

Mass Gathering Event Management: A case study of Harihar Kshetra Sonapur Mela, Saran, Bihar



Bihar State Disaster Management Authority

2nd Floor, Pant Bhawan, Bailey Road, Patna, Bihar, PIN- 800001

Phone: +91 (612) 2522032 Fax: +91 (612) 2532311

Email: info@bsdma.org, website: www.bsdma.org





Team Members

1. **Shri Anil K. Sinha**, IAS (retd.)
Vice Chairman, Bihar State Disaster Management Authority
2. **Dr. Anand Bijeta**, Phd. (Disaster Managemnet)
Project Officer (HR, Capacity Building and Training)
Bihar State Disaster Management Authority



Table of Contents

Abstract
Acknowledgement
1. Introduction.....
a) Problem Statement
b) Significance of the Problem.....
c) Background of Problem.....
d) Objectives of Study.....
e) Rationale of Study.....
2. Literature Review.....
3. Approach of Study.....
a) Guiding Principles of Study.....
b) Frame work of study.....
c) Information need Matrix.....
4. Research Methodology.....
a) Research Area
b) Unit of Analysis
c) Research Questions
d) Research Design
e) Sampling
f) Development of Instruments
g) Data Analysis
5. Harihar Kshetra Sonapur Mela
I. Planning
a) Welcome Committee Cell.....
b) Inauguration and Concluding Ceremony Facilitation Cell.....
c) Cultural events organising Committee Cell.....
d) Water Sanitation and Hygiene Cell.....
e) Temporary Electrification Cell.....
f) Barricading / Bathing Ghat and River Water Safety Cell.....
g) Government/Non-Government Organization and Commercial Stall Monitoring Cell.....
h) Outdoor and Sports events organizing Committee.....
i) Medical Cell (Human and Veterinary).....
j) Law and Order Cell.....
k) Public Relations Advertisement and Media Relations cell.....
II. Innovative Initiatives.....
a) Administrative departments
b) Digitalization of all information



c) First aid counters and Ambulances
d) Traffic Police Installations
e) Lost and Found Camps CSOs and Public
f) Stalls put up by the line department of government
g) Integrated Child Development Scheme(ICDS)
h) Veitnery and BSDMA Street play regarding animals in disaster management
i) Health
j) Stalls by Rural Development, Agriculture, PHED ,Education etc
k) Communication
l) Public Convenience
m) BSDMA Mass Awareness Stall
n) Electricity Supply
o) Fire Services
p) Sanitation
q) Safety and Security
6. Gap Analysis.....
7. Recommendation.....
8. Conclusion.....
9. Bibliography.....
10. Annexures 1-Zila Adesh (Oder of District Administration)
11. Annexures 2 –Government letters

List of Figures:

Figure 1: Special Camp of District Control Room for mela management.

Figure: 2 Special ICDS camp put up by the district administration for care and supplementary support of the children aged between 0-6 yrs.

Figure 3: Saran Police Camp for the maintenance of law and order.

Figure 4: Special Camp of District Control Room for mela management.

Figure 5: IEC material depicting the measures taken by PHED department at the Sonapur Mela.

Figure 6: Stage show of street play being organized by WSPA and BSDMA for protection of animals during emergencies and disaster situations.



Abstract

Bihar is a land of knowledge, culture, festivals and spirituality. One of the most important festival in its glorified tradition, is 'Harihar Kshetra Sonepur Fair' or 'Sonepur Cattle Mela (सोनपुर मेला)'. It is held on Kartik Poornima (the full moon day) in the month of November in Sonepur, District Saran, Bihar, on the confluence of three rivers Ganga, Gandak and Mehi. It is also known as Harihar Kshetra Mela and it attracts visitors from all over Asia. Till date, it is the biggest cattle fair of Asia and stretches on from fifteen days to one month.

This year at Sonepur Mela, an unprecedented gathering of around two to three million people was witnessed on full moon day of Kartik on 16th November'2013. The devotees offered Gangajal to the Harihar Nath temple and this marked the beginning of the Sonepur mela. As per the tradition, lakhs of people from all over the country assembled at different ghats of Harihar Kshetra on Hajipur and Sonepur side, on the eve of Kartik Purnima and took holy dip at the confluence of the Ganga, Gandak and Mehi rivers.

Mass gathering management at Sonepur mela has always been a tough area to deal with, although through the years the local administration has been managing it very effectively. It is a classic example where all the stakeholders .i.e. government, Panchyati Raj Institutions, Community Based Organizations (CBOs) come together on a common platform for the safe and successful management of the fair.

This year (2013) due to sprout increase, in the incidents of stampedes and disasters, at the religious mass gathering events in India (eg. Katyayani Asthan causality at Khagaria, Bihar, Datia Temple Stampede-Madhya Pradesh, Kedarnath -Uttarakhand, Adalatganj, Chatth Stampede-2012, Patna), a careful planning of the administration becomes imperative with preparedness, planning and hazard identification which resulted in safe and secure culmination of the event.

The Bihar State Disaster Management Authority (BSDMA), after a brief discussion on the said topic, has recognized it as one of the core areas where it needs to focus with documentation, studies, good practices, resource mapping, etc., so that it can be managed more effectively with changing times, demography and demand, and would ultimately lead to reduction of vulnerability and safety of life and property in events of Mass Gathering.



The present study, a case study of Sonepur Mela 2013, aims to get into the details of operational planning, that ensured the successful culmination of largest mega event of state. It also aims to outline 'Good Practices at field level that could be adopted as role model in terms of planning for any mass gathering event in the state of Bihar and other parts of the country'.

Key Words: Harihar Kshetra Sonepur Mela, Mass Gathering Event, Crowd Management, Disaster Management, Saran. Etc

Acknowledgement

A detailed study of one of the largest events in the country in terms of identification of good practices, the success stories, role models, the failures and takeaways, requires an able guidance, leadership and a vision to replicate the new and successful ideas. Hence, the Bihar State Disaster Management Authority (BSDMA) expresses its sincere thanks to Shri Anil. K Sinha, IAS (rtd), Hon'ble Vice Chairman, BSDMA, whose constant inspiration and encouragement helped to facilitate this study. We will also take this opportunity to thank Shri. Anil Sinha, BAS, and OSD to Vice Chairman, who provided all moral and logistic support to the whole activity. The Authority extend its gratitude to Shri Kundan Kumar, IAS, District Magistrate, Saran, and his team of district administration, who extended all possible operational and logistical support during the study phase.

Our sincere acknowledgement goes to Red Cross, Oxfam India, Save the Children, Plan India, Unicef, Bihar Inter Agency Group, who participated whole heartedly in the process and contributed significantly to the study.

1. Introduction

a. Problem Statement

Bihar is a state of spiritualism, knowledge with many religions, festivals and events. With a population of around 1.3 million and third highest population density in India @881 persons per square kilometers, the events of mass gathering involves one of the largest congregation of people across the globe. In such situations, it becomes challenging for government and administration to make fool proof disaster resilient arrangements. In the past, due to unforeseen circumstances, there have been many unfortunate incidents happening during such events causing loss of lives, damage of

property, mental agony etc. However, there are many sincere and good practices also which are adopted by the administration in organizing such events. This study aims to identify such practices and put them in a form that is replicable in other such events across the state and country.

b. Significance of the problem

Large congregations are often marred by the instances of stampedes, fires, missing children, elders and collapse of buildings. The things have been no different in Indian perspective. The table below shows some of the major mishaps that caused loss of lives and damage to property:-

Date	Place	Trigger	Injured	Dead	Source
Oct, 2012	Chatth Puja, Adalatganj Ghat , Patna	Rumor of live electric wire falling in Ganges water on the Ghat	100	24	The Hindu
August 2013	Katyayni Asthan Puja, Badla Ghat Station , Khagaria,Bihar	Chaos at Railway crossing while going for Devi Puja	30	37	The Hindu
3rd August, 2008	Nainadevi temple, Himachal Pradesh	Rumor of Landslide	47	162	ToI
30th Sep, 2008	Chamunda Devi Temple, Jodhpur	Rumor of Bomb Blast	60	150	ToI
25th Jan, 2005	Mandra devi Temple, Maharashtra	Electric Short Circuit leading to blast	Not Available	300	The Hindu
18th Dec, 2005	Relief Distribution, Tsunami, Tamil Nadu	unorganized relief distribution	37	42	ToI

Table 1: Past Mass Gathering Incidents



Figure : First Day of Kartik Purnima Sonepur Mela - Holy Bath

An evaluation of each of the above incidents across the state and country and their causes, we find that a small trigger can cause huge impact. Many of the incidents were caused by something that could have been prevented with smart crowd management initiatives. Also, these incidents occurred at the places where there were huge crowd gathering. The worst affected people are elderly citizens, women and children. The record shows that these groups of people form a major chunk of affected population. A planned effort in such congregations, with precautionary preparedness steps, commutation and management, can save hundreds of lives.

a. Background of the problem

With a population with over 1.3 million people, Bihar is nation's third most populated state with third highest population density. At the same time Bihar is also a land of diverse people, language, culture, caste, geographies, and economy.

