Chapter 2

Management of Health and Safety Risks at Large Events:
Process, Procedures, and Factors

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ABSTRACT

This chapter details and guides managers and researchers to consider organisational culture, risk management systems, procedures, principles, and processes to manage larger events successively and effectively without any potential tragedies, harms, and risks. It begins with the conceptual understanding of events and how the event organising involves managing health and safety risks. Health and safety management in such situations consists of organised efforts and procedures for identifying workplace hazards and reducing accidents and exposure to harmful situations and substances. The events are organised with different purposesm and each event has a unique blending of durations, seating, management, and people. This is further followed by risk management planning, which assists event organisers in devising and conducting events in the safest possible manner while mitigating losses. HSE England commissioned a study in 2012 and found a range of potential risks and remedies at major events. The main risk identified were design and construction, public health and safety risks, airborne and communicable diseases, non-infectious risk, respiratory diseases, road traffic accident, crowd control, strain on healthcare, workplace violence, fires, etc. Managing a safe event involves planning, assessing risks, precautions measure and corrective and perverting actions, contingency,

emergency planning and procedures, effective communications, managing crowd and resources, review, and reflection. The primary legislation covering occupational health and safety in Britain is the Health and Safety at Work Act 1974, which makes employers responsible for the management of health and safety. It sets out the general duties which employers have towards employees and members of the public, and employees have to themselves and to each other. The last section discusses main principles of a H&S risk management policy followed by some case studies.

INTRODUCTION

Health and safety are defined as 'the laws, rules, and principles that are intended to keep people safe from injury or disease at work and in public places (Cambridge dictionary, 2019). Health and safety management is 'Organized efforts and procedures for identifying workplace hazards and reducing accidents and exposure to harmful situations and substances. It also includes training of personnel in accident prevention, accident response, emergency preparedness, and use of protective clothing and equipment (Business dictionary, 2019). A risk at an event is ' effects of uncertainty on objectives (financial, social, environmental, health, and safety), to varying levels (strategic, organization, or project) and likelihoods' (Reid & Ritchie, 2011)

As an event organiser, you have a duty of care – to both your attendees and your staff. The larger your event, the more important health and safety, but even for small events it should still be a consideration.

Event as a Concept

An event is composed of set of activities with specific purpose goals and needs of the attendees Thus an event is an 'organized occasion such as meeting, music testable, product/brand promotion, convention, conference, exhibition, special event, wedding, social gathering or gala dinner, and so on; and it is made up of several related activities and functions with the purpose of attending the specific needs of the attendees' (Bikash, 2013, Julian & Dadwal et al 2019). An event is a process with 'a beginning and an end that happens at a given place, time and circumstances'(Levy, Bogin, Gretz, Aharonov, & Slonim, 2018) and (Julian & Dadwal et l 2019). Each event has a unique blending of durations, seating, management and people (Vassilopoulos 2005, cited in (Bikash, 2013)). The events are organised with different purposes such as' touristic or other purposes such as entertainment, relaxations, competitions, customs & cultural celebration or brand building or the need to raise funds for charity, public/government purpose and so on (Julian & Dadwal et al 2019). The events can be planned or unplanned events.

The planned events are 'created with a pre-planned social, cultural, economic, or environmental purpose. Such events involve the design and implementation of themes, settings, consumables, services, and programs that suggest, facilitate or constrain experiences for participants, guests, spectators, and other stakeholders. Every event experience is personal and unique, arising from the interactions of setting, program, and people' (Getz, 2018, Julian & Dadwal et al 2019).On the other hand, the unplanned events are 'random, spontaneous and unpredictable activities probably set in motion by people (Agitators, publicity agents or social activists). Once it starts, the actions that follow are uncertain (Getz, 2018, Julian & Dadwal et l 2019).

Each type of event involves a range of risks including health and safety risks.

The larger events have more risks; however, the small events may also involve many risks. Also by size, contents and forms etc the events can have various risks. Depending upon the types of risks the event planners have to manage risks at the events. So various risk factors also depends upon the type of events, such as 'Local or community events (music programs, community meeting, fundraising program, BBQ parties), Major events, Hallmark events (Kumbh Mela in India, Haj Visits, Carnival in Rio or London), Mega-events (2012 London Olympics and Queen's Diamond Jubilee celebrations), Cultural events (wedding events, commercial music festivals, Art festivals Chinese New Year, Holi Festival, Kumbh Mela, Carnival of Rio de Janeiro, St. Patrick's Day Festival,) Sports events (Football World cup, Olympics, The Ashes), Business events (product launches, making publicity stunts,) (Bikash, 2013, Julian & Dadwal et l 2019).

