

Extended Abstract

“Crowd and Public Safety in India-A New Policy Initiative”

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Introduction:

With a very old history, stampede is a recurrent phenomenon at places of mass gathering in India. Literature refers deadly stampedes in 1840, 1906, 1954 and 1986 at Allahabad pilgrimage. Population explosion, increasing number of people visiting religious congregation/malls, absent management and mitigation plans for events / venues of mass gathering cascaded with increasing frequency of stampedes (Allahabad-2013, Ratangar-2013, Malabar Hill -2014, Chitrakoot-2014, Patana-2014) in last few years is a cause for serious concern.

Disasters are not new to mankind. They have been the constant, though inconvenient, companions of the human beings since time immemorial. With unimaginable growth and development in management technologies, 21st century offers huge opportunities to potentially benefit planners, responders and the people at risk with multihazard mitigation and response management techniques.

In India - experience of catastrophic disasters in recent times combined with opportunities offered by advancement in management techniques have led to changes in disaster policy and creation of new organizations. Policy changes include the enactment of Disaster Management Act, 2005ⁱ and development of the national guidelines for managing key hazards (both natural and manmade). Concerned at the recurring stampedes at places of mass gathering, including religious places, and typically ad-hoc responses to those, the National Disaster Management Authority (NDMA) has embarked on formulating an integrated and structured approach to crowd and disaster management at such places.

In this paper – the National guide on “crowd management at events / venues of mass gathering”ⁱⁱ, developed by National Disaster Management Authority (NDMA) is presented and discussed.

Objective, Purpose & Intended Users:

The crowd disasters, in general, are man-made disasters which can be completely prevented with proactive planning and flawless execution by dedicated groups of well-trained personnel.

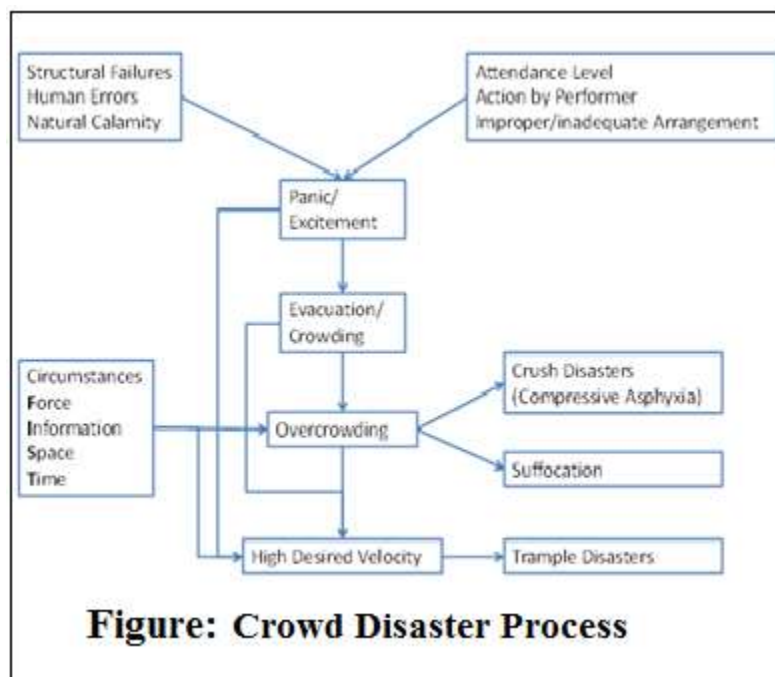
National crowd management guide is developed with an objective to - navigate and enable state governments / local agencies and the administrators / organisers of events and venues of mass gathering to prepare appropriate action plan for effective and efficient crowd management” in order to make events safer, identify basic standards necessary to satisfy authorities and provide a consistent state-wide approach to events.

Crowd Disaster Process & Identification of Triggers:

Through literature search - a detailed review of some of the recent crowd disasters in India was undertaken to understand the “causes and triggers” behind crowd disaster incidents (along with those happened worldwide) with an attempt made to see underlying patterns and then synthesize them into a generic crowd disaster process. Triggers / causes are categorised into six (6) broad categories viz. - Structural, Fire/Electricity, Crowd Control, Crowd Behaviour, Security, and Lack of coordination between various stakeholders. Action points for planning purpose are derived and suggested in the National guide based on the causes / triggers identified.