Generally, religious celebrations end up becoming an event of mass gathering. These events are observed with large number of turnouts, within a short span of time in a limited space with limited resources. It becomes imperative for the local administration to get involved and make arrangements to keep the events incident free. They need to prepare themselves, taking care of all the aspects of Disaster Management, mass casualty management, communication and media relations, security of people, care for vulnerable groups etc. If the events have possible turnouts in many thousands and millions, there has to be a proper planning for it. There is a huge surge in the demands of consumable and infrastructure. Many of such infrastructural developments need huge investments and they also need to be justified against the safety, sustainability and effectiveness. Hence the planned exercise has to be logically executed without burdening the people; the place and the existing infrastructure. There have been significant technological advancements in last few decades in terms of communication and security. The geospatial and satellite technologies, LIDAR mapping, RFID and other tracking mechanism along with advanced computer systems have made it easier to manage any event, track people and help make a planned effort towards event management.

The Harihar Kshetra Sonapur Mela , is generally acknowledged to be an event that is organized in a traditional mode. With almost 2 to 3 million people gathering in an area of less than 3square kilometers, it becomes difficult for the organizers to take care of needs of every single visitor. But a careful examination of the activities that had been planned and executed at the Harihar Kshetra Soepur Mela 2013 shows that the government had taken many innovative steps and planned efforts with involvement and incorporation of trained human resource and technology. Looking at the various such events that are being organized worldwide, we find that there are many systematic efforts with incorporation of technology, involvement of efficient human resources and infrastructures have been made to make the events a disaster free event.

b. Objective of the study

The overall objective of the research is to derive the good practices adopted during the Harihar Kshetra Sonapur Mela, 2013, identify the gaps in planning and lesson learned. The experiences from past have shown that any flaw in planning could result in widespread panic and

deaths. Thus this study will be dedicated to lessen the same in the future events by developing a model plan of action for mass gathering events.

Besides, a disaster at a mass gathering event, is a product of two main components: Hazard and Vulnerability. Without vulnerability or Hazard there is no disaster. A disaster occurs when hazards and vulnerability meet. A hazard is a dangerous condition or events that threaten or have the potential for causing injury to life or damage to property or the environment (fire, electric short circuit, stampede, etc). Vulnerability is defined as the extent to which a community, structure, service or geographic area is likely to be damaged or disrupted by the impact of particular hazard on account of their nature ,construction and proximity to hazard. This study would be made to focus around these two areas and would propose to inquire into the following aspects:

- ♣ Study the planning, preparedness, and miscellaneous arrangements made by the district administration towards safety and security of the participating community and present a comprehensive account of the efforts of district administration during the mela period.
- ♣ Evaluation of planning, preparedness made for the protection of animals in event man made or natural disasters. Study animal protection initiatives against the spread of viral disease or endemics.
- ♣ Study the role, participation and contribution of other stake holders i.e. Community Based Organizations (CBOs) , Panchayati Raj Institutions (PRIs), NGOs, etc
- ♣ Study the Water Sanitation and Hygiene (WaSH) arrangements, both for human being and animals made by the administration.
- ♣ Study the trafficking, child and related issues at the mela venue.
- ♣ Suggest more effective steps (if required), for Disaster Management in general and in events of mass gathering and crowd management in particular.
- ♣ To evolve for the draft and check list for Standard Operating Procedure (SOP), Mass gathering and crowd management events.

- The study the good practices and success stories that can be replicated in other events of mass gathering by government.
- Present a comprehensive account of necessary steps for mitigation actions and visible gaps.

c. Rationale of Study

The most basic rationale for this study can be put forward in the given premise is its ability to replicate in many of the mass gathering events in India. The similarity in infrastructural requirement, the crowd behavior, the turnout of events etc. make this study worth being undertaken. Various state governments plan such events, implements strategies and execute them on the ground. In view of such planned effort, this study will supplement the event planners, organizers and the governments at various levels of administration, to keep note of the important dos and don'ts, sub-events, and to make it Disaster Resilient.

1. Literature Review

Event of Mass Gathering

An event of Mass Gathering is generally characterized by huge number of people accumulating in a very limited space in a short span of time. Such events, though observed within a limited time, sometimes attract a crowd, many times the total population of the city. The Harihar Kshetra Sonapur Mela, 2013 attracted a whopping two to three million people. Some of the key issues that have been identified during such mega events are associated to the following (Frykberg, 2003);

- ♣ Disaster management planning and rehearsal
- ♣ Integration of local, regional, and national resources into a disaster management system
- ♣ Hospital Emergency Incident Command Systems (HE- ICS)
- ♣ Communications and security
- ♣ Media relations



- ♣ Protection of service delivery personnel and facilities
- ♣ Detection and decontamination of biological, chemical, and radiation exposure
- ♣ Triage principles and implementation
- ♣ Logistics of medical evaluation, stabilization, disposition, and treatment of victims
- ♣ Record-keeping and post disaster debriefing, critique, and reporting
- ♣ Critical incident stress management (CISM)
- ♣ Published research and experience in disaster management

Such events involve a number of stakeholders including event organizers, tourism practitioners, policy makers, event volunteers, risk, emergency and security forces, emergency management and businessmen, professional associations, community based organizations, school children, and relevant stakeholders, with the government administration emerging as the biggest player (Kishore, 2012). With so many stakeholders involved, a survey research conducted during one such event revealed the following challenges (Kishore, 2012);

- ♣ Safety and Security
- ♣ Crowd and Group Behavior
- ♣ Lack of Public Awareness and Education
- ♣ Impact of Social Media
- ♣ Likelihood of injury or death
- ♣ Disease outbreak
- ♣ Damage to property and environment
- ♣ Public image

Though some of the issues identified are not relevant to local Bihar state level context, most of them, remain a challenge throughout the world irrespective of culture and nature of event.



While issues related to food, water and sanitation, environmental, physical and technical hazards, infectious disease surveillance and health promotion are some of the most important aspects, the perspective of event planning and management -in context of public safety, risk assessment, drug and alcohol control, excessive use of force by administration/authority, weather, structural failure, riots, disease outbreak, casualties and injuries, mob mentality etc. are key areas where strict and prompt actions are required.

Technological Innovation

Many of the problems in the management of large and crowded events, especially those of religious nature, are associated with the movement of people. This poses many challenges (Yamin, Huang, & Sharma, n.d.). These movements need to be strictly monitored and controlled to keep the event organized.

The activities and behavior of crowd cannot be forecasted or determined. It is just through the vigilance that they can be monitored. The task may include managing and administering many activities such as checking and controlling traffic movements, payment of toll taxes, and monitoring and managing patients, parking, monitoring the overall law and order, incident reporting and incident response. Thus, role of technology becomes very crucial.

Mass Casualty Management

An event of Mass Gathering dealing with crowd management also associates itself closely to Mass Casualty Management. Mass casualties after disasters are characterized by such numbers, severity, and diversity of injuries that they can overwhelm the ability of local medical resources to deliver comprehensive and definitive medical care to all victims (Frykberg, 2003).