Event Management as a Process

Event Management is 'a process of planning, organising, coordinating, executing various activities at an event with effective use of all the event resources to meet the specific goals and objective of the event' (Bikash, 2013, Julian & Dadwal et l 2019). The health and safety risk planning involves a pre-event process of identifying the target audiences and risks, planning, and scheduling for activities and budgets and other resources. The risk management involves coordination and linking different actors, agents and supplier organisations who come together to successfully complete an event. The evaluation is the post-event process and reflecting on the risks forecasted with an actually achieved goal is an important part of risk management. An event is a 'project' or a temporary cluster of industries (Benedicta, Rani, & Longhi, 2011, Julian & Dadwal et l 2019). Thus, models and theories of project risk management can be used as a basis for effective event management. 'Both projects and events have temporary in nature & life i.e. Both have short life from start to finish, and most people employed at events or projects are of temporary nature for a limited

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or Adhoc time. This adhocracy brings issues of managing uniform standards of quality, quantity, and costs, etc (Julian & Dadwal et l 2019). Thus risk and 'issues of events and tourism management can be agreed by taking a combination project management, clustered development and system approaches to the management' (Julian & Dadwal. 2019).

Tourism and events production 'process include a range of activities, products, and services offered by coordinated suppliers and agents' (Bénédicte, Rani, & Longhi, 2011, Julian & Dadwal, 2019). Thus proper 'coordination of such a diverse set of suppliers, operations, processes, activities, and products' (Julian & Dadwal et l 2019) can mitigate a number of risks. The 'use of technology is a viable option and strategy for tourism and event planners. The emerging technologies like Cloud technology, Cognatic & Artificial intelligence, Blockchain, artificial & Virtual reality, Live apps, etc. has huge potential to change the events and tourism industry'(Julian & Dadwal et l 2019. The use of technology and ICT can be very useful to integrate different components of a project sniff then link those components with stakeholders' expectations (Bénédicte, Rani, & Longhi, 2011, Julian & Dadwal et l 2019).

Risk Conceptualisation

A Risk is related to future activity related to a process that has consequences with respect to something that humans value (planned values, objectives, negative consequences, etc) (Aven, 2016). The risk can be in all fields, whether finance, safety engineering, health, transportation, security or supply chain management and it results in negative consequences. Thus risk is consequences of the activity and associated uncertainties, the possibility of an unfortunate occurrence, potential for realisation of unwanted negative consequences of an event, exposure to a loss which is uncertain, the deviation from a reference value, the effect of uncertainty on objectives, etc (Aven, 2016). A risk could be measured as triplet made up of C, P, K; where C is consequences (damage, loss, etc), P *is* a measure of uncertainty or probability and K the background knowledge that supports C and P (Aven, 2016).

Health and Safety Risk at Events

Events attract a huge crowd within a limited defined space and time so have high potential health and safety risks. For successful, safe and suitable risk organisations the organisations have to consider a range of occupational health and safety requirements, the legal duty of care, and the capacity of organizations to deal with risks(Reid & Ritchie, 2011). Risk management planning assists event organisers in devising and conducting events in the safest possible manner, while mitigating losses (Reid & Ritchie, 2011). The events involves engagement and coordination

of a number of stakeholders and host organizations (including accommodation providers, government agencies, entrepreneurs, non-profit organizations such as sporting and cultural groups, etc.), as well as industry sectors (including venues, construction, staging, accommodation, entertainment, transport, tours, retail, and food/beverages)(Reid & Ritchie, 2011). All the stakeholders should jointly develop and interactively implement a risk management strategy . as per therapies of reasoned actions and theories of planned behaviour, the individual's attitude, behaviours, norms and a range of phycological factors can influence the adoption of risk planning activities. The other factors include lack of money, lack of knowledge/expertise, and lack of responsibility for dealing with natural hazard risk, organizational systems, organisational size, type, culture, structure, resources, leadership, and communication (Reid & Ritchie, 2011).

A risk as is ' effects of uncertainty on objectives (financial, social, environmental, health, and safety), to varying levels (strategic, organization, or project) and likelihoods' (Reid & Ritchie, 2011). Risk, in A Risk at events, is defined as "any condition or occurrence that might affect the outcome of an event or event activities and might expose an event organization to loss measured in terms of probability and consequences" (Silvers, 2008, p. 4, cited by Reid & Ritchie, 2011). The risk can be security and safety, health risks, life risks, stakeholders' relationship risks, climate change risks, insurance crisis, and so on.

The risk management is 'a process that involves assessing all possible risks to the event and its stakeholders and then strategically avoiding, preventing, reducing, diffusing, reallocating, legalizing, or using relationship management to mitigate the identified risks' (Leopkey and Parent 2009, cited in Reid & Ritchie, 2011).

Citing the Australian and New Zealand International Standards (2009) (AS/NZS ISO 31000:2009), Reid & Ritchie, (2011) argued that an effective risk management should be a comprehensive, logical, integrative and 'systematic method of establishing the context, identifying, analysing, evaluating, treating, monitoring, and communicating risks associated with any activity or function'. Thus in line of this definition, the Event organisers should need an understanding of the context & type of event, management structure and resources, organizational culture, and stakeholder involvement, to provide insight into event risk exposure and their consequences (Allen, O'Toole, Harris, & McDonnell, 2008 cited in Reid & Ritchie,2011).

