

# 16

## Crowd Control and Crowd Dynamics

### In this chapter you will cover:

- Crowd movement
- Crowd management
- Behaviour of crowds and crowd hazards
- Crowds and their demographics
- Crowd dynamics

This chapter will discuss and provide a specific contextual alignment of crowd control and crowd dynamics at events festivals. The chapter will examine how crowd management associated with events and festivals is aligned to health and safety and can be viewed as a mechanism to apply further control and disseminate responsibility beyond the scope of the event. Further, it will identify crowd management factors and provide a practical guide for events staff and visitors through crowd movement, crowds and their demographics behaviour as visitors arrive, move around the venue location, departure and disperse. The chapter further explain how to maximise the opportunities to ensure the safety of visitors within the events and festivals space through creating an effective and comprehensive crowd management plan and movement strategies.

### Crowd movement

Crowd movement strategies are among the most important in the event industry. Over the last decade crowd movement at events and festivals has been improved due to better coordination between different external bodies and organisations. Event organisers and managers started liaising with external bodies, like the police, fire service, ambulance service, health and safety executives and local authority, to coordinate crowd movement at live event and overcome any challenges. Crowd movement is one of the major factors that needs to be addressed and managed very efficiently to avoid any major incident taking place at an event.

Crowd movement is a pulsating part of the event that needs to be controlled to meet the health and safety standards. The mass congregation of people needs to be managed and facilities provided to meet the requirement of visitors and attendees entering the venue. Furthermore, hazards which are presented by crowd movement can be different from one event to another. The organisers and event managers need to carry out an assessment of the risks arising from crowd movement and behaviour as they arrive, leave and move around the venue. The Health and Safety Executive (HSE) lists those who should be involved in managing crowd safety at events as follows.

- The owner of the venue where you are proposing to hold your event
- Transport operators and/or management of nearby transport hubs
- Management of adjoining or adjacent public venues
- Others providing services for the event (e.g. security, stewarding, first-aid and welfare organisations, safety officers, merchandising, construction and technical staff)
- Local residents or their representatives, particularly if you are organising an event such as a carnival parade that goes through their residential area.

([www.hse.gov.uk/event-safety/crowd-management-work-with-others.htm](http://www.hse.gov.uk/event-safety/crowd-management-work-with-others.htm))

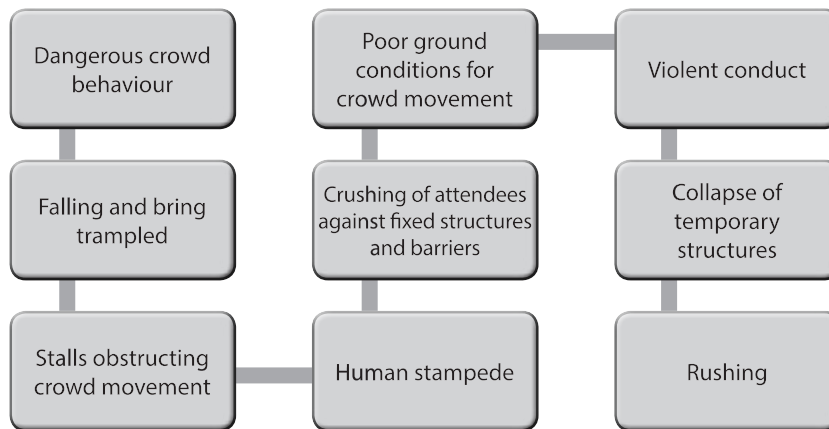
As part of safe crowd movement, it is important for event staff and organisers to identify possible harm that can be caused to event attendees, contractors and staff. The event venues, sites, arenas and stadiums need to develop vibrant and dynamic control in place and eliminate any incident incurring. Raj and Griffin (2018, p.19) states that event staff need to be visible and accessible for attendees.

*For example, for mass gathering the festival organisers needs to put up barriers to reduce the flow of people wanting to enter the [...] site. The staff needs to assure the security and prevent people from crushing into fixed structures and barriers.*

Crowd movement needs to be made easy by the event organisers and an exit plan put in place to help security staff to act quickly and eliminate any risk arising during a live event. Crowd movement risks need to be managed efficiently to meet crowd safety, and plans to ensure attendees' safety must be clearly defined and communicated to staff for normal and in emergency environments. In addition, management need to develop a clear event safety guide for event staff to follow in an emergency situation, and there needs to be close liaison and essential communication in place between event staff, contractors and emergency services. Ancliffe (2017, p.25) states as follows.