An effective Mass Casualty Management Plan requires an establishment of base line, that is, an assessment of current system's capacity against which planned changes can eventually be measured. A second key initiative should be taken to provide a detailed understanding of the hazards and risks specific to the country. Emphasis should be placed on gathering retrospective data on previous incidents. This should not be limited to large-scale disasters but also to those of smaller scale such as major traffic or industrial accidents, mudslides or floods that do not require national

intervention, fires and building collapses, and so on. It should also include a forward-looking component assessing risk in the future from elements such as unsafe urban development, or changes in weather patterns. Coupled with the baseline assessment, the information provided by this hazard analysis and risk assessment will provide a solid basis for the subsequent process of planning, and for the allocation of resources. This will help in development of a comprehensive Mass Casualty Management Plan (WHO, 2007).

This also necessitates the development of training modules and guidelines, monitoring, surveillance and early warning, stockpiling, collaboration with NGOs and corporate sectors as partners and thus finally developing a culture of community preparedness (WHO, 2007). While addressing any mass casualty event, it is worth noting that Disaster management poses challenges that are distinct from normal practices. It requires a paradigm change from the application of unlimited resources for the good of each individual patient, to the allocation of limited resources for the greatest good of the greatest number of casualties. This is achieved most effectively by planning and training for disasters, through both internal hospital drills and regional exercises involving all community resources. Rescue, decontamination, triage, stabilization, evacuation, and definitive treatment of casualties all require the smooth integration of multidisciplinary local, state, and federal assets. This would include (but not be limited to) pre-hospital services, the media, emergency management and public health agencies, transportation and communication resources, the military, and health care delivery facilities and personnel (Frykberg, 2003).

Development of Model

Disaster Management is an emerging field with many of its domain areas under evolution. Under such circumstances and in context of mass casualty management, the literature review fetched very limited results in terms of pre-existing model. One of such model was developed at Virginia (USA) and it was named as Mass Casualty Incident Management: Virginia Model (Green, 2000). It describes a system for response to a mass casualty management as needed to address both capacity and procedural issues throughout all the phases of the incidents. These phases may include;

- ♣ Preparedness
- ♣ The mass casualty event



- ♣ Response and characterization
- ♣ Patient clearance
- ♣ Transition to mass fatality incident, if required
- ♣ Short distance transport to definitive care
- ♣ Long distance transport to definitive care
- ♣ Patient discharge and return.

The Virginia approach consists of four modules. The first two comprise of the following;

1. Initial set of actions : Safety (assessment of safety of scene to determine entry of medical service resources), Size-up (rapid and quick assessment of overall characteristic of incident including size, area covered, severity, access routes and additional resources needed), Send (dispatch of resources), Set-Up (assumption of command), Start (start triage).
2. Second, the use of START triage was identified as the first step in actually determining the medical characteristics of the incidents.
3. Establish the organization of mass casualty response as a standardized Incident Command System, Medical Group under the leadership of a Group Supervisor, with Unit Leaders for Extrication, Triage, Treatment, and Transportation.

In the next step, a plan for coordination of health and medical response to catastrophe casualty events is developed followed by the final step of managing mass casualty incident where an action is needed when patients exceed the statewide system capacity.

2. Approach of the Study

a. Guiding Principles of the Study

- i. **Objective of the project:** In the project studied, every objective to be achieved was right from the planning, management and execution of the series of events. This ensured that each and every perspective of the event was captured.

ii. **Expectations from the Stakeholders:** An event of such a large scale involves numerous stakeholders' right from the government administration, line department, the civil society organizations, the NGOs, the local corporate and private establishments. It becomes imperative to determine the expectations of each of the stakeholders from others, contributions made by each one of them, the suggestion for further improvement and an overall impression of the event.

iii. **Data:** The Mela concluded with a turning up of over 30 million people. Mere imagination of the available data can explain the complexity of the study. The data coming from government administration, the essential services, and the line departments mostly assumed a qualitative form. At the same time, the on-field data and inputs from other stakeholders were qualitative in nature. The general tool for data collection was structured questionnaire in case of quantitative data and for qualitative data it was in form of open ended semi-structured questionnaire and focused group discussion.

b. Framework of Study

Various Melas are organized at various places in Bihar in various capacities. All these mass gathering events have turnout of huge population, involves development of pop-up cities and many allied services. The ever increasing population, the awareness and popularity these events gain from media and better connectivity between the places have been resulting in constantly increasing population with substantially large and difficult to determine population. This necessitates a need of a thorough analysis of previous event's data, gaps/shortcoming and the best practices evolved. The extrapolation of data based on the analysis of the previous event's data will help determining the needs at the present one.

Once the need assessment is done, the planners base their whole plan and management of the event with the assessed data. It is very important to determine how the assessed data is utilized in planning and management of the event.

Plan will be plans unless backed by practically implementable ideas. Once the planning phase is over, all the stakeholders come into the picture to coordinate and execute the event as per the plan. Thus it requires a multidimensional approach.

Post event analysis is crucial from point of view of determining the overall success or failure of the event management. It also helps figuring out the good practices, the gaps and lesson learned. Based on these collective data, an ideal model can be developed.

Harihar Kshetra Sonepur Mela 2013











-  Need Assessment based on extrapolation of data
-  Planning and Management
-  Execution of Event
-  Post even Analysis
-  Multilevel and Multi Dimensional coordination between all stake holders.
-  Group practices and Gap Identification

Table : Study Framework

c. Information Need Matrix

Since it is a case study which is explorative in nature, it is very important to determine the source of information and the type of information needed. This will greatly be influenced by the availability of data, and the on-field situation. The need matrix is divided into the following categories;

-  The government administration
-  The line departments
-  The essential services
-  The NGOs and CSO's

3. Research Methodology

The basic objective of the research is to study the good practices adopted during the Sonepur mela, 2013, identify the gaps in planning and lessons learnt. The study was conducted in the following sequence;

4. Research Methodology

The basic objective of the research is to study the good practices adopted during the Sonapur mela, 2013, identify the gaps in planning and lessons learnt. The study was conducted in the following sequence;

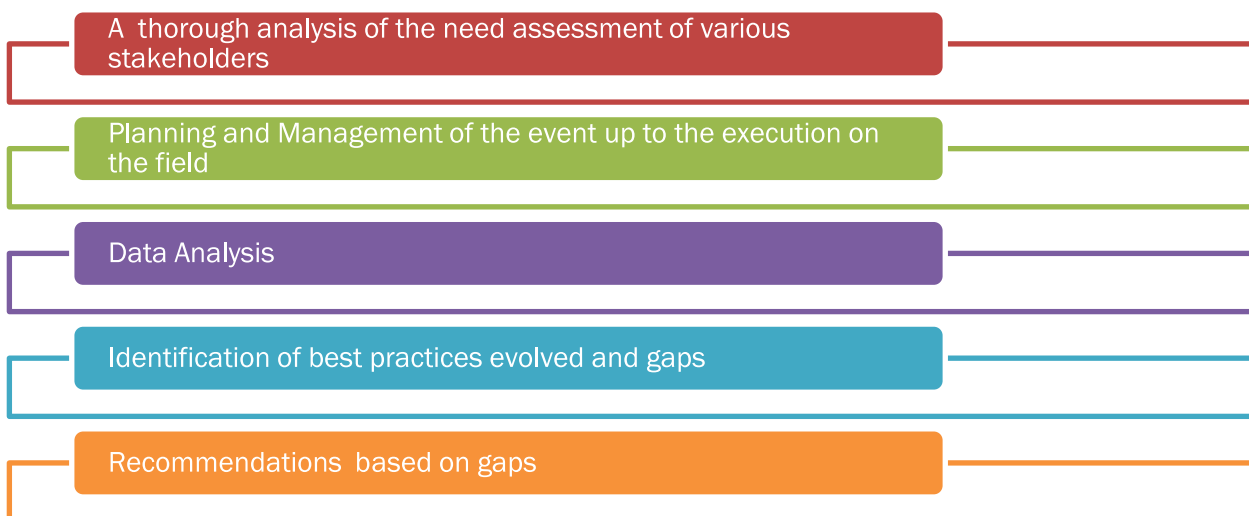


Table 3: Research Methodology

a. Research Area

The research area was the stretch of 4 square kilometers of area (around 400 hectares) along the bank of Ganges, Gandak and Mehi with their confluence known as Harihar Kshetra in rural Sonapur in Saran District of Bihar. The entire area is divided into 4 sectors and 5 parking lots.

b. Unit of Analysis

The primary units of analysis for the study were the line departments under the government system and the other organizations playing a role in the planning, management or execution of the event. The smallest units of analysis were the individuals who held a post of responsibility or represented an organization.

c. Research Question

The study dealt with the following research questions;

1. How was Sonapur Mela, 2013 planned, managed and executed?

2. Based on the experience from the Sonepur Mela, 2013, and incorporating the good practices and addressing the gaps, how can be an efficient model for mass gathering events in Bihar and India be determined?