A hazard is something that can cause harm, e.g. electricity, chemicals, working up a ladder, noise, a keyboard, a bully at work, stress, etc. A risk is a chance, high or low, that any hazard will actually cause somebody harm. For example, working alone away from your office can be a hazard. Health and well-being in the workplace have become common topics in the mainstream media (Coleman, 1997), in practitioner-oriented magazines and journals King, 1995; Neville, 1998) and, increasingly, in scholarly research journals (Smith, Kaminstein, & Makadok,1995).

Major Health and Safety Risk at Events

Big events, like sports games, exhibitions, entertaining shows, recruitments, garden parties, temple fairs and parades which involve public participants are events has often very high density of people in a small area at a particular time. 'Basing on the uncertainties from its publicity, mass participation, long time span, high input cost and other properties, it is necessary to run risk control for big event' (Shangjun & Xinjian, 2012). Due to the diversity of visitors by age, occupation, personal behaviour, lifestyle and other socio-cultural and psychological differences of the participants, the management becomes complicated. As conflicts would easily be turned into fights and brawling, stampedes etc. Many factors like diverse Mass of participants, The temporary building of sites, Suddenness and Uncertainty of accidents, Terrorist attacks etc some subsystems of overall events that need to be managed for the risks. Some major tragedies at events include: stampede (such had happened in the annual Muslim Pilgrimage of Mecca), terrorist attacks (such had happened in the 1972 Munich Olympics), Fire (such had happened in the 2005 Aichi Expo), natural disasters (such had happened in 2003 as the spread of virus SARS brought a huge negative impact to the Chinese MICE industry). The causes of all those tragedies could be aligned to the incomplete management of forecasting, the lack of emergency equipment and facilities, and the breakdown of venue facilities, man-made damages, and natural disasters and so on(Shangjun & Xinjian, 2012).

HSE England commissioned a study in 2012 and found a range of potential risks and remedies at major events (HSE, 2012). The main risk identified were design & Construction, Public health and safety risks, Airborne and communicable diseases, Non-Infectious Risk, Respiratory Diseases, Road Traffic accident, Crowd control, Strain on health care,, Workplace violence, Fires: etc, There are often concerns regarding competent persons required for risk assent and management at major events. The competence train for employees and volunteers is one of the important strategies to manage and mitigate H&S risks at the events.

The following section discusses the risks in more detail.

Design and Construction

The define of the event site and construction has been noted as a major potential risk of health and safety at the events. The literature shows that lack of robust design of construction sites, temporary stadia, structural faults, personal protective equipment (PPE), poor signage and walkways etc. for example, a tower at the Atlanta Olympic Stadium caused a cantilevered canopy to collapse, killing a construction worker, similar issues were identified at the Sydney Olympic Games and commonwealth games in India. mitigate such risks, includes following codes of striatal deign,

providing health and safety awareness sessions/training of workers, H&S monitoring and reporting procedures, health surveillance, ensuring availability of PPE, effective leadership, worker engagement, control of contractors, and encouraging a positive safety culture, etc (HSE, 2012).

Public Health and Safety Risks

A range of waterborne and airborne communicable disease is another risk at a major event. The intervention could include, maintenance of cooling towers, use of technology such as geographical information systems by local councils to gather intelligence, education of facility owners, and surveillance programs with a particular emphasis on inspections and microbiological testing (prior and during the event, and also of decorative fountains & swimming pools)and antimalaria campaigns etc.

Airborne and Communicable Diseases

Due to the volume and movement of the people, There will be a high level of risk of airborne disease at mass gatherings. For instance, an early review of communicable diseases in competitive sports carried out between 1966 and 1993 identified only 38 reports of a disease outbreak(HSE, 2012). an outbreak of measles during the International Special Olympics in the US in 1991 and the 2006 football World Cup in Germany. Other examples of infectious diseases identified included a case of meningitis outbreak during a European Youth Olympic Sports festival, meningococcal meningitis at a UK rugby match etc (HSE, 2012). An Epidemic intelligence programme that could identify, assess, verify and investigate potential health risks could be an important solution. Further, establishing appropriate mechanisms to allow surveillance & immediate reporting of communicable diseases; staff training in collecting and analysing surveillance data; public awareness and immunized against vaccine-preventable diseases could be effective measures for controlling airborne and communicable diseases(HSE, 2012).

Non-Infectious Risk

Exposure to extreme weather conditions such as heat, exhaustion/stroke, sunburns and dehydration, cold, water /humidity, etc has also negative effects on attendees and employees. A number of incidents such as the volleyball venue during the Atlanta Olympic Games and the equestrian event in the Los Angeles Summer Olympics have reported temperature-related risks(HSE, 2012). The measures could include use of data to help assess risk, effective public information/announcements systems availability of hydration & drinking water, rescheduling events at appropriate times,

provision of protection (such as sunscreen hats and portable shade canopies), and use of fans/heaters and Staff rotation etc(HSE, 2012) .

