (e.g. construction materials, wall linings, etc.).



Pillar 2 actions	Importance
Undertake research associated with extent of use of open flame devices and appliances in the environment of focus.	Reducing exposure to open flame is a significant fire risk mitigation measure.
Where open flame cooking and/or heating is prevalent, facilitate research on alternatives to open flame devices and appliances in the community, with due appreciation of the context.	
Facilitate development of programmes and seek appropriate funding for replacement of open flame devices and appliances.	
Set and seek compliance with laws, ordinances and evidence-based design standards and rules requiring fire-safe heating and cooking devices and appliances.	
Undertake research associated with dangers associated with external electrical cabling/ wiring in streets and on buildings and the extent of inappropriate electrical overloading, presence of unsafe electrical appliances, existence of potentially unsafe Lithium-ion battery devices, and other potential sources of electrical ignition, shock or burns.	Reducing exposure to electrical ignition hazards is a significant fire risk mitigation measure.
Facilitate research on safety measures to reduce electrical ignition hazards within constructed environments, as associated with occupant actions, with due appreciation of the context.	
Set and seek compliance with laws, ordinances and evidence-based standards and rules to requiring safe external and internal electrical cabling and electrical appliances and devices in buildings.	
Undertake research associated with extent of use of readily combustible contents, particularly in construction without compartmentation or other fire safety measures (such as information about the construction).	Reducing highly combustible and toxic smoke-emitting contents is a significant fire risk mitigation measure.
Set and seek compliance with laws, ordinances and evidence-based standards and rules to reduce unsafe combustible contents (e.g. readily ignitable, highly flammable, extremely fast fire growth rate materials).	

Review/assess the extent of use of unprotected combustible building materials, including for structure and interior finish.	Reducing unprotected combustible construction is a significant fire risk mitigation measure.
Set and seek compliance with laws, ordinances and evidence-based standards and rules to reduce unprotected combustible construction (e.g. readily ignitable, highly flammable, extremely fast fire growth rate materials).	
Establish, where non-existent, test facilities for fire performance of materials, components and products used in building contents and in building construction.	Test facilities and product certification systems are critical fire risk reduction measures.
Establish, where non-existent, product certification schemes for fire performance of materials, components and products used in building contents and in building construction.	Promotes compliance of products and materials with important safety standards that contain fire-related construction and performance requirements.
Consider requiring third-party oversight for all product test and certification schemes.	Enhances confidence in tested/certified products.

Potential resources for pillar 2 actions

Globally there are a number of organisations and/or documents that can provide valuable insight into the further development of pillar 2 actions. The following is a brief, representative list of potential resources for additional information, guidance and/or support.

- **IFSS Common Principles**
- World Bank. 2020. **Urban FRAME: Urban Fire Regulatory Assessment and Mitigation Evaluation Diagnostic**. World Bank, Washington, DC. © World Bank.
- ASFP/BCF **Advisory Note 12: best practice guide for specifying reactive coating fire protection for steel structures**
- **UL Guide to Steelwork Fire Protection**, 2nd edition, June 2019
- **Fire safety handbook**, PU Europe, Brussels, Belgium, 2020.
- Catalogue of **UL standards**
- **Fire Protection Handbook**, National Fire Protection Association, Quincy, MA, USA.
- Fire test standards from the International Organization for Standardization and as produced by standards development organisations in many countries.



7.2.3 Pillar 3 – Structures

Pillar 3 presents a set of actions that can be implemented to help reduce fire hazards and risks associated with **structures**, including their planning, design and operation. This set of actions is focused on:

- building fire safety legislation and regulation
- material, design, inspection and test standards
- deployment of improved fire safety technologies for both passive and active fire safety
- robust fire safety management schemes

- adequately educated, qualified and certified professionals
- adequate resources for building and fire inspection and control.