The first question clearly deals with the overall organization of the Sonepur Mela, 2013. This will call for detailed study of planning and execution of the event and getting perspective and experiences from all stakeholders.

The second question is rather exploratory in nature and can be determined by the success/failure, the evolution of the practices and the gaps identified during the execution of the event. Once done, connecting all the loose ends and incorporating the best practices evolved, a model plan for such events can be determined. This model will be generic in nature and scalable at the same time.

d. Research Design

The study focuses on how the event has been organized and why has it been done that way. At the same time, there has been no dedicated model developed for the efficient management of mass gathering events. Hence the research takes on an exploratory approach. Additionally, the behaviour of the stakeholders involved cannot be manipulated. Hence, the present study qualifies for a case study design and will follow a single case study design.

e. Sampling

The study adopted a non-probabilistic purposive sampling in the case of Government Administration, the line departments and the essential services providers. The same in the case of private players, the corporate and the NGO/CSO was based on a mix of non-probabilistic purposive sampling and snow ball non probabilistic sampling method.

f. Development of Instruments

In case study research, the measurement instrument used to maintain consistent focus and a rigorous approach is the study protocol (Yin, 2003). The protocol is more than just a list of questions to be asked during data collection. Yin suggests the following protocols that have been included in data collection.

- An overview of the case study project: Project objectives and relevant readings on the Mass gathering and crowd management along with mass casualty management were done.
- Field Procedures
- Case study questions: These questions were purely based on the subject area of the respondents.
- Guide for case study report: organizing data, putting them into a specific format and documentation.

g. Data Analysis

Once the data was obtained, the analysis was done by organizational level logic model (Yin, 2003). As explained by Yin (Yin, 2003), the logical model traces events taking place in an organization. The data analysis in this method should consist of tracing the actual events taking place in an organization with the close attention to the chronology of the event. So in the research, emphasis was given to the order in which the event was taking place (as explained by the interviewees) and their association with the preceding and the following activities along with other associated activities in the explanation.

5. Harihar Kshetra Sonapur Mela : 2013

I. Planning

Harihar Kshetra Sonapur Mela is a massive event attracting over 3 million of human population. Every time there are new challenges. It was indeed a tough job for the administrative planners to assess the data based on the previous year and extrapolate the current estimated people travelling down by considering the factors such as population growth, infrastructure, transportation and road connectivity etc. Besides the total number of people expected to be there at the Harihar Kshetra Sonapur Mela, it was further broken down in terms of specific festival days when the area would see a surge in population. Estimated Pilgrims during Harihar Kshetra Sonapur Mela 2013 were:

Important Bathing Festivals	Days:	Estimated Pilgrims
Kartik Purnima	17 November 2013	2- 3 million
Ekadashi	29 November 2013	50000 -75000



Triodashi	1 December 2013	50000
Amavashya	4 th December 2013	50000

The allotment of land with tents and basic amenities were done right at the beginning of the mela (around October). The following were the basic amenities associated with all the settlements inside the Mela.

- Road
- Water Supply
- Electricity supply
- Fabricated Shop and Stall Space
- Visitors Shade
- Fire Shade (for winters)
- Toilets
- Bathrooms
- Kitchen
- Eateries
- Police
- Fire Service
- Primary Health Center/ First Aid centers

Once the area was earmarked for the Mela, plots were allotted to the registered organizations. This was done immediately after the water receded post monsoon in the previous year.

Other facilities provided are given in the table below.

As per the letter of the District Administration, the whole activity and infrastructure management of the fair was divided into different Cells:-

- a) Welcome Committee Cell
- b) Inauguration and Concluding Ceremony Facilitation Cell
- c) Cultural events organizing Committee Cell



- d) Water Sanitation and Hygiene Cell
- e) Temporary Electrification Cell
- f) Barricading / Bathing Ghat and River Water Safety Cell
- g) Government/Non-Government Organization and Commercial Stall Monitoring Cell
- h) Outdoor and Sports events organizing Committee
- i) Medical Cell (Human and Veterinary)
- j) Law and Order Cell
- k) Public Relations Advertisement and Media Relations cell

a. Welcome Committee Cell. The management, movement and facilitation of VVIPs visit in events of mass gathering plays a significant role as in the past it has led to many stampedes. Keeping this in view, the Mela organizing committee was supported by a 15 member 'Welcome Committee Cell' with members from district administration. The main work assigned to this cell was to welcome the distinguished guests and VVIPs, ensure their safe and hindrance free visit to the temple premises. The cell was also responsible for fooding, lodging, transact walk to the mela areas with presentation of mementos and bouquets. This was working in close coordination with District Magistrate's confidential cell, updating it on the route plan and daily movement.

b. Inauguration and concluding ceremony facilitation cell:

The success of any event is measured by the hassle free gathering in the inaugural and concluding event. The Harihar Kshetra Sonapur Mela , witnesses a huge gathering of people every year in inaugural session as it is followed by outdoor animal sports activity like elephant race , boat race , bullock cart race. Besides, inaugural day is also the main bathing day of the fair, when the volume of the crowd exceeds up to one million. The inauguration and concluding ceremony facilitation cell comprised of fifteen officers from district administration which was working in close coordination with the Tourism Department at the state level. The tourism department was nodal department for finalization of the list of guests for the event and the role of



cell was to smoothly facilitate the events. It facilitated the distribution of invitation cards to the important stakeholders amongst the community, and other stakeholders i.e. community based organizations, local NGOs and artists, members of the Panchyati Raj Institutions, school children, youths to make the event more inclusive.

The cell was responsible for overall dais management, uninterrupted provision of light sound facilities at the stage. The decoration of the stall with flowers and informative flex was done by this cell. It also ensured finalization of agenda and minute to minute programme designing with special attention to opening and closing ceremony. It ensured the provision of experienced and attractive anchors for the facilitation of programmes.

c. Cultural events organizing committee cell:

The Sonepur Mela owes its vibrant environment due to ongoing large number of cultural activities during the mela period. Apart from the classical and folk songs that are organized during the evening, the various line department of the state government put up an impressive Nukkad Nataks for the event. This year the Agriculture department, Health, Public Health and Engineering Department (PHED), Animal Husbandry Department, Bihar State Disaster Management Authority (BSDMA) put up an impressive show for awareness and capacity building of the participating rural masses. Taking note of its importance this cell comprised of 17 officers who were assigned different tasks of successfully coordinating the events. This cell finalized and released the month long cultural activities plan for the schedule dates and timings. It also finalized the list of performing artist, their availability and provision of required accessories to them. Priority was given to the local artists and cultural institutions for performance on the stage.