Respiratory Diseases

The site may be prone to air pollutants, such as dust, sulphur dioxide, aeroallergens, such as pollen etc that may cause respiratory problems to the people at the site. The measures to mitigate the risks could include water sprays for dust, the testing of seasonal allergens, public information systems and the availability of respiratory specialists.

Road Traffic Accident

Any major event attracts a lot of people to drive to the venue or the venue might be located in a busy traffic area. Such situations increase potential road accidents tend to increase during major events. Proper measures to reduce such incidents could include redirecting traffic, proper signage and volunteer supports, advising on traffic rules, seatbelt use and avoiding driving when tired etc (HSE, 2012).

Injuries to Public

There are often risks to the public due to slip and trip hazards, falls and traumatic injuries. For example during the 1996 Olympic Games in Atlanta, 30,000 people sought medical care with the most common incident being injury representing 30% of all cases (HSE, 2012). There is also a potential for the development of muscular-skeletal disorders (MSDs) due to excretive work by attests or workers. For example, during Sydney Games (2004), 326 street cleaners manually removed approximately 20 tonnes of rubbish from city streets, 5000kg of rubbish was removed from the Olympic Sites, city roadways were cleaned three times a day, 12 anti-graffiti cleaners worked around the clock for removing approximately 1300 instances of graffiti (HSE, 2012). Proper signage, information on public injuries, identification of potential points of hazards, support of mechanical equipment for cleaners, and ensuring medical preparedness, etc could be useful to avoid the risks(HSE, 2012).

Crowd Control

One of the major issues at any event is managing the movement of the crowd at entry, exits and in & around the venue. The excessive crowds in citation areas will put stress on resources and may lead to crashes and injuries. Incidents or fatalities involving crowds include 96 fatalities during Hillsborough events in 1989, 1426

fatalities during the Haj in Mecca in 1990, nine people were killed at the Roskilde rock concert in the year 2000(HSE, 2012). There can also be incidents involving smaller numbers that still have fatal results as was seen during a rush at the Ikea shop in Saudi Arabia Measures to mitigate and control crowds included: systems to manage crowds, safety announcements, Communication between staff, management by stewards and security staff with communication, blanking steward numbers based as per crowd size, crowd announcements, Design and planning using computer simulation, use of broadcast screens guide paths, ensuring staff are competent, considering groups such as the disabled, considering crowds beyond the venues(HSE, 2012)

The Strain on Health Care

Any events can have an impact on emergency planning and additional strain on health care and hospitals. For an instant, a 5.9% increase in ambulance calls was observed during the World Championship Games in Helsinki in 2005 and during the rugby world cup final held in Australia in 2003 (HSE, 2012). The proactive solutions could be public health response teams at the location, Provision of polyclinics for each subsite, transportation reach to emergency vehicles, coordination between authorities hospitals and police, adequate design – ensuring good site layout with clear access to emergency services etc (HSE, 2012).

Workplace Violence

public-facing job roles such as stewards, hospitality staff, health staff, sales, security staff, and taxi drivers are exposed to violence. The interventions could include, secure entry systems, violence audits, workplace inspections, presence of security guards and police, incident investigations and injury and illness records and public guidance and support systems(HSE, 2012).

Electricity and Fires, Carbon Monoxide etc.

The risk of fires at events could include structural fires and small-scale fires, such as litterbin fires and electric fires and shocks etc. for example; during the Sydney Olympics, the fire brigade responded to a total of 144 incidents and during the 2002 Salt Lake City Olympics the fire department faced challenges to access the incidents of fire (HSE, 2012). The proper fire risk assents systems, Pre-event inspections, hazards identification, and signage, Identifying and disposing of unexploded fireworks: fire exit signs and procedure, public announcement and guidance, Availability of resources and trained staff could be solutions for fire risk(HSE, 2012).

Food and Drinks Availability

Visibility of the right amount of safe and hygienic food and drinking facilities in appropriate numbers and at appropriate distances can avoid risks related to food and hygienic, diseases and crowd management.

Management of Health and Safety Risk and Emergency Plan

Managing a safe Event involves: Planning, Assessing risks, precautions measure and corrective and perverting actions, Contingency, and Emergency planning and procedures, effective communications, Managing crowd and resources, Review and reflection. The primary legislation covering occupational health and safety in Britain is the Health and Safety at Work Act 1974, which makes employers responsible for the management of health and safety. It sets out the general duties which employers have towards employees and members of the public, and employees have to themselves and to each other. This means taking reasonable steps to prevent harm coming to anyone involved in your event and forward planning in case of any emergency situations that could arise. The law is in place 'to ensure that risks to people's health and safety arising from work activities, including members of the public, self-employed persons, volunteers and contractors, are properly controlled'(HSE, 2000).