Pillar 3 actions	Importance
Ensure that laws, building regulations and evidence-based standards and rules exist and are enforced to reduce fire-related fatalities and injuries during the building occupation phase.	Adequate building fire safety regulation is imperative to fire risk reduction. Care should be taken to continually assess fire data, especially over time, and consider appropriate regulation for existing buildings if risk profile changes with time.
Where non-existent, or where gaps exist, encourage development and promulgation of building fire safety regulations that reflect international best practice. They should be adapted to the context of the national situation and need, and take a holistic approach to sustainable and fire-resilient planning and design.	
Ensure that building fire safety regulations address, and all new buildings and infrastructure are equipped with, passive and active fire safety features that meet regulatory requirements and comply with the IFSS Common Principles as minimum safety features.	
Encourage application of fire protection regulations and standards and increased research into safety technologies designed to reduce fire risks to vulnerable users.	
Encourage increased research into fire safety technologies to improve fire protection and life safety in historic, culturally important and existing buildings.	
Encourage development and promulgation of building fire safety regulations that reflect research findings and international best practice to improve fire protection and life safety in historic, culturally important and existing buildings.	
Develop, promulgate and seek compliance with evidence-based standards and rules to require safe electrical systems and equipment in buildings.	Regulatory provisions for reducing potential ignition sources are critical for fire and burn risk reduction.
Develop, promulgate and seek compliance with evidence-based standards and rules to require safe heating equipment in buildings.	
Develop, promulgate and seek compliance with evidence-based standards and rules to require safe water-heating equipment in buildings.	
Ensure adequate capacity and resourcing for building and fire code enforcement, including plan review and inspection.	Adequate review, inspection and enforcement are essential for fire risk mitigation.*
Promote the use of effective code-checking and inspection systems and technology, including electronic systems.	
Encourage universal deployment of fire avoidance technologies with proven effectiveness, such as regular inspections and follow-ups to reduce risk.	
Facilitate adequate education and training opportunities for building and fire officials.	

Facilitate adequate education and training opportunities for all actors in the design, construction and management of buildings, including but not limited to architects, engineers, technicians, building officials/surveyors, fire officials, risk assessors.	Education and training, and certification of competent professions, are essential to fire risk reduction.
Promote establishment of competence/licensing systems for all actors in the design, construction and management of buildings, including but not limited to architects, engineers, technicians, building officials/surveyors, fire officials, risk assessors.	
Promote safe operation, maintenance and improvement of building and infrastructure during construction.	Worker safety and fire safety during construction is important.
Encourage research and development in safer construction operations.	
Facilitate adequate education and training opportunities for safer construction operations.	
Promote fire safety ownership and accountability among authorities, clients, contractors, designers, engineers and construction managers.	Fire safety management culture is critical to fire risk reduction.
Promote fire safety ownership and accountability among building and facility owners, managers and operators.	

* It is vital that the persons who design, construct and manage buildings realise and accept that compliance is their responsibility and this cannot be abdicated to the regulators. The regulatory regime must reflect that the regulator is not taking responsibility for compliance away from the proper dutyholders in their approval process.

Potential resources for pillar 3 actions

Globally there are a number of organisations and/or documents that can provide valuable insight into the further development of pillar 3 actions. The following is a brief, representative list of potential resources for additional information, guidance and/or support.

- **IFSS Common Principles**
- World Bank. 2020. **Urban FRAME: Urban Fire Regulatory Assessment and Mitigation Evaluation Diagnostic**. World Bank, Washington, DC. © World Bank.
- **BS 8670: Built Environment – Core criteria for building safety in competence frameworks – Code of practice**, British Standards Institution, London.
- **Fire safety handbook**, PU Europe, Brussels, Belgium, 2020.
- **Fire Protection Handbook**, National Fire Protection Association, Quincy, MA, USA.
- Catalogue of **UL standards**
- Fire materials, fire protection systems, fire system design, and fire inspection, test and maintenance standards from the International Organization for Standardization and as produced by standards development organisations in many countries.