Apart from the main activities at the centre stage area, 'Mandap Shree' various other cultural activities simultaneously go on in the surrounding areas of mela premises eg. Gandak Arti, Ganga Arti, Ram Leela, Bhagwat Katha, and other religious discourses etc. Keeping this in view, the mela premises was divided in four cultural zones - north cultural zone, south cultural zone, east cultural zone and west cultural zone. The team member's facilitated proper arrangements for safe and secure culmination of each cultural event.

d. Water Sanitation and Hygiene Cell:

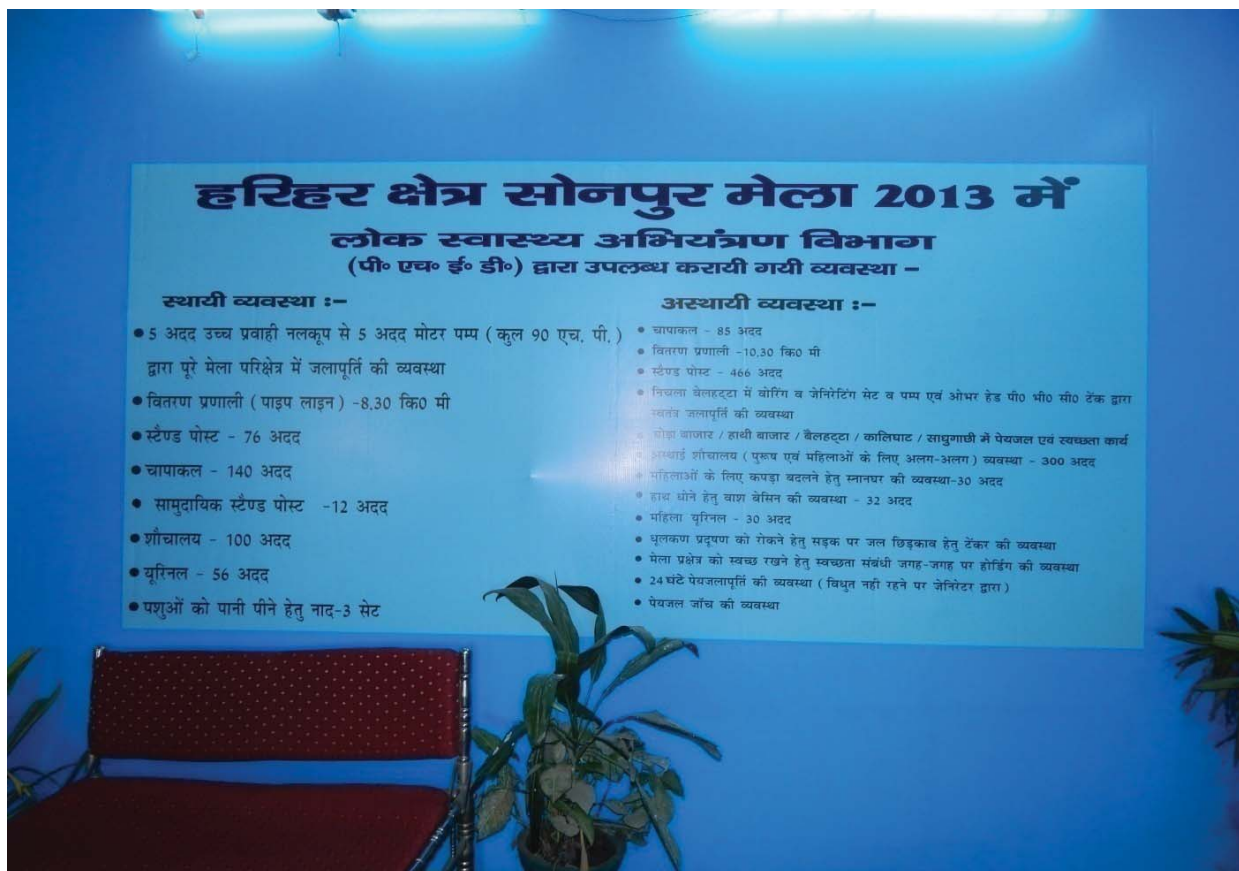
Proper management of Water Sanitation and Hygiene (WaSH) plays a major role in checking the spread of epidemic during the events of mass gathering. At Hariharnath Sonepur Mela with an average inflow of one lakh people per day for thirty days, it needs the utmost priority to ensure hygiene, cleanliness sanitation and drinking water facilities. This cell comprised of 15 persons and was headed by Chief Medical Officer cum Civil Surgeon of Saran. It was being ably supported with hardware and infrastructure support from the Public Health and Engineering Department (PHED). To ensure a clean and hygienic environment during the mela period, the whole area was divided into 10 sub-zones. It included the proper keep and clean environment on all the bathing ghats, roads, sewerage system administrative officers camp area, dakbanglow area and the areas in and around the venue. Each zone was assigned to different contractors having adequate strength of labourers. An inventory of the support staff was prepared with contact details. The main task assigned was to ensure clean and hygienic environment around the mela area, pure drinking water and clean and hygienic environment. The following were the permanent preparations made by of Water Sanitation and Hygiene (WaSH) cell with support of the Public Health and Engineering Department:

- Provision of pure drinking water through underground water pipe lines with 5 high volumes bore well and five motor pumps.

Figure:2 IEC material depicting the measures taken by PHED department at the Sonepur Mela.

- The total length of water pipeline was eighteen meters.
- Seventy six (76) water stand post were erected in around the mela area.
- Around two hundred and twenty five (225) hand pumps were installed all around the mela area. It included installation around the roads, cultural events centres, temples, ghats, cattle centres etc.
- More than four hundred toilets and 56 urinal structures were erected with separate arrangements for male and female.
- To provide clean water to the animals, 3 large 'nad' containers were provided.

- Around the ghat area more than thirty (30) dress changes cubical for women were constructed.
- Water was sprinkled on the roads in the morning and evening hours daily. This helped in checking the dust flow and maintaining of clear dust free environment.



- Various hoardings were erected in and around the mela area with messages on flex about do's and don'ts of maintaining the environment.
- To ensure continuous supply of water, backup support of generators were ensured.
- This cell ensured complete sanitization of the mela areas before the start of the fair in morning hours.
- There was an effective Solid Waste Management mechanism as the garbage, excreta and animal carcass disposal site was identified far away from the mela area with daily disposal arrangements. The cell was equipped with requisite amount of earth moving machineries eg. Dozers, tippers, JVC for solid waste disposal. Besides daily spray of bleaching powder, gamaccine and phenyl etc. was ensured to contain bacterial and viral out break etc.

e. Temporary Electrification Cell:

It is often said that Sonapur Mela is the only fair with most vibrant night life. It is only possible with constant supply of electricity. The large numbers of shops, stalls of cattle, poultry and animals are protected and safe due to proper supply of electricity and installation of street light, high mask light in the mela area. The temporary electrification cell was equipped with ten officers and led by a senior Deputy Collector. The whole area of Sonapur was divided into 15 electricity zones with required number of transformers. Constant supply of electricity was ensured at the ghats during the night time as bathing starts early in the morning at vulnerable ghats eg. Gandak Bridge Ghat, Old Bypass, Old Gandak Bridge, Kalighat, Hariharnath Temple, and surrounding areas. The back up support was ensured with 100 kv generators outsourced to local contractors. The Mela area was fully lighted with flash lights, Halogen Lights, bulbs and street lights.

f. Barricading, Bathing Ghats and River Safety Cell.

Barricading plays a major role in directing the crowds towards safer places especially at entry and exit routes. It helps in checking the flow of excess crowds at particular place. Wooden, steel and rope barricades were used in places of mass gathering at Sonapur mela with proper designing and planning. The highest flow of people is at the ghats in the initial days and in the mela area during the remaining days. Hence proper barricading arrangements were done with due consultation from the local people and related stake holders for smooth movement of the crowd. This cell identified the vulnerable Ghats at the Gandak, Ganga and Pahlejaghat zone before the commencement of the fair. Proper barricading was done to prevent the crowd from venturing in the deep river zones. To monitor safety and security of the pilgrims, special mobile boats with deep river drivers and search and rescue teams of State Disaster Response Force (SDRF) and National Disaster Response Force (NDRF) were stationed near the ghat areas.

There has been tradition in the Sonapur Mela to bring elephant on the ghats for bathing. This needs special arrangement for animal bathing with proper barricading and to separate it from the human population. This was done effectively at the ghats, by barricading, bathing ghats and river safety cell with separate arrangement for animal bathing. This helped in avoiding stampede and rush at the site.



g. The Government / Non-government Organization Stall and Commercial Stall monitoring Cell.

The line Government departments and Non-Government Organization Stalls set up at the mela venues are grid of information for masses from where it disseminates to the lowest strata of society. Shops play an important role for annual purchase of households eg. Utensils, furniture, hardware, cosmetics animal feeds, agricultural equipments, woolen clothes, edibles. etc.

This cell was equipped with 23 officers and staff led by the District Forest Officer, Saran. The areas were pre marked and planned before the commencement of fair in accordance to the space availability to avoid congestion and volume accommodation of the crowd. The stalls were designed and fabricated on the both sides of the road. All this worked in close coordination with the nodal department, Tourism Government of Bihar. Special care was taken to ensure quality construction of stalls with proper ply fabrication, carpeting with availability of water and sanitation facilities for each stall.