Two components of risk management are risk management strategies available(e.g. risk-informed, cautionary/precautionary and discursive strategies) and; the structure of the risk management process(Aven, 2016). The risk-informed strategy aid in the treatment of risk – avoidance, reduction, transfer and retention – using risk assessments (Aven, 2016). The cautionary/precautionary strategy includes a plan for safety factors, reading signals or cues of risks, redundancy in safety devices, substitutes or diversified arrangements, containment, flexible response destines systems, immune system, and the improvement of conditions for emergency management and system adaptation (Aven, 2016). The discursive strategy includes action to build confidence and trustworthiness, through clarifications of facts, the involvement of affected people, reduction of uncertainties and ambiguities, deliberation and accountability (Aven, 2016). Risk management is often driven by policy and policy analysis. A policy can be defined as 'a set of rules, guides, principles or plans to guide decisions and achieve desirable outcomes for stakeholders, organisations, governments, and individuals' (Aven, 2016). The Cyclic process of policy development and analysis includes six phases such as; Problem identification; Generating alternatives, analysis; Processing for policy instruments development, consulting, deliberation and coordination; Decision-making; Implementation and Evaluation of the effectiveness of the policy (Aven, 2016).

The main principles of a H&S risk management policy are: Precautionary principle (including avoiding the event itself); Robustness (optimising resistance or self-protection, withstanding "vague approximations"); Resilience (flexible, adaptive, collective mindfulness, alertness, proactiveness with ability to sustain or restore its basic functionality following a stressor); Habits of High Reliability Organisations (preoccupation with failure, sensitivity to operations, reluctance to simplify, commitment to resilience and deference to expertise); principle of large/ deep uncertainties (e.g. climate change and managing emerging disease); Principle of Surprises and black swans metaphor (Surprises do occur, think of Extremistan a world outside Mediocristan); Principle of risk acceptance criteria and tolerability criteria(risk constraints and evaluate their pros and cons, concerns, profits, safety, reputation, etc); The ALARP principle (ALARP: As Low As Reasonably Practicable- a risk-reduction principle, which is based on both risk-informed and cautionary/ precautionary thinking of strategy and on cost benefit analysis);Principle of integrative thinking (balancing the tension being caused by the different perspectives and coordinating the whole framework of risk management) and Principle of Knowledge transfer and management (knowledge building, transfer of experience and learning, and adds theories and practical insight etc) and system thinking and continuous improvements son on (Aven, 2016).

The process of H&S risks management can be broken down into the number of steps, such as Set Purpose, goals and objectives of risk management activities; Use checklist to identify situations and events (hazards/threats/opportunities); Conduct cause and consequences analysis of these events, using techniques such as risk tree analysis; Judge the likelihood of the events and their consequences(consequences, probability and Knowledge, characteristics etc); Evaluate risk; Risk treatment and management ; implementations of Risk Management plans and actions (ISO 31000, Aven, 2016).

The next sections provide details on the process of H&S risk management.

Planning of Event

Good planning of events means for seeing, the events aim and objectives, and putting in place process, procedure, actors, and resources for useful execution of the event as well as planning for mitigating any kind of health and safety risks. It needs engagement with various actors, agencies and resources. The risks such as due to overcrowding as well due to routine operations such as fire, trip hazards, electricity wire, fights or unexpected attacks or natural calamity should be foreseen and planned for.

To manage event risk it's essential to focus on goals and safety — not just compliance. Effective risk management minimizes potential costs and liabilities

and leads to safer, more enjoyable events. Event planners should develop a risk management plan to effectively manage risks that might impact on an event. The plan should outline all of the steps, policies, and procedures that you are taking to mitigate risks. Establishing an appropriate and effective governance framework should be your first priority when designing an operating model for the delivery of an event. Early investment in proper governance structures and processes will result in more effective decision-making, risk management and outcomes. Understanding the distinction between "governance" and "management and operations" is particularly important in the context of events:

- **Governance (the board):** is responsible for determining the organisational purpose, vision, strategy and values — that is, where the organisation is heading and how it will get there
- **Management and Operations:** Are responsible for undertaking the activities required to achieve the goals and objectives set by the board. The aim is to identify potential hazards in your event and take the necessary steps to protect yourself and others.
- **Capacity:** Can your attendees be safely accommodated inside the venue? Will they be standing or seated? Is there room to circulate? Are there pinch points where overcrowding could occur?
- **Access:** Is there sufficient access to the event site/venue for pedestrians and vehicles? Are people with disabilities, wheelchairs or pushchairs able to access the venue? Are there enough emergency exits?
- **Hazards:** Does the site have any existing hazards, such as overhead electric powerlines or buried services that your structures could interfere with? Is it prone to flooding or high winds? Consider ground conditions and topography when positioning any temporary structures.
- **Facilities:** How far away are the nearest hospital and fire stations? What are the public transport links like? Consider the infrastructure you need for your event.

Health and safety should consider a range of stakeholders' points of view:

1. Event organiser
2. Site/venue owner
3. Contractor
4. Supervisor/worker
5. Volunteer
6. Local Licensing / authorising the authority

Assessing Risks

The risk easements ' involves the identification and assessment of risks to crowd safety within a venue and the development of steps required to minimise them ' (HSE, 2000). Depending upon the outcome of the risk assessment the event paneers have to follow a systematic process to identify potential hazards that could affect crowd safety, e.g. estimate the size of the problems, surging and swaying, and decide what you need to do to address the problems.