Crowd Disaster Process:

Common factors, which may ignite a trigger, include - a) High attendance Levels beyond coping capacity of the venues / event, b) as a reaction to Action by Performer, or c) Improper/inadequate arrangements. As a result, there is either panic or an excitement in visitor’s mind which further



leads to evacuation or crowding respectively. When this happens, as explained by Fruin (1993)ⁱⁱⁱ, the FIST^{iv} circumstances namely crowd **F**orce, the **I**nformation (false or real) upon which the crowd acts, the physical **S**pace (seating area, chairs, corridors, ramps, doors, lifts etc.) involved, and the **T**ime duration of the incident (rapid ingress/egress) play a very important role resulting in either overcrowding (high crowd density: a large number of people per unit area) or high desired velocity (accelerated movements). On occasions, this has led to deaths because of crushing, suffocation, and

trampling. Historically, compressive asphyxia has been the most common reason for deaths in crowd disasters. This crowd disaster process adapted from Fruin, 1993; Zhen et al, 2008 is as given figure.

Planning Crowd Management Strategies:

With known objective(s) – the planning process starts with identification and addressing of the **key components** of crowd disaster management - Nature / types and number of visitors / participants, various stake holders and their needs; Risk Analysis and Preparedness; Information Management and Dissemination; Health, Safety and Security Measures; Facilities and Emergency Planning; and Transportation and Traffic Management.

Based on the key components – the National guide provides explanation on crowd management strategy and arrangements required during the arrival of crowds; during the event at the venue; and during the departure. Elements of crowd management strategy including Capacity Planning

(long term and short term), Understanding Crowd Behaviour, Crowd Control, and Stakeholder approach are deliberated in Indian context. National guide also highlights role of modern technologies in crowd management. Video Surveillance, GIS/GPS, simulation models, RFID, CCTV, electronic signage, Public address system are inseparable for emerging practices in crowd management and should be planned appropriately based on the variables attached with event / venue and their characteristic.

With an explanation on roles and responsibilities of relevant stakeholders, the national guide suggests an outline (with explanation on key components) for preparing a “crowd management plan for event/venues of mass gathering” emphasizing on needs for pro-active preparations for capacity building, mitigation and response.

Conclusion:

Majority of the crowd disasters in India and developing countries have occurred at religious places while stadia, venues of music concerts, night clubs, & shopping malls have been the typical places of disasters in the developed countries. With population explosion and rapid urbanisation, Indian cities are likely to be susceptible to crowd disasters at such venues in the days to come.

This call for urgent attention for all states (State Disaster Management Authority (ies)) to prepare guidelines on crowd management plan (mitigation, capacity building, response and recovery) for places of mass gathering keeping suggestions / recommendations given in national guide into consideration. Such guidelines should address roles and responsibilities of all stakeholders including event organisers / administrators, local government and agencies responsible for granting licenses / permissions for holding events.

Organizers/trusts managing events / venues would rethink crowd management and have their event / venue disaster management plan in place to ensure safety of visitors / pilgrims as per the State guidelines.

Agencies responsible for issuing permission/ licenses for events/venues of mass gathering would also need to review the existing process of granting such permission keeping requirements of “crowd management” and various guide / guidelines issued in this regards into consideration.

The National guide provide advice on issues that are not covered by formal legislation for management of crowd at events / venues of mass gathering under police act^v and other similar regulations enacted by various states.

REFERENCES:

ⁱ National Disaster Management Act 2005 - http://www.ndma.gov.in/images/ndma-pdf/DM_act2005.pdf

ⁱⁱ National Guide for “Managing Crowd at events / venues of Mass gathering” - www.ndma.gov.in/images/pdf/managingcrowdsguide.pdf

ⁱⁱⁱ Fruin, J. J. (1993). The causes and prevention of crowd disaster. In R. A. Smith and J. F. Dickie (Eds.), Engineering for Crowd Safety (pp.99-108). Amsterdam : Elsevier.

^{iv} The FIST Model of Crowd Crush by Dr. John Furin - <http://www.reliancerisk.com.au/crowd-crush/>