- The government, commercial theatre and private stalls were strategically located apart, with enough walking space plan, sanitation and drinking water facilities for each stall.
- The circus, small animal, food stalls were allotted location away from the main business center to avoid overcrowding. This helped in proper distribution of crowd movement around the fair area.
- This cell also ensured uniform designing and upkeep of the stall which ensured no encroachment outside the allotted area.

h. Outdoor and Sports Events Organizing Committee Cell : Apart from cattle fair, Harihar Kshetra Sonapur Mela is also famous for various sports competition like animal race (horse race, elephant race, bullock cart race etc.), boat Race ,wrestling, kite fair , football etc. Participants from across India and Nepal come here to depict their art and strength. This cell was assigned the task of finalizing the schedule and agenda of competitions, venue, award and participants. The cell also ensured timely start - finish of the events with crowd management safety and security measures of participants.

i. Medical Cell: As Sonapur Mela is a unique conglomeration of humans and animals, the government and administration gave equal importance to their health safety and hygiene. Medical cell had the strength of nine people with proper representation from both Health and veterinary department. Various stalls were put up by the medical team with medicines and surgical items at strategic locations. These health teams were supported by ANM, Asha and Para Medico Staff. Continuous checkup of cattle, were ensured with round the clock positing of veterinary doctors. Travelling Veterinary Officers (TVO) were assigned the task of continuous monitoring and health checkups for the elephant, horses, birds and dogs etc. There was provision for free distribution of life saving medicines and surgical round the clock.

j. Law and Order Maintenance Cell: This was an year of security alert at Sonapur Mela, as there had been two incidents of bomb blast in Bihar, earlier (2013) at Bodh Gaya and Patna. According to estimates, there is flow of fifty thousand to one lakh people each day at Sonapur Mela. This includes women, children, elders, traders, and people from all walks of life. This needs a vigilant law and order management to ensure peace and security during the mela.



Figure 3: Saran Police Camp for the maintainenece of law and order.

In accordance to the ‘District Order’ (Jila Adesh) released by the District Administration, the following are the major law and order problems that needed to be checked during the Mela period:

- Snatching, robbery, pick pocketing, illegal extortion of money.
- Eve teasing (proper safety and security of women and children are needed.)
- Illegal extraction of money from the traders or money raising through illegal receipt needs to be checked.
- Strict vigilance is required to prevent Women and Child trafficking.
- During the mela period, many of the children or women are lost in the crowd. It is the duty of administration to ensure their tracking and reunion.

The above mentioned points often disturb the peaceful mela environment. Hence, an order was issued by the office of District Magistrate, Saran, for the enforcement of following acts through district order:

- i. Immoral Trafficking (Prevention) Act 1956: In exercise of power conferred to the District Magistrate under section 7(1) (a) Immoral Traffic Prevention Act , 1956, the administration notified the entire area comprising the jurisdiction and limit of Sonepur Police Station under section 2 (h) the Immoral Traffic (Prevention) Act from 14.11.2013 to 20.12.2013).
- ii. Anybody carrying the profession of prostitution or anybody encouraging and helping in carrying on aforesaid profession within the aforesaid area, will be liable for prosecution and punishment under the aforesaid act.
- iii. Enforcement of Sec 290: In exercise of power conferred to the District Magistrate under section 290 it was notified that action would be taken against persons indulging in public nuisance in the entire area comprising the jurisdiction and limit of Sonepur Police Station.
- iv. Enforcement of Sec 292: In exercise of power conferred to the District Magistrate under section 292 it was notified that action would be taken against persons found indulging in business of immoral literature, pictures, posters, entertainment etc in the entire area comprising the jurisdiction and limit of Sonepur Police Station.
- v. Enforcement of Sec 293: In exercise of power conferred to the District Magistrate under section 293, it was notified that action would be taken against persons found doing business of immoral products amongst the youth (below 20 yrs of age) in the entire area comprising the jurisdiction and limit of Sonepur Police Station.



- vi. Enforcement of Sec 294: In exercise of power conferred to the District Magistrate under section 294, it was notified that action would be taken against persons found (1) performing immoral act at public place.(2)Displays immoral songs words etc. in the entire area comprising the jurisdiction and limit of Sonapur Police Station.
- vii. Enforcement of Tritium Performance Act 1876 (Sec: 354 with amendment year 2013) : In exercise of power conferred to the District Magistrate under Tritium Performance Act, 1876, it was notified that immediate action would be taken against persons found violating the honor and dignity of any women or indulges in any kind of attack or tries to outrage the modesty in the entire area comprising the jurisdiction and limit of Sonapur Police Station.
- viii. Enforcement of Dramatic Performance Act 1876: In exercise of power conferred to the District Magistrate under The Enforcement of Dramatic Performance Act 1876, it outlined the restrictions that public performances of a play, pantomime or any other drama would have to adhere to. According to this Act, if the administration judged any play to be of scandalous in nature; disrupting social values; or felt that it might excite feelings of disaffection; or that it would corrupt persons, then the said performance would stand prohibited in the entire area comprising the jurisdiction and limit of Sonapur Police Station. The Act further stated that if any person or groups on whom an order of prohibition had been served refused to comply with the same, such persons or groups would be liable to be punished. The penalty for disobedience of the terms of the Act is either imprisonment for a term extending to about three months, or a fine, or in some cases, both.
- ix. Enforcement of The Public Gambling Act Act 1867: In exercise of power conferred to the District Magistrate under The Public Gambling Act of 1867 the administration prohibited running of public gaming house. The penalty for breaking this law is a fine of INR200 or imprisonment of up to 3 months. Additionally, this Act prohibits visiting gambling houses. A fine of INR100 or imprisonment of up to one month is the penalty. The Information Technology Act 2000 regulates cyber activities in India and prohibits publication or transmission of information that can corrupt people. This includes online gambling and the punishment for such activities is much more serious than for offline gambling operations – the fine is INR100,000 or imprisonment up to 5 years.
- x. The law and order maintenance cell was equipped with fifteen members. This cell ensured identification of the vulnerable points in and around Mela premises, where temporary Police Station, Police Post, out post, were positioned in accordance to need. Special provision of women constables were made for the protection of women and children. For the first time all women battalion of BMP was placed for round the clock safety and security of foreign nationals who were staying at the river side tourist cottage.



- xi. All the VVIPs were provided with round the clock escort. The main cultural zone saw the highest inflow of people as the classical and folk dance shows were going on. It needed special attention as hoodlums often spoil the show. Special police outpost was created inside the cultural field which monitored the crowd behavior round the clock with mikeing and required support. The following were the major administrative initiatives taken during the mela period:
- Nineteen temporary Police Stations (one reserve) were set up in different areas of the mela area. Besides this, every theatre was provided with permanent deputation of ASI rank officer with four constables.
 - Special arrangements were done with the provision of all women police cell at Meena Bazar Thana for the protection of women and prevent the incidences of eve teasing.
 - Mock Drill: As special preparatory mock drill was done before the commencement of the fair. It was attended by all the police staff assigned with the Mela duty. A special debriefing session about do's and don'ts was also done by the District Magistrate, Superintendent of Police and other supervisory officers.
 - Search and Rescue Team: Search and Rescue Team Members of National Disaster Response Force (NDRF) and State Disaster Response Force (SDRF) were positioned on the Ghats to provide instant help in case of drowning or boat mishaps. In addition, inflatable boats with divers, deep sea divers and life jacket were positioned near the bathing ghats.
 - River Patrolling: The task of River patrolling was given to Sub Divisional Officer, and Sub Divisional Police Officer, Sonapur. It was done with large motorized boat equipped with flash light, dragon light, life jacket, deep sea divers with positioning of supervisory magistrate rank officer.
 - Anti-sabotage search was ensured at ghats. Various drop gates were erected for the smooth flow of the traffic and people. Public address system was installed at ghats and mela premises to give definite direction to the people and establish communication with colleagues and participating masses.
 - Wireless and Man Kamp set were provided to all supervisory support staff.
 - Police Control Room: A modern and equipped Police Control Room for Hrihar Kshetra Sonapur Mela was set up at the southern end of the entry gate. It was equipped with modern telephone, wireless set, telephone, public address system, CCTV, VHF set, Main camp, Inter net and TV connectivity with permanent deployment of two ambulances.
 - To regulate the movement of the crowds at railway station six teams headed by a supervisory magistrate rank officer were deputed at strategic locations.
 - The entire mela area was divided into four traffic zones named as A,B,C ,D. and was allotted a special route chart with parking arrangement for proper management of traffic system.