7.2.4 Pillar 4 – Firefighting Infrastructure

Pillar 4 presents a set of actions that can be implemented to help enhance firefighting infrastructure. This set of actions is focused on support for:

- the fire service
- emergency medical response services
- apparatus and
- critical firefighting infrastructure, such as water supplies and distribution systems



Pillar 4 actions	Importance
Assess the existing fire and emergency services personnel resources and future needs to provide the level of fire safety targeted for the country and delivered to all communities.	Adequate emergency services are critical to fire risk reduction.
Assess the existing fire and emergency services facilities resources and future needs to provide the level of fire safety targeted for the country and delivered to all communities.	
Assess the existing fire and emergency services apparatus resources and future needs to provide the level of fire safety targeted for the country and delivered to all communities.	
Assess the existing fire and emergency services organisation and future needs to provide the level of fire safety targeted for the country and delivered to all communities.	
Develop resourcing plans for expansion of fire and emergency services personnel, facilities and apparatus needed for providing the level of fire safety targeted for the country and for mapping the country to increase the fire response coverage.	
Develop resourcing plans for expansion of training and educational resources and facilities for fire and emergency services personnel.	
Develop organisation and management of fire and emergency services, including the relation with health and medical support.	Adequate firefighting water infrastructure is critical to fire control.
Assess the existing firefighting water supply and distribution infrastructure and future needs to provide the level of fire safety targeted for the country and delivered to all communities.	
Develop resourcing plans for enhancing firefighting water supply and distribution infrastructure to meet the level of fire safety targeted for the country and delivered to all communities.	
Seek funding as part of infrastructure development programmes to enhance fire and emergency services, facilities, apparatus and firefighting water supplies and distribution systems.	

Potential resources for pillar 4 actions

Globally there are a number of organisations and/or documents that can provide valuable insight into the further development of pillar 4 actions. The following is a brief, representative list of potential resources for additional information, guidance and/or support.

- **IFSS Common Principles**
- World Bank. 2020. **Urban FRAME: Urban Fire Regulatory Assessment and Mitigation Evaluation Diagnostic**. World Bank, Washington, DC. © World Bank.
- The Underwriters Laboratories, **Fire Safety Research Institute** (FSRI) has a large body of freely available evidence-based training.
- **Fire Protection Handbook**, National Fire Protection Association, Quincy, MA, USA.



7.2.5 Pillar 5 – Communities

Pillar 5 presents a set of actions that can be implemented to facilitate sustainable and fire resilient **communities**. This set of actions is largely focused on

- promoting the concept of integrating fire safety issues into planning and zoning of buildings and infrastructure in a sustainable and resilient manner and
- addressing wildland-urban interface (WUI) fire threats.



Pillar 5 actions	Importance
Promote sustainable and fire resilient (SAFR) urban planning, construction management and land-use management.	Fire safety should be integral to land use, urban and WUI planning. Consideration should be given to the holistic use of fire management, resilient construction and related means to limit fires, the spread of fires when they occur and their impacts.
Promote the development of safe new infrastructure that meets the mobility and access needs of all users.	
Include fire safety impact assessments as part of all planning and development decisions.	
Institute effective access and development control procedures in place to prevent unsafe developments.	
Provide due consideration to wildland-urban interface (WUI) fire risks including failure of electricity assets (clashing of conductors, conductors contacting trees and inefficient fuses).	
Encourage managers of governments and private sector buildings and infrastructure to purchase, operate and maintain assets that offer advanced fire safety technologies and high levels of occupant protection.	Investment in fire-safe buildings and infrastructure is critical to economic success.
Encourage the use of fiscal and other incentives for buildings and infrastructure that provide high levels of user protection and discourage continued use of new or used buildings and infrastructure that have reduced fire safety standards.	
Encourage capacity building and knowledge transfer in safe infrastructure.	

Potential resources for pillar 5 actions

Globally there are a number of organisations and/or documents that can provide valuable insight into the further development of pillar 5 actions. The following is a brief, representative list of potential resources for additional information, guidance and/or support.

- **IFSS Common Principles**
- World Bank. 2020. **Urban FRAME: Urban Fire Regulatory Assessment and Mitigation Evaluation Diagnostic**. World Bank, Washington, DC. © World Bank.
- **2009 Victorian Bushfires Royal Commission**
- **Fire Protection Handbook**, National Fire Protection Association, Quincy, MA, USA.

