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## **Introduction**

The fire safety teams are mainly responsible for reducing death casualties and injuries from fire, promote fire prevention activities in sectors that are most vulnerable within the community and effectively respond to national emergencies and disasters. However, there is need for greater decentralization, localism and favorable conditions that will help achieve greater and better results other than providing effective service to communities they serve.

This is achievable if a wide range of programs and projects are undertaken to provide the much needed support. England has 46 FRAs (Fire and Rescue Authorities) used in the delivery of fire and rescue services. They often differ in terms of structure and size (Lancashire Fire Rescue Service 2011).

## **The Role of the Fire and Rescue Service**

In England, some of the key projects that the Fire and Rescue service are taking forward include: Fitting and properly maintaining smoke alarms to add to life safety; undertaking campaigns on dangers of fires, prompting fire-safer cigarettes.

Efforts are also underway to introduce reduced ignition cigarettes in Europe. For example, tobacco manufacturers in the UK are involved in the implementation of procedures to ensure that they comply with the new test methods and safety standards. This is estimated to save at least between 25 and 65 lives per year in England; manage financial frameworks in a fair and ethical manner to ensure that funding is available to enhance delivery of services; help in making informed policies on fire safety to reduce societal

and economic costs of fire. Implementing and applying Regulatory reforms/orders on fire safety in domestic and non domestic dwellings. Conduct risk based audit programs in occupied and crown owned premises, Carry out research to get statistical data that informs policy formulation and revision of fire safety rules; and to provide fire related training to public and private sector agencies as well as other members of the public (Department of Communities and Local Government 2011). All these efforts cannot be achieved by the government single handedly because of the needed insights and expertise, making it important to maintain partnerships with local fire and rescue services. Implementation of tailored interventions that are specific to the needs and aspirations of local communities can be achieved if the government works with other groups involved in public safety delivery because they are better placed and linked to deliver safety outcomes that are locally sustainable.

It is important to ensure that the safety of the community is guaranteed even during challenging times. This is in order to ensure that the available resources are shared adequately. Furthermore, there is also the need to work hand in hand with local agencies in order to not only identify, but also target the most vulnerable groups in the community. The scope of work done by Fire Rescue Services should be recognized for its importance at the national and International level because they also respond to International Catastrophes like the recent devastating earthquake in New Zealand.

## **Road Trunk Generic Risk Assessment**

This is a guide to addressing generic risks and hazards that relate to control measures when fire rescue teams are carrying out their duties. The road

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transport system do not only differ in nature, but is complex as well, and as such, it becomes very hard to maintain and update local knowledge.

For the same reason, the FRS requires to periodically update their local knowledge so that their operational plans are always current. Undertaking specific risk assessments assists in developing mitigation and control measures.

## **Significant hazards and risks when using Roads**

When attending to incidences on the transport systems, fire and rescue personnel face a significant number of risks and hazards which include: operational imperatives at the scene of the incident caused by the pressure to act fast and immediately from the large crowds that gather. They may also have limited experience in the team making it hard to adequately address the problem. Resources, training and experience may be limited but they are still expected to save life. Besides, moving rail vehicles may strike personalities working on or near the rail system if the vehicles are moving at a very high speed. The rescue can also be affected by existing weather conditions, topography of the surrounding area, and time of the day and track geometry.

In addition, as vehicles move, air turbulence is created forming an area of low pressure adjacent to carriages causing a danger of sucking people towards it. Vehicles driven by electrical traction current build up momentum that allows them to travel a significant distance even after power is shut down or even if the traction current is removed. Collision hazard is therefore caused because these vehicles are still moving. Electricity, diesel, steam and

battery are some of the traction powers used in rail transport and may be drawn from low level electrified fields. Severe death or injury may occur if people accidentally get into contact with electrified rails. Unearthed, overhead line equipments may recoil and remain electrically charged posing a threat to human life. Goods on transit like gas pipes and electrical appliances are also likely to be a hazard if appropriate measures are not taken.

## **Dynamic Risk Assessment (DRA)**

In DRA, the assessment of risk is done before, during and after execution of an operation.

Before executing a DRA, benefits versus risks must be evaluated and this system applies in situations that are unpredictable and if the risk environment changes rapidly. It also provides a consistent approach of assessing risks (Wilder 1997, 95).