Figure 4: Special Camp of District Control Room for mela management.

k. Public Relations Media and Advertisement Cell:

The main function of Public Relations Media and Advertisement cell was to liaison with the press, issue press notes of daily programmes for media reporting, news review of Hindi, English & Urdu Newspapers published locally, welcoming of national and state level press representatives, publication & display of classified advertisements in newspaper, publicity of the achievements of the state government with cultural programmes.

b. Innovative Initiatives

The Harihar Ksetra Sonpur Mela -2013 was one of most ably managed, incident free and well attained fair in recent years. It was neat, clean with hygienic and vibrant environment. Above all, no human induced incident or mishaps were reported.

The following were some of the innovative initiatives taken up by the administration working restlessly for the Mela:-

- a) Administrative departments associated with security and public amenities were set up as individual blocks.
- b) Digitalization of all the information related to the mela was made available on website dedicated to Harihar Kshetra Sonapur Mela.
- c) First Aid counters and ambulances with life support systems were available in each blocks of mela area.
- d) Traffic police installed variable signboard on the major roads so as to ease the traffic and display important messages.
- e) Lost and found camps used public address electronic techniques for effective functioning.
- f) In order to keep the river and the place clean, round the clock brooming and cleanness were ensured with deployment of dedicated cleaners for each section. This cleanliness drive was also carried out with the help of CSOs and public.
- g) The stalls put up by the line departments of the government acted as an important sources of information for the rural crowds. Some of the major crowd pullers of the government stalls were on flagship national and state government programmes like National Rural Health Mission Programme (NRHM), National Sanitation Mission, Sarv Siksha Abhiyan, and Integrated Child Development Scheme (ICDS).
- h) The Integrated Child Development Scheme (ICDS) centers were set for the play of children with important information on immunization, nutrition, mother counseling etc. It provided informative and valuable information for mother and child care.



Figure:5 Special ICDS camp put up by the district administration for care and supplementary support of the children aged between 0-6 yrs.

- i) The stalls put up by Animal Husbandry and Bihar State Disaster Management Authority (BSDMA) provided useful information on animal first aid and medicines. For the first time information on dos and don'ts on protection of animals during disasters were presented. Five stage plays, Nukkad Nataks were also performed by renowned theatre artist on dos and don'ts of animal first aid and protection of animals in pre, during and post disaster situations.



Figure 6: Stage show of street play being organized by WSPA and BSDMA for protection of animals during emergencies and disaster situations.

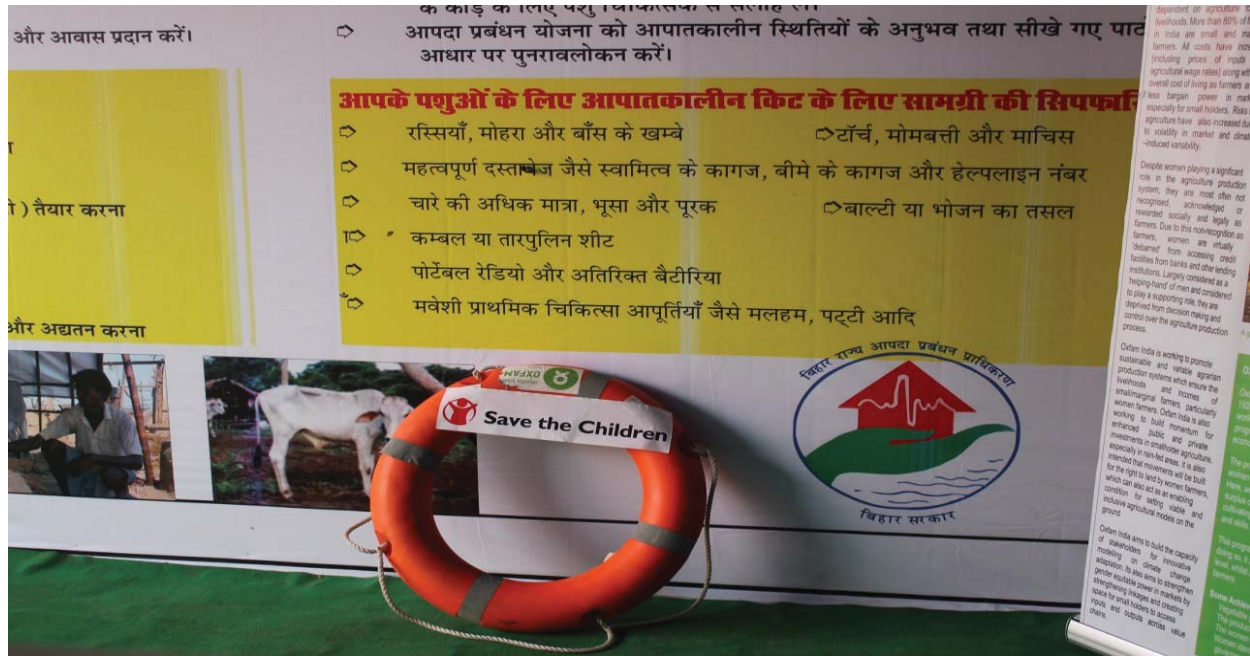


Figure 7: Special gallery at the BSDMA mass awareness stall dedicated to 'dos and don'ts' for the protection of animals in pre during and post disaster situations.

i) Health: The stalls of the health department displayed the 'dos and don'ts' about the major epidemics like diarrhea, Kala Azar, Bird Flu etc. which was very useful for the commuters as they used to stay in the mela area for a couple of days and this made them aware about what to do in event of an outbreak.



Figure 8: 24x7 mobile vans being positioned in the Sone pur mela premises to deal with emergency situations and trauma management.

j) Stalls by Rural Development, Agriculture, PHED, Education etc :The stalls put up by the rural development department created awareness about the Indra AwasYojna. Similarly the stalls of Agriculture department depicted innovative cropping patterns in event of climate change with latest agriculture equipment, their use and the initiatives offered under the Krishi Road Map. The sale of medicinal plants was a big success at these stalls as it was well purchased by the rural people. The stall of Public Health and Engineering Department made the masses aware about the norms of Niramal Bharat Abhiyan and the latest enhanced support of rupees ten thousand for constructing a toilet for the BPL rural family. It also depicted the software aspect of sanitation with the pictorials of ‘Five steps of Hand Washing’ and dos and don’t’s of leading a hygienic life style.

- The stalls put by Sarv Siksha Abhiyan made the people aware about their roles and responsibilities about the School Education Committee. The entitles of the children under the School Dress Yojna, Balika Cycle Yojna, Scholrships, Vidyalaya BhramanYojna (school tourism) etc.



Figure 9: Mega Agriculture Department Stall for mass awareness of community on Climate Change and related practices under the Krishi Road Map.

Communication system was further strengthened by enabling of WLL and CDMA services by BSNL.



Figure 10: Mega BSNL stall for provision of communication facilities to the commuters.

- j) Public Convenience: The study captured glimpse of some of the basic services that are very crucial to the people at Harihar Ksetra Sonepur Mela. These services included public health, security, cleanliness, electricity, law and order, disaster management etc. These services were provided with all sincerity and promptness as the fair did not witness any major epidemics or human induced disasters.



Figure 11: Provision of Multipurpose dustbin in all the corners of mela premises for behavioral hygiene practices put up by district administration and local NGOs.



Figure 12: Proper drainage were designed for the flow of used water and contain water logging (although it needs to be covered to avoid any endemics)

k) The Bihar State Disaster Management Authority sponsored ‘BSDMA Mass Awareness Stall’- Apada Jagrukta Kendra’, on Disaster Management drew huge rural crowds at Harihar Kshetra Sonapur Mela. It was for the first time that the issue of disaster management was highlighted during the event of mass gathering in rural Bihar. The rural masses were given information about dos and don’ts in pre , during and post disaster situations. This stall was a grand conglomeration of seven INGOs, namely i.Oxfam India, ii. Save The Children, iii. Plan India, iv.WSPA, v.Red Cross,vi. Unicef vii.Caritas (web support) with BSDMA, Government of Bihar.