7.3 National strategies

In addition to the five pillars of action, it is important that countries have a strategy for enhancing fire safety across their nation. This is predicated on having an organisation that is designated and/or positioned to take the lead and has the necessary recognition and support to develop and carry out the strategy.

- Establish (where none exists) a lead national agency for fire safety (and associated coordination mechanisms), involving partners from a range of sectors.
- Develop a national strategy (at a cabinet or ministerial level) for fire safety coordinated by the lead agency.
- Establish (where none exists) and maintain fire data collection systems necessary to provide baseline data on fires and their causes; fire injuries and fatalities; fire service resources; cost of fire; and other important indicators.
- Set realistic and long-term targets for national activities based on the analysis of national data.
- Implement appropriate acts/legislation to enable the implementation of the fire safety pillars of action.
- Continually review fire data for changes and trends, based on changes in design, materials, response and other factors, and use for regulatory revisions as appropriate.

7.4 Global strategies

In addition to the national strategies, there are certain components that can be facilitated at a global level. Some of the key strategic components are listed below.

- Establish a UN Decade of Action for Fire Safety Committee to guide and monitor efforts.
- Identify a UN Global Fire Safety Ambassador/Special Envoy to advocate for the Decade of Action.
- Work to ensure that funding is sufficient for activities to be implemented.
- Encourage, where appropriate, an increase in funding for fire safety.
- Advocate for fire safety at the highest levels and facilitate collaboration among multiple stakeholders (such as nongovernmental organisations, international financial institutions).
- Increase awareness of risk factors and the need for enhanced prevention of fire fatalities and injuries.
- Provide guidance to countries on strengthening fire safety management systems and implementing fire safety good practices and trauma care.
- Improve the quality of fire safety data collected through implementing good practice guidelines on data information systems, standardisation of definitions and reporting practices, and promoting investment in the development of national fire analysis systems.
- Encourage implementation of new assessment programmes in all regions of the world in order to increase the availability of consumer information about the fire safety performance of buildings and infrastructure.
- Develop better education programmes globally for public and professionals.
- Develop/encourage stricter enforcement and more stringent punishment for offenders who knowingly ignore the laws and regulations (particularly in high-income countries).

8 Strong linkages to related global initiatives

Reducing the global impact of fire has clear links to a variety of global initiatives and actions aimed at increasing health and safety of people, developing more sustainable and disaster-resilient cities, communities and infrastructure, and creating a more equitable society.

8.1 The World Health Organization

The focus on reducing human suffering from fire and creating a more societally-equitable built environment aligns well with such initiatives as the **World Health Organization's Decade of Healthy Aging**, in particular the focus on **Age-friendly Environments**. Our elderly population is among the most vulnerable to fire, particularly in cases where diminished mobility and cognitive abilities are present. As the population ages, and they desire to continue to live in their homes longer, the risk of injury and death from fire increases. It also aligns well with the **WHO Global Emergency and Trauma Care Initiative (GETI)**, the goals of which are to rapidly increase capacity to provide quality emergency care in countries around the world, and to foster awareness through a global advocacy campaign about its potential to save lives. This initiative was launched in response to the mandate established by World Health Assembly resolution 72.16, **Emergency care systems for universal health coverage: ensuring timely care for the acutely ill and injured**, which notes that 'injury alone accounts for nearly 5 million deaths per year'. Burns are a significant contributor to deaths and injury among the very young and very old, in particular in low-income countries where open-flame means are often used for cooking, heating hot water and for thermal comfort.

8.2 The United Nations

The focus on creating more sustainable and fire resilient communities, infrastructure and buildings aligns well with the **UN 2030 Agenda for Sustainable Development** and to the **UN Sustainable Development Goals**. Specifically the following UN Sustainable Development Goals have direct correlation:

- Goal 3 – Ensure healthy lives and promote well-being for all at all ages.
- Goal 9 – Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.
- Goal 11 – Make cities and human settlements inclusive, safe, resilient and sustainable.
- Goal 17 – Strengthen the means of implementation and revitalize the global partnership for sustainable development.