Health and safety of events should also Carry out a risk assessment and addressee the following:

1. Venue and site design
2. Temporary demountable structures
3. Managing crowds safely
4. Using barriers at events
5. Transport
6. Trip or equipment risks
7. Falls from height
8. Electrical safety
9. Fire safety
10. Crowd management risks
11. Crew Hazards
12. Weather and environment risks
13. Catering risks
14. Child and Vulnerable people protection,
15. Special effects
16. Noise
17. Amusements and attractions
18. Employee welfare
19. Handling waste

The planers should clearly write and communicate a different kind of potentialize hazard and corresponding corrective and preventive measures that need to be taken care of by the planers, actors and event attendees. These could include safety signs, symbols, safety routes and hazards potential areas and corresponding actions.

Contingency and Emergency Planning and Procedures

The planers should be ready for unexpected risks and hazards such as overcrowding, fall of event stalls, fire, terrorist attacks, heavy rains, or other unexpected risks.

Develop emergency procedures to be followed by anyone working on the event and discuss your plans with the venue management.

Aspects to consider when developing procedures include:

- **Raising the Alarm:** How will you communicate the emergency with staff and volunteers?
- **Informing the Public:** Do you have an adequate public address system? What is the procedure for stopping (and restarting) the show?
- **Onsite Emergency Response:** Are there fire extinguishers? Do you need security staff?
- **Summoning and Liaising With the Emergency Services:** Who will be your point of contact and how will you assist the emergency services?
- **Crowd Management (Including Evacuation):** How will you move people away from immediate danger to a place of safety? Don't forget to take people with limited mobility and children into consideration.
- **Traffic Management:** How will emergency vehicles gain access to the site? How will vehicles leave the site in the event of an emergency?
- **Providing First Aid**: Are their sufficient medical provisions?
- **Handling Casualties:** How will patients be taken to a hospital? Will there be ambulances onsite?

Monitoring the crowd and Implementing health and safety

It is important that the event organisers have kept in place a range of procedures and processes of movements of crowds and measures in order to address the impacts of such movements of crowds. Also, the event organise are responsible for managing your staff, suppliers and attendees to ensure they are not exposed to risk at all the different phases of the event, from set-up to break down.The organisers should provide staff with relevant information during the site induction and ensure suppliers do the same for their employees. This should include information such as site hazards, speed limits and parking, first aid, toilets, and wash facilities, and emergency arrangements. You may also want to provide relevant health and safety information to the public in the form of signage and/or a pre-event announcement. It is very important theta the event organisers continually monitor risks throughout your event by creating a checklist and having a nominated individual/s responsible for checking at regular intervals. A clear and competently implemented paper trail is the best way for event organisers to mitigate risk.

So far as is Reasonably Practicable' (SFAIRP) Model of Risk Management

A person or organisation that creates risk is required to manage and control that risk so that it is reduced 'So Far As Is Reasonably Practicable' (SFAIRP) through design, management and procedural measures (Russ, 2010). In 1970, Robens Report recommended 'the unification within a single comprehensive framework of legal action of the main Statutes bearing on safety and health at work, thus giving rise to Health and Safety at Work Act 1974 and the creation of the Health and Safety Executive (HSE) (Russ, 2010). The act stipulated a range of H&S responsibilities to employers, designers, manufacturers, suppliers, and other stakeholders. In summary, the Act requires employers to develop H&S policy, assess risks, corrective and preventive plans and so on. The system could include plaining on - What could go wrong and Hazards? How bad could it be to plant, people, the planet? What is already being done to minimise the risk? What new actions are required to further reduce the risk? Review and update? (Russ, 2010). The risks assessors can create risk matrix and risk tree or graph; which will identify the kind of risks during activities during the whole process, along with the probability and consequence in form of the number of adverse impacts, etc and the actions required to ensure risk is reduced SFAIRP.

The next section discusses some case studies to illustrate the improper or incomplete usage of the SFAIRP model.

Case Study 1: Dream space (2006):

Dreamspace was a large inflatable structure (50X50X5 M), inside which members of the public could walk around to experience a dream-like world of light and sound. He structures lifted up to a near-vertical position resulting in 2 Fatalities, 27 Injured (Russ, 2010). HSE prosecuted all parties, the Designer, the Contract Company and the Public Park Authority, for failing to protect the health and safety.

Case Study 2: ICL Plastics a factory in Glasgow, UK.

An explosion happened in 2004 due to underground LPG pipe leakage, that demolished the building killing 9 workers and injuring 33(Russ, 2010).It could have been prevented by following the SFAIRP model.