## **Mitigation Measures**

**Personnel should be trained adequately to enable them deal with hazards and Risks associated with transport systems.**

Level and nature of training should be informed by operational and individual needs based on Integrated Personal Development System, National Occupational Standards and any internal training plan. Trainings should move from simple to more complex tasks and structured to move from areas of lower to higher risk. The trainings should adhere to the principles set out in the guidance documents. Standard operational standards should be adhered to and proper understanding of how to handle equipment is

important. Provide Continuous professional development to maintain skills and update personnel on new strategies. Outcomes should also be evaluated to ensure that the training is effective and meet the existing operational plans (Wilder 1997, pp.

96-97).

### **Operational hazards for Fire Rescuers**

Fire rescuers operate in hazardous and dynamic environments ranging from fire, road collisions, biological hazards, chemicals, water, radiation, acts of terrorism and heights. Statics have shown that effective partnerships with other local agencies are important in tackling the other needs of the community including floods. It is therefore important for the fire rescue service team to work with all stakeholders in forming an operational guidance and formulate a scope, specifications as well as recommendations.

### **How fire fighters are kept safe**

Fire fighters are always encounter dangerous situations thus the need to use protective equipment and tools that help them accomplish their duty of protecting people's lives. They put on turnout pants that are attached to boots for faster dressing in an emergency. In order to protect firemen from extreme cold or heat, they wear 3 layered jackets.

The hoods to these jackets are also fire resistant. They also put on colour coded helmets that are durable, safe and fire resistant. They put on heat and fire resistant gloves made from high performance fibers like leather and rubber. They also have breathing apparatus that they use to protect themselves from inhalation of smoke and dangerous gases. For purposes of

chopping, use is made of both the flat-head and pick-head axes. The halligan finds use in breaking of windows, tearing walls down, and opening of doors.

Telescopic ladders also help fire fighters to reach inaccessible areas.

### **Principles and Application of Integrated Risk Management: Community Perspective**

It is the community's expectation that emergency services will provide appropriate control measures against all risks identified in risk assessments. It is an emerging trend for members of the public to seek compensation and punishment for negligent organizations that fail to deliver their duties. In the UK, the Local Government Act of 1999 is a legal imperative used to ensure that the process is transparent and comprehensible (London Fire Brigade 2011). Publication of performance indicators also helps in scrutinizing the performance of fire service. This initiative positively encourages a holistic approach when handling risks related to life, property, environment as well as economy not forgetting the fire fighters themselves.

Integrated risk management relates to service delivery relating to risk identification, provision and use of resources/skill requirement and competent and safe control of risks. Risk management process can be done by: utilizing a generic approach that assumes that certain types of population or premise pose similar risks; individually risk assessing a single premise and drawing conclusions that are site specific; and evaluating historical data to obtain an area view or combine all the factors. Risk assessment is the evaluation of available level of risk. It involves risk analysis as well as evaluation. Most of the assessment is qualitative because they rely on a person's professional judgment based on their knowledge,

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perception and experience. Risk analysis helps in determining if the existing risk controls are effective and also identify Acceptable risks and those that demand action.

The sources of risk, possible consequences and the probability of occurrence are identified and compared with the existing control measures. Risk evaluation refers to the magnitude of risk depending on the nature of environment whether built or non-built. Evaluations can be quantified and expressed numerically or descriptively. The results help in putting in place control measures and stir further action.

Risk control helps in coming up with an option range that will be effective in controlling risks. It involves assessing options, developing risk control plans and implementing them. This helps in learning from previous occurrences and identifying ways of improving the system. Uncertainties always exist when carrying out risk assessments but this does not give an opportunity for one to ignore taking action. A list of further action and control must be done and the risk control process applied.

### **Assessing Risks, Determining the Level of Risk and How Control Measures are specified**

Changes in environmental conditions, physical and chemical processes helps in determining the level of fire spread in a building. The pattern of fire development is likely to be uncertain due to multiple interactions of processes. Uncertainties are also caused by unreliable systems used in fire detection, suppression and confinement other than behavior of people in such incidences. Rationality should exist to deal with the random nature of fire risks and come up with effective safety measures. The probability of fire



risk can be quantified by identifying possibilities of a fire starting and identifying the possible extent of damage (London Fire Brigade, 2011).

## **Factors Leading to Specific Risks in the Workplace and the Role of Health and Safety Legislation**

### **Untrained Staff**

It is important to train all employees in a company on fire safety instead of placing all the responsibility on one person who might be specifically hired to undertake these duties. Continuous professional development on fire regulations and equipment is also important so that people can easily identify potential risks and take the necessary precautions. Although it is a legal requirement that all companies should hire a highly competent person who is responsible for personnel and property, it is important for all employees to shelter the responsibility.