There are also clear links to the **UN Sendai Framework for Disaster Risk Reduction 2015-2030**, assisting in the goal of achieving a substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.

8.3 The World Bank

The focus on creating more sustainable and fire resilient communities, infrastructure and buildings also aligns well with the World Bank **Building Regulation for Resilience Program**, which develops and promotes activities to increase regulatory capacity and promote healthier and safer built environments.

It achieves this through leveraging good practice in building regulation as part of a strategy to reduce both chronic risk and disaster risk, and aims to set low- and middle-income countries on the path to effective reform and long-term resilience. In particular, the Bank's **Urban FRAME (Fire Regulatory Assessment and Mitigation Evaluation) Diagnostic** was designed specifically to support government officials and project managers, including World Bank task team leaders, in assessing building fire safety regulatory systems. Specifically, it helps them identify critical gaps and opportunities for building and urban fire risk reduction projects and investment planning, with a focus on three critical components of the regulatory frameworks for building fire safety:

- i. legal and administrative
- ii. development and maintenance and
- iii. local implementation.

8.4 The International Fire Safety Standards Coalition

The International Fire Safety Standards (IFSS) Coalition is a partnership of more than 80 leading organisations from around the world, which are committed to producing and supporting shared principles for fire safety in buildings. It was launched on 9 July 2018 at a meeting at the UN Economic Commission for Europe (UNECE). In 2020, the IFSS Coalition published a high-level, overarching performance framework for fire safety engineering design, construction, occupation and ongoing management called the **International Fire Safety Standards: Common Principles** (IFSS-CP). The overall objective of the IFSS-CP is to facilitate the prevention of injury and death from fire in the built environment and minimise the impact on communities, society and the natural environment through promoting the adoption of five Common Principles:

- **Prevention** – safeguarding against the outbreak of fire and/or limiting its effects.
- **Detection and Communication** – investigating and discovering of fire followed by informing occupants and the fire service.
- **Occupant Protection** – facilitating occupant avoidance of and escape from the effects of fire.
- **Containment** – limiting of fire and its consequences to as small an area as possible.
- **Extinguishment** – suppression of fire and protection of the surrounding environment.

The IFSS-CP is intended to be flexible and non-prescriptive so that it can be adopted incrementally and also advance good practice. The Common Principles have been developed so that they are universally applicable throughout the world, regardless of the existing codes, standards and guidance already in place, and to complement the initiatives outlined above.

9 Funding of activities

Over 70% of global wealth is held in property assets. Initial estimates suggest that up to US\$500 billion each year is spent on buildings and infrastructure by the world markets. Dedicating even a small proportion of these funds towards meeting the objectives of the Decade should be a priority for countries. To successfully implement the action plan, a significant commitment of additional resources may be required, particularly by countries themselves but also from public and private sector stakeholders.

A global funding target of US\$500 million in support of the *Decade of Action for Fire Safety* goal, objectives and actions is suggested.

As a comparator, in its 2006 **Make Roads Safe** report, the Commission for Global Road Safety advocated a US\$300 million, 10-year fund for a global action plan to catalyse a stronger focus on improving the safety outcomes of planned large-scale investments in road infrastructure over the coming Decade and beyond. Although presently falling short of this figure, funds for some aspects of the plan are being made available by the Global Road Safety Facility of the World Bank, as well as from regional development banks, and private sector donors. Initial estimates set the required funding for national activities to be around US\$200 million per year, amounting to US\$2 billion for the whole Decade.

The combined effort of the international community required towards funding fire safety is roughly estimated to be US\$50 million per year, to provide basic infrastructure in those countries lacking resources, and to enhance others where the need is great. Additional efforts from the traditional donor community are clearly not sufficient to reach the amounts commensurate with the scope of the problem. This funding gap must be bridged through expanded outreach to a broad range of stakeholders. As an example, a trust fund that allows the private sector the opportunity to support the implementation of this Plan, primarily in low-income and middle-income countries, should be established similar to the UN Road Safety Trust Fund.¹⁵

¹⁵ Established in April 2018, the **United Nations Road Safety Trust Fund** (UNRSTF) aims to contribute to two major outcomes, namely assisting UN Member States to a) substantially curb the number of fatalities and injuries from road traffic crashes and b) reduce economic losses resulting from these crashes. Building on best practices and expertise developed through the Decade of Action for Road Safety, the Trust Fund will support concrete actions helping to achieve the road safety-related targets (target 3.6 and target 11.2) of the Sustainable Development Goals (SDGs).