Case Study 3 The Kumbh Mela (India):

The Kumbh Mela is a religious event in India that constitutes the largest number of people gathered (120 million visitors in 2013) at a specific place and at a specific

time. It is older than the Hajj and many other religious, political, cultural, music and sports events (David & Roy, 2016). Mass gathering events pose critical health challenges, especially for the control of the disease. Citing World Health Organization (WHO), (David & Roy, 2016) stated that a mass gathering is 'any occasion, either organized or spontaneous, that attracts sufficient numbers of people to strain the planning and response resources of the community, city or nation hosting the event'. An event of such a mass gathering poses a unique set of public health challenges, including stampedes, crush injuries, burns due to fires, exposure to extreme weather, infectious diseases, water-, sanitation-, and hygiene-related illnesses, and epidemic outbreaks (David & Roy, 2016). Thus it needs plans for disease surveillance, infection control, and water and sanitation, etc.

The name Kumbh Mela etiologically means urn -fair (Kumbha- Mela). The religious-cultural event's roots back to a legendary battle between the gods and demons in Hindu mythology for the elixir of life by churning the primordial ocean of life. The fight for the elixir led to accidentally tiling the urn of elixir and four drops to fall on the four cities of Allahabad, Nashik, Ujjain, and Haridwar, where the Kumbh Mela is held (David & Roy, 2016). Thus each city Allahabad, Nashik, Ujjain, and Haridwar hosts the event every 12 years on the dates pre-determined based on special combinations of the zodiac. The events are organized on the banks of the rivers in each of the four cities, the main tradition associated with the Kumbh Mela is ritual bathing in the river on certain auspicious days during the 3-month period of the festival. In such a Mass gathering (s, the number of devotees attending the Kumbh Mela has increased logarithmically, from around 400 000 in 1903 to 120 million in 2013) occasions the potential for health and safety risks are huge. Kumbh Mela involves temporary human settlement, a 'pop-up city' of the canvas, corrugated metal sheets, bamboo, nails, and rope in the flood plains of the rivers, which houses and feeds millions of people for 3 months every year 3 years(David & Roy, 2016). Unlike other places of religious, cultural or sports events, the monitoring of a number of visitors at Kumbh Mela is not possible due to people's unplanned visits and open entry and exits areas. There were sporadic epidemics during the Kumbh Mela in 1892, 1948, and in the 1960s. also in 1954 Kumbh Mela, a stampede killed nearly 500 people and injured around 2000 (David & Roy, 2016). This led to the enquiry commission and led to the rather effective planning and organization of the Kumbh Mela by better coordination among stakeholders and self-regulation by the visitors.

Whereas in 1966 there was just a single 100- bed temporary hospital; in contrast, in 2013 the government ensured a hospital in each of the 14 zones of the Kumbh Mela area of 1936 hectares, 24 alternative medicine hospitals (such as Ayurveda and homeopathy) and 150 first aid posts staffed by a doctor and a pharmacist, as well as 120 ambulance and a central hospital and, a telemedicine centre at the main field hospital of the Kumbh Mela, which collected daily information on the inpatient and

outpatient cases reported and a a mobile telemedicine unit for video-conferencing and to conduct minor surgeries (David & Roy, 2016). Given the history of waiter borne diseases (cholera, diarrhea etc) the government has focussed on compulsory inoculation, availability of potable water, sanitation, and hygiene in minimizing health risks, rapid monitoring, and prompt public health interventions. For an instant, in the year 2013, forty-six protected bore wells with chlorination attached tanks, as well piped potable water through 20 000 taps and 35 000 toilets were constructed in the Kumbh Mela area. The case clearly illustrates that the process of event management with an integrated and coordinated approach can lead to the effective management of health and safety at events of mass guttering.

Case 4: Glastonbury Festival And Other 'Greenfield' Music Festivals:

The Glastonbury Festival of Contemporary Performing Arts is one of the largest greenfield festivals in the world running over five days with approximately 175,000 visitors and staff on the 900-acre site, a large temporary city that has the potential of huge risks to public safety. However, an effective stem of event planning, risk assents, coordination, communication, control=l, and management has led to the effective management of such festive in in the UK.

Health & Safety, National Systems, Culture and Role of Volunteer

Different countries have adopted alternative systems for managing events of large scale.

Chinese State Council executive passed "large-scale mass activities, safety regulations" to ensure effective management of events. This regulation requires event organizers to repose the activities and specific implementation of security, while the governmental body supervises the safety work. The relations balance between risks and benefits, between the rights and obligations etc. In china attention is paid to central law and regulations, coordination among members of professional Governmental Management Team drawn from Police, Traffic, Fire-protection, and Military and event organisers etc; developing an effective Risk management and control system of events ; Raising risk awareness and building a climate a culture of risk assessment, estimation and management (Shangjun & Xinjian, 2012).

In Germany, H&S risk management at large events include provisions for Professional Police for big events, standardize private security and insurance system, pay attention to intelligence analysis, establish pre-warning assessment systems, and corrective and preventive systems (Shangjun & Xinjian, 2012).In Japan, the

system includes a professional & private security system, crowd control strategy, strict countermeasures and panned security projects (Shangjun & Xinjian, 2012). In the USA, H&S systems include; Investigation Systems, Patrol & monitoring systems, highly developed private security systems and using high tech Technogym for security (Shangjun & Xinjian, 2012).