Investing in such training motivates and makes employees more efficient and this in turn reduces the risks.

### **Storage**

Companies should not just meet the relevant legal requirements on safety, providing higher standards of safety for large stocks of goods or materials are very important. For example fitting warehouses with sprinklers would reduce the extent of damage to goods and keep staff safe. Cleaning storage areas on a regular basis helps in avoiding the risk of flammable materials, objects and chemicals from piling up. This includes paper and wood shavings. Dead ends that are longer than 15 meters should be avoided in storage areas and staff should be familiar with all exit points.

**Inadequate fire equipment**

Strict regulations that dictate the type of fire fighting equipment that should be used based on the potential risks of a premise.

Where electrical equipments are many, CO2 fire extinguishers should be available and not water-based because they enhance the fire. Regulations relating to fire blankets, smoke alarms and extinguishers should be strictly observed; all equipment should function properly and meet the industry standards apart from being replaced regularly. Carrying out comprehensive audits on one's premises can fairly and easily solve major fire risks as long as people understand and cooperate (Hattangadi & Stauffer 2000, 351).

**A risk assessment for a work based task on Fire and Rescue Operations within A School****Fire Control**

Fire control has had its challenges which include delays, poor delivery and added costs.

This has necessitated coming up with delivery basics based on time, cost and quality. Projects must be delivered on time to avoid uncertainties and broken promises both by the government and contractors. Public spending has been a tough venture during these hard economic times and so the fire community should bravely face its share of cuts and efficiencies. Putting more government funds in fire projects as a public expenditure is no longer acceptable. Finally, newly installed Fire systems should be resilient and capable of performance to meet societal safety needs (Wilder 1997, pp.

91-92).

**Risk assessment that relates to a work based task**

This is an evaluation of factors that can cause harm to students in a school, the existing precautions or what can be done to improve the existing preventive measures. Students have the right to enjoy protection and safety against potential harm while at school. Some of these harmful accidents can lead to increased insurance costs, fees paid in law suits, damage to machinery, loss of labour and human resources within a school.

**General duties of School administration to Students**

The health, safety and welfare of all students in the school premises is a duty enforceable at reasonably practical levels by the school administration.

This is achievable by: The maintenance and provision of safe, and practicable teaching systems and infrastructures Reducing health risks regarding the handling, sue transport and storage of laboratory substances or other articles within the premises Provision of necessary training, instructions, supervision and information to safeguard the safety and health of the students Ensuring that the students are able to access and exit from the school compound without encountering any safety or fire risks Arranging fire safety facilities in such a manner that the welfare of the students is given priority The school should identify existing hazards to determine how students and staff could be harmed. Insights could be derived from what other people have noticed, websites, manufacturers' instructions or data sheets, reviewing the accident and ill-health records of past incidences and think of the long term hazards to health. From the past fire incidences the school has already identified the people who are likely to be harmed and identified the level of harm and injury caused on groups working in a specific

area. Evaluate the risks and decide on precautions. Record your findings and implement them. Put the results of the risk assessment into practice, the results should be written in a simple manner and shared among employees. Ensure that all factors related to health and safety is tackled.

Review your assessment and update if necessary. This should be done to check whether there are any changes or improvements done from the last assessment to avoid having declines in standards. (Cote 2000, 62-68).

### **Implementation of the Risk Assessment**

It is important for the school to hire a safety advisor to identify possible hazards, identify the people who might be harmed and come up with recommendations that can help avoid the occurrence of fires. It is vital to hire people who are competent to tackle thorough and effective risk assessments. Staff and students should be involved in the assessment to help in identifying hazards and risks.

Risk assessment can be time consuming depending on the size and nature of the fires that occur in the school. To avoid inconsistencies and minimize time wasting, a generic assessment can be used to assist fire and rescue services in the school community to meet the health and safety requirements of students and employees. The assessment helps to achieve a consistent approach of operations in mitigating possible fires. The police, Health and Safety Executives and devolved administrators should work to gather when formulating the structure, organization and performance of fire rescue teams. The School should hire a fire rescue advisor who will be responsible for: Commissioning and managing the publication of operational manual and

quality assurance; coordinating school assets in emergencies and advising the school management accordingly; enforcing fire safety measures within the school on a risk assessed basis; advising the school on new and existing regulatory reforms on fire safety orders; professionally challenging and assuring specific policy areas of the school; coordinating awards for students and staff who strictly follow the fire safety regulations; ensuring that the school is able to engage in influential debates on fire and rescue service and that the interests of the school are represented to the relevant administrative authority.

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