10 Summary

The magnitude of the global fire and burn problem is enormous – annually we experience more than 150,000 deaths, over 7,000,000 injuries, displacement of tens of thousands of people, and billions of US dollars in human, property and business costs – the total of which has been estimated as high as 1%-2% of GDP within high-income countries. Fire in the workplace is the second highest cause of concern in many parts of the world. Concerted, global action is needed to stem these impacts.

A plan for a *Global Decade of Action for Fire Safety* is proposed. The guiding principles underlying the Plan are those included in a sustainable and fire resilient approach for society, buildings, infrastructure and communities. It reflects a socio-technical systems approach that considers people, technologies, institutions and their interactions, and is therefore able to accommodate:

- the complexities of human behaviour and vulnerabilities
- technical opportunities in fire risk mitigation
- impacts of technology failure in the causes of fire and
- the building and fire regulatory system and the support infrastructure that is in place.

The goal of the *Global Decade of Action for Fire Safety* is to stabilise and then reduce the forecast level of fire fatalities, injuries, economic cost and environmental impact around the world by 2032, even as we see an increase in global population over this period. A set of 15 target objectives in order to meet this goal are provided, along with a set of actions under five pillars of fire safety – People, Products, Structures, Firefighting Infrastructure and Communities – which can be implemented at the local, national or global level.

A *Decade of Action for Fire Safety* would provide a timeframe for action to encourage political and resource commitments to fire safety both globally and nationally. Donors could use the *Decade of Action for Fire Safety* as a stimulus to integrating fire safety into their assistance programmes. Low-income and middle-income countries can use it to accelerate the adoption of sustainable and cost-effective fire safety programmes and standards. High-income countries can use it to make progress in improving their fire safety performance as well as using it as a platform to share their experiences and knowledge with others.

In concert with initiatives like the **World Health Organization's Decade of Healthy Aging**, the **WHO Global Emergency and Trauma Care Initiative (GETI)**, the **UN 2030 Agenda for Sustainable Development**, the **UN Sendai Framework for Disaster Risk Reduction 2015-2030**, and the **World Bank Building Regulation for Resilience Program**, a *Decade of Action for Fire Safety* will help reduce the global impact of fire on people, businesses, communities, cultural heritage and the environment.

Annex A Monitoring and evaluation

Progress towards achievement of the *Decade of Action for Fire Safety* goals and objectives will be monitored through tracking of indicators and milestones linked to the Decade of Action, and mid-term and end-term evaluation of the Decade of Action.

The following are some potential indicators that can be captured to monitor process and evaluate outcomes. This monitoring can be done at any country or jurisdictional level and should be reported internationally to the UNECE. Note that the pillars of Structures and Communities are combined in this checklist.

Strategy	
Number of countries that have a clearly empowered agency leading fire safety	
Number of countries with a national strategy for fire safety	
Number of countries that have dedicated funds to implement their fire safety strategy	
Number of countries that have adopted UN sustainable development goals/policies into national laws, planning, building and fire regulations, and design standards	
Number of countries that participate in the International Fire Safety Standards Coalition	
Number of countries that have adopted the International Fire Safety Standards: Common Principles	
Number of countries that have adopted all five pillars of fire safety action and are working towards improving fire safety	
Number of countries with goal-based fire safety targets	
Number of countries with a target to eliminate high fire risk buildings and infrastructure by 2030	
Number of countries that have made progress towards achieving their defined targets	
Number of countries that track number of fire-related deaths and injuries (including occupational injuries) as a core composite indicator for all activities	
Number of countries that track number of fires in buildings and infrastructure, including those under construction, as a core composite indicator for all core activities	
People	
Number of countries with national annual public fire awareness campaigns/programmes	
Number of countries that are investing in training for fire safety	
Number of countries that are investing in fire safety education at a national and local level	
Number of countries that are investing in 'residents voice'/engaging residents in fire safety issues	
Number of countries with national data on fires by asset type	