*With a growing population, an increasing urbanisation and a growing threat of terrorism, there is an increased potential for crowd disasters causing injuries and death. [...] crowd management must start from early design stages and is not a purely operational activity.*

Figure 16.1 outlines the crowd movement risks that may take place at live event.



**Figure 16.1:** Potential crowd movement risks at live event

Over the last two decades a number of models and risk management guidelines have been developed to meet the legal and regulatory requirements. Theodore (2018) states that effective risk management and planning is an essential requirement for events and festivals, because the use of outdoor sites has grown over the years and become very prominent. These mass gatherings can be very complex in size and frequency, and difficult to control and manage. Therefore, management needs to implement crowd movement systems that help to reduce the risks at festivals and events and also consider wider issues that can affect the mass gathering, other than attendees at the site, i.e. other potential influential actors in the wider area context. Berlonghi (1995, p.239) explicated that understanding different categories of crowd is vital part of the crowd movement.

*Without making distinctions about crowds we are left with random attempts at crowd control and crowd management which may result in serious losses of life, health, property and money. Distinction, competence and effective action in the management of crowds must replace the luck and gamble of random operational planning.*

Therefore, event and festival organisers, managers and other key stakeholders need clear and effective operational planning that comprehends the wellbeing and safety of the attendees and other people who are present at the event. The possible risks that may happen due to crowd movement, when attendees move around the event site or want to go out of a place, that could lead to people falling and being trampled by the crowd. Fruin (1993) proposed the FIST model to overcome the crowd disasters at major events and festivals.

- F = Force
- I = Information
- S = Space
- T = Time

The model highlights crowd characteristics and outline guidelines for the event organisers to prevent any major crowd disasters taking place during the event. The case study of the Hajj below looks at how the number of attendees has been growing since 1980s, that has caused several crowd disasters at the hajj festival.

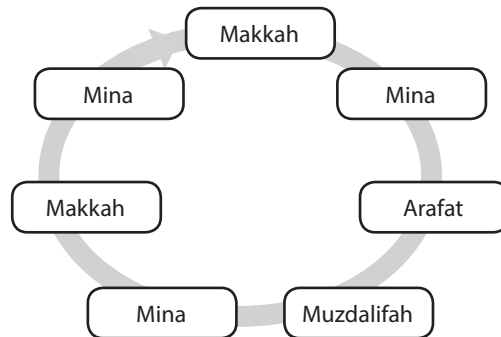
## Case Study 16.1: Hajj crowd disasters

The Hajj is estimated to be the largest outdoor festival in the world and attracts over 2.5 million people from 70 countries. Over the last 30 years attendance at the Hajj festival has been increasing due to modern-day facilities at the site and the improvement of travel provisions, making it faster to reach Makkah. The Hajj is an annual religious festival held in Makkah in Saudi Arabia, and constitutes the fifth and last of the acts of worship prescribed by Islam. The Hajj is obligatory, once in a lifetime, for those Muslims who can afford it, provided that travel and security arrangements are in place and that provision has been made for any dependent family while the pilgrim is away from home. The Hajj constitutes a form of worship involving the whole of the Muslim's being: body, mind and soul, involving time, possessions and the temporary sacrifice of all ordinary comforts and conveniences that a person normally enjoys.

Several leading authors Mahmoud and Plumb (2010), Nolan and Nolan (1992), Raj (2015), Raj and Bozonelos (2020), Shackley (2001) and Sharpley (2009) have presented different point of views in relation to the Hajj festival, but they all agree that it is the largest mass gathering in the world. Pilgrims come for the Hajj from all parts of the globe – from the Middle East, South East Asia, Africa, Europe, America and Australia.

The Hajj is completed over a period of five days, and the spiritual city of Makkah has enjoyed the privilege of hosting the annual Hajj for the last fourteen centuries.

The Hajj occurs over several different locations over the 5 days period. Raj (2015) outlined the Hajj pilgrimage route.



**Figure 16.2:** Hajj pilgrimage route. Source: Raj (2015)

The people move between Makkah, Mina and Arafat going through narrow routes to reach each pilgrimage stage and moving back from Mina and Makkah to perform Tawaf (Circumambulation of the Cube, Kaaba). Figure 16.2 shows the Kaaba, a cuboid stone building located approximately in the centre of the quadrangle of the Grand Mosque in the Holy City of Makkah. The front and back walls are 42 feet (12.9 m) in length, the side walls are 36 feet (11.3 m) and the height 43 feet (13.0 m).

Over the last few decades the Hajj has experienced a number of crowd disasters. It is very peaceful religious festival, but evidence shows that the Hajj had several disasters due to mass crowd movement at festival site. The government of the Kingdom of