Safety culture is those parts of the organizational culture that influence values, attitudes, and behaviors towards health and safety in the organization (Nielsen, 2014). Organizational culture is defined as 'a pattern of shared basic assumptions (unconscious, taken-for-granted beliefs that are the ultimate source of values and actions) that a group has learned as it solved issues of external adaptation and internal integration' (Schein, 2004 cited in Nielsen, 2014). The shared assumption is taken for granted, implicit theories-in-use, artefacts (visible organizational structures and processes that are easy to observe but hard to decipher) and beliefs and values (strategies, goals and philosophies that serve as the espoused justifications for actions theories') all agreed rights and wrongs that guide individual behaviours (Argyris & Schön, 1996 cited by Nielsen, 2014). organizational culture can be changed intentionally and 'it serves as an anxiety-reducing function, as it gives people a frame of reference for how to act, think, and feel in new situations, and a learned defines mechanism against uncertainty and change' (Nielsen, 2014).

As per the cultural iceberg principle, the organizational culture can not be fully seen or measured, however, it can be observed through artefacts, and organizational climate of shared perceptions of organizational policies, practices, and procedures, both formal and informal. Thus organisations and event organisations should use artefacts and organisational climate for safety so as to change safety culture at an organisation. As organizational culture serves as an anxiety-reducing function for people to act, think, and feel, thus any attempt to change culture will bring in new threats and anxieties to the people.

A safety climate is formed by the workers' perception of the relative priority of safety versus efficiency goals (Zohar, 2000 cited in Nielsen, 2014). The number of dimensions of safety climate include management commitment, supervisor competence, the priority of safety overproduction, and time pressure (Flin et al., 2000 in Mearns, Whitaker, & Flin, 2003). Safety management relates to the *actual* practices, roles and functions associated with remaining safe (Mearns et al., 2003). The climate is created by supervisors and leaders' behaviours, daily communications, and practices and in particular their commitments to health and safety. Transformational leaders are charismatic, inspiring, stimulating, and considerate. Transformational leaders provide followers with a sense of purpose; portray an image of success, self-confidence, and self-belief; articulate shared goals, mutual understanding, and an attractive future (Flin & Yule, 2004). The leadership practices, attitude, behaviours and communications are influenced not only by their own values but also due to

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organisational systems, policies as well as external pressures from stakeholders and organisational and national health and safety organization (HSO) or committee (HSC) and international H&S organisations. Thus the creation of H&S climate and culture requires multidimensional actions from both internal and external forces.

The events not only utilize permanent paid employees but also takes help from a number of volunteers. Volunteering has been defined as 'any activity in which time is given freely to benefit another person, group, or organisation' (Wilson 2000). The volunteer is the people who volunteer to help at events. As the size of events, significance and costs increase the need for volunteering is further increased. For example during the 2012 Olympic in London used 70,000 volunteers and World Cup in Russia (2018) a total of 17,000 volunteers were selected from a pool of 170,000 applicants (Etchells 2018); similarly during World Cup in Brazil (2014), 15,000 volunteers were deployed and it is estimated that in 2022 World Cup in Qatar, around 16,000 volunteers will be required(Strang, 2018). public-facing roles can involve volunteers directing fans to correct locations, supervising queues, welcoming fans to stadiums and answering questions about the event, checking tickets, and undertaking many other responsibilities (Strang, 2018). The motivation to volunteering include pride in their community and their country, social enrichment by engaging with others, sense of personal satisfaction, to gain experience, skills development opportunities, a passion for sport/music/culture, experience that was different from their everyday life, wellbeing of volunteers, public and individual recognition etc. AS volunteer is present at key points of potential health and safety risks, it is paramount that there is an effective system for Selection of volunteers, Training, maintaining motivation, preventing attrition: caring for the wellbeing of volunteers; attempting to match volunteers to roles that suit their interests and abilities; managing the expectations of volunteers; communicating clearly and consistently; and recognizing the efforts (Strang, 2018). Further creating, communicating and implementing a climate of health and safety through volunteer is very important.

Managerial Implications and Scope for Future Research

The chapter details and guides managers to consider national culture, organization culture, organisational climate, risk management climate, risk management systems, procedures, principles and process in order to manage larger events successively and effectively without any potential tragedies, harms and risks. Further research can be carried out to undertake a systematic literature review on risk management practices and processes in different countries and cultures and develop a comprehensive actionable model for managing, minimizing and mitigating negative consequences of risk associated with organising small and big events.

CONCLUSION

An event involves organisation a project that involves a range of activities, actors, subbasements and procedures and processes. The event organising involves managing health and safety risks. The Risks should be monitored as managed as per the law of land and the viewpoint of various stakeholders should be considered for the successful implementation of risk at an event. The organising involved in event management can make use of organisation culture, organizational climate, organisational policy, HSO policies, and national and international body regulations and guidelines in order to effectively manages health and safety risks at events.

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