Number of countries with national data on fatalities and injuries	
Number of countries with data systems in place to monitor progress in achieving fire safety targets	
Number of countries that collect annual fires data consistent with internationally accepted definitions	
Number of countries where specific fire trauma care training is required for emergency care personnel	
Number of countries that require third-party insurance schemes for all possibly affected by a fire	
Number of countries with one national emergency access number	
Products	
Number of countries that have completed research efforts in informal settlements and informal construction to identify extent of use of open-flame heating and cooking appliances and develop programmes for changing out these appliances	
Number of countries that have obtained funds to replace open-flame heating and cooking appliances in informal settlements and construction	
Number of countries that have implemented programmes in informal settlements and informal construction to replace open-flame heating and cooking appliances with fire-safe appliances	
Number of countries that have instituted consumer protection legislation associated with use of fire-safe appliances	
Number of countries that have assessed the situation with highly combustible building contents	
Number of countries that have implemented regulations to limit the flammability and combustibility of building contents (such as mattresses, cushion chairs and sofas, etc.)	
Number of countries that have completed assessments of unsafe electrical appliance use	
Number of countries that have instituted consumer protection legislation associated with unsafe electrical appliances	
Structures and Communities	
Number of countries in which safety needs are an integral part of land-use and urban planning functions	
Number of countries that have implemented legislation and regulations for fire-related land-use planning/zoning	
Number of countries that have enacted laws to require internationally-recognised fire safety standards in the design, construction or refurbishment of buildings and infrastructure	
Number of countries where authorities have statutory responsibility to improve fire safety in the built environment	
Number of countries with fire risk reduction/management standards and guidance for construction phases	
Number of countries that have enacted laws that prohibit the use of high-risk buildings without appropriate fire safety permits	

Number of countries with third party test accreditation of materials/systems/products for fire safety	
Number of countries that participate in standards development and apply relevant standards and guidance	
Number of countries with systematic construction safety audit, safety impact and/or fire risk assessment policies and practices in place	
Number of countries with a defined allocation of expenditure for dedicated fire risk reduction and fire safety programmes for buildings in use	
Number of countries with specialist fire safety units/agencies monitoring fire safety aspects of the country's built environment	
Number of countries with systematic safety audit, safety impact and/or fire risk assessment policies and practices in place	
Number of countries with effective property access control and development control procedures	
Number of countries with minimum safety rating standards for new building projects	
Number of countries with regular, ongoing fire safety rating surveys	
Number of countries where the safety ratings for the highest volume 10% of buildings is above a defined threshold (e.g. minimum safety ratings)	
Number of countries with designated publicly accessible fire trauma care centres	
Firefighting Infrastructure	
Number of countries that have completed resource requirement assessments for fire and emergency services personnel, facilities and apparatus	
Number of countries that have completed assessment of firefighting water supply and infrastructure needs	
Number of countries with adequately funded national and local fire and rescue services	
Number of countries that have secured funding to enhance fire and emergency services personnel, facilities and apparatus needs	
Number of countries that have secured funding to enhance firefighting water supply and infrastructure needs	
Number of countries that have enhanced firefighting training and facilities	
Number of countries that have enhanced WUI and wildland fire fighting training and resources	
Global	
Amount of funding that is dedicated to fire safety that is provided by the international donor community (including development and donor agencies, foundations, the private sector and other donors)	
Number of international banks who have a corporate social responsibility target for fire safe lending	

Annex B Current situation checklist

To aid countries and jurisdictions in assessing their existing fire safety situation against the *Decade of Action for Fire Safety* objectives and actions, and to help in setting priorities for investment and advancement, the following checklist is provided.

The checklist is based on the monitoring and evaluation criteria noted in Annex A, which links to the actions listed under the five pillars of action. This checklist can be applied at any jurisdictional level. Note that the pillars of Structures and Communities are combined in this checklist.

Strategy	
Have a clearly empowered agency leading fire safety	
Have a national strategy for fire safety	
Have dedicated funds to implement the fire safety strategy	
Have adopted UN sustainable development goals/policies into national laws, planning, building and fire regulations, and design standards	
Participate in the United Nations International Fire Safety Standards Coalition	
Have adopted the International Fire Safety Standards: Common Principles	
Have adopted all five pillars of action and are working towards improving fire safety	
Have goal-based fire safety targets	
Have a target to eliminate high fire risk buildings and infrastructure by 2030	
Have a target to increase fire safety level of identified high national interest building and infrastructure	
Have made progress towards achieving their defined targets	
Track number of fire-related deaths and injuries (including occupational injuries) as a core composite indicator for all activities	
Track number of fires in buildings and infrastructure, including those under construction, as a core composite indicator for all core activities	
People	
Have national annual public fire awareness campaigns/programmes	
Are investing in training for fire safety	
Are investing in fire safety education at a national and local level	
Are investing in 'residents voice'/engaging residents in fire safety issues	
Have national data on fires by asset type	

Have national data on fatalities and injuries	
Have data systems in place to monitor progress in achieving fire safety targets	
Collect annual fires data consistent with internationally accepted definitions	
Have specific fire trauma care training for emergency care personnel	
Require third-party insurance schemes for all possibly affected by a fire	
Have one national emergency access number	
Products	
Have completed research efforts in informal settlements and informal construction to identify extent of use of open-flame heating and cooking appliances, and develop programmes for changing out these appliances	
Have obtained funds to replace open-flame heating and cooking appliances in informal settlements and construction	
Have implemented programmes in informal settlements and informal construction to replace open-flame heating and cooking appliances with fire-safe appliances	
Have instituted consumer protection legislation associated with use of fire-safe appliances	
Have assessed the situation with highly combustible building contents	
Have implemented regulations to limit the flammability and combustibility of building contents (such as mattresses, cushion chairs and sofas, etc.)	
Have completed assessments of unsafe electrical appliance use	
Have instituted consumer protection legislation associated with unsafe electrical appliances	
Structures and Communities	
Safety needs are identified as an integral part of land-use and urban planning functions	
Have implemented legislation and regulations for fire-related land-use planning/zoning	
Have enacted laws to require internationally-recognised fire safety standards in the design, construction or refurbishment of buildings and infrastructure	
Authorities have statutory responsibility to improve fire safety in the built environment	
Have fire risk reduction/management standards and guidance for construction phases	
Have enacted laws that prohibit the use of high-risk buildings without appropriate fire safety permits	
Have third party test accreditation of materials/systems/products for fire safety	
Participate in standards development and apply relevant standards and guidance	
Have systematic construction safety audit, safety impact and/or fire risk assessment policies and practices in place	

Have a defined allocation of expenditure for dedicated fire risk reduction and fire safety programmes for buildings in use	
Have specialist fire safety units/agencies monitoring fire safety aspects of the country's built environment	
Have systematic safety audit, safety impact and/or fire risk assessment policies and practices in place	
Have effective property access control and development control procedures	
Have minimum safety rating standards for new building projects	
Have regular, ongoing fire safety rating surveys	
Have safety ratings for the highest volume 10% of buildings is above a defined threshold (e.g. minimum safety ratings)	
Have designated publicly accessible fire trauma care centres	
Firefighting Infrastructure	
Have completed resource requirements assessments for fire and emergency services personnel, facilities, organisation and apparatus	
Have completed assessment of firefighting water supply and infrastructure needs	
Have adequately funded national and local fire and rescue services including health and medical support	
Have secured funding to enhance fire and emergency services personnel, facilities and apparatus	
Have secured funding to enhance firefighting water supply and infrastructure	
Have enhanced firefighting training and facilities	
Have enhanced WUI and wildland fire fighting training and resources	