- The stall had become eye-catching with following characteristics:
- A dedicated gallery for Protection of Animals in Disaster Management.(WSPA)
- A dictated gallery for Children in Disaster Risk Reduction.(STC,Plan India and Unicef)
- A dedicated Gallery on WaSH in Emergencies.(Oxfam India, Unicef)
- Details of the latest Calamity Relief Fund (CRF) norms.
- Distribution of fifty thousand IEC materials from the stall.
- Do’s and Don’ts on pre, during, and post Disaster.
- Late evening shows on Disaster Management.
- A five day Nukkad Natak on DRR and animals in Disaster Management.
- Miniatures and Models of raised platform, boats, search and rescue kits, animal First Aid kits, activity book for children etc.
- Study on events of Mass Gathering and Crowd Management.

10: BDMA mass awareness stall.





Figure 15. Red Cross Volunteers managing the BSDMA stall at Sonepur Mela and briefing the visitors about the IEC documents.




के परचात् उनके दायित्वों के प्रति सजग करने का प्रयास किया जा रहा है।
आशा करता हूँ कि पूरे राज्य में न केवल जिला बल्कि प्रखण्डों, पंचायतों एवं
समुदाय के स्तर पर भी इस सप्ताह को पूरी गंभीरता से मनाया जायेगा।
(अमिल कुमार सिन्हा)
आ.प्र.से. (से.वि.)
उपप्रमुख, बिहार राज्य आपदा प्रबंधन प्राधिकरण

अधिक जानकारी के लिए सम्पर्क करें :

बिहार राज्य आपदा प्रबंधन प्राधिकरण
(आपदा प्रबंधन विभाग, बिहार सरकार)

द्वितीय तल, पंत मयन, बेली रोड, पटना- 800 001, Tel. : +91 (612) 2522032, Fax. : +91 (612) 2532311
visit us : www.bsdma.org; e-mail : info@bsdma.org

आपदा नहीं हो भारी यदि पूरी हो तैयारी॥



आपदा जागरूकता केन्द्र

बिहार राज्य आपदा प्रबंधन प्राधिकरण

आपदा प्रबंधन विभाग, बिहार सरकार





ऑक्सफैम इंडिया



Save the Children



unicef
unite for children



WSPA
World Society
for the Protection
of Animals



Plan
There's a plan
for every child.

Signature Campaign

1. Electricity Supply: The Mela required continuous supply of electricity for the entire period. The entire mela area was divided into 5 zones for electricity supply. The whole area of Sonapur was divided into 15 electricity zones with required number of transformers. Constant supply of electricity was ensured at the ghats during the night as bathing starts early in the morning at vulnerable ghats eg. Gandak Bridge Ghat, Old Bypass, Old Gandak Bridge, Kalighat, Hariharnath Temple, and surrounding areas. For the emergency situations and in order to avoid blackout, there was a provision of 15 generators of 125 KVA each. The general consumption of electricity at the Mela was around 10 Megawatt. It was estimated to reach 15 Megawatt during the peak hours. The department was however prepared for 20 Megawatt supply. The innovation that the department has done this year is by providing additional safety. All the complex wiring zones were maintained properly with the dedicated electricity



Figure 12: Crowds of Children and women having a look at the miniature models of raised platform and boats at BSDMA mass awareness stall at Sonapur .

Figure 16: Proper keep of electricity wires and settings at the mela premises with dedicated space for the same.

- m) Fire Services: The government installed altogether 2 units of fire stations to cover all the sectors ,police thana and theatre area. No major fire incidents were reported during the mela period.
- n) PHED-Public Health and Engineering Department/ Sanitation: In terms of sanitation, there were altogether 100 sweepers across the sectors. The waste water disposal was coordinated by PHED and local NGOs. This time the department has introduced “zero discharge” toilets and there were movable toilets spread all over the sectors. The large numbers of toilets were installed to check the large population for open air defecation. There were regular uses of bleaching powder and fogging for control of pests. They coordinated with Nagar Nigam to execute all the solid waste management related works. Besides, each sector had a dedicated team which kept a close watch on health sanitation related issues.



Figure 17: Special fabricated toilets were made with due care of hygiene and cleanness at the mela premises.



Figure 18: Special provision of mobile toilets was made for the first time. It was moved in accordance to the volume of crowds.

Safety and Security: The security at Sonepur mela site was well coordinated. Besides the 19 police thana and police posts, there were presence of companies of Home Guards. The management had also put in place a Sniffer Dog Squad, Bomb Squad and an Anti-Stoppers team. Additional companies of Civil Police were also called, for the safety of the public. There was a presence of boats, motor boats and divers as well. The lost and found unit that was being managed by the NGOs and dedicated police cell were doing outstanding job of tracing lost people in the Mela and helping them meet their families or transporting them to their home.

6. Gap Analysis

Despite a very planned and coordinated management of the Harihar Ksetra Sonepur Mela, 2013, there were some shortfalls at many fronts. Some of them are detailed below:-

Major Incidents

Whatever be the size of the population visiting the Mela, it is expected that there are zero deaths and no incidents that result in human loss of life, property loss etc. No major incidents or loss of life was reported during the Harihar Kshetra Sonepur Mela.2013.

Health and Sanitation:

Though the management claimed that there were adequate toilets and good solid waste management facilities, there were very high numbers of people going for open air defecation. Additionally, the solid waste management practices were not very satisfactory. The sound pollution level at the market area was very high. The devotees offered garland, other materials for worshipping the river, but the offerings remained in the water for fairly long period of time. The water was further polluted by the flow of untreated water inside the river.

Security and Safety Though there were police and divers patrolling late evenings along the ghats, there were incidents of people bathing at unsafe places in the river.

Information and Communication Technology: The ICT system was very complex and effective but the PA system did not work optimally. The voice quality was good but due to sound pollution from other units, it was difficult to hear clear announcements. At the same time, the PA system was shared between the cells working on Lost and Found unit and Police Control Room. This created chaos and neither of the two entities could clearly communicate themselves. Also, for greater good, many more display units should have been installed at all the strategic places where the crowd was huge.

Electricity and Fire: The Electricity department had introduced new technology of guarding to prevent electrocution. But there were several incidents of breach of wire and the guarding did not work. There were few isolated incidents of short circuit but with no major outbreak. One of the major shortfalls in the electrical safety was due to use of aluminum wires instead of copper wires and no presence of MCB anywhere. This highly compromised with the electric safety.

So the need felt to keep the fire stations strategically located was felt. Mere placement of the station along the police thana wouldn't be helpful. One alternative that could be used next year would be

placing the fire stations in hexagonal arrangements so as to maximize the reach. The incident of major fire looms just because the settlement patterns is violated there. If strict control is kept over the settlement pattern according to the need and as per the plan, the spread of the fire could be contained.

General Observations:

- ♣ Though the management claimed to have built spots for bathing of women, there were hardly any of such spots observed. Only changing rooms were made for ladies.
- ♣ The Police force was working restlessly day and night to keep the general law and order situation under control. But they were not adequately trained to handle the people in most polite way. If they were imparted training on behavioral skills, that could have benefitted everyone.
- ♣ There is no provision for the transportation of people with special needs. The motor vehicles were stopped 2 km away from the Mela area and due to this the people with disability faced difficulties.
- ♣ The maps of Mela for amenities and route were not displayed. Also the police personnel working in the Mela didn't know well about the route. The co-ordination between the railway and roadways administration were also not established in a proper manner.

7. Recommendations:

The findings at Sonapur mela are of utmost significance and relevance to the events of similar nature in Bihar. The Chhath Pooja, Durga Pooja, Harhar kshetra, Pitripaksha and Malmas Mela, Rajgir etc. attract crowd of similar nature and such events are threatened by similar hazards. The disasters occurring at such events can be minimized given the fact that the learning from Sonapur is adopted. *Some of the recommendations based on Sonapur mela, 2013 are as below:*

i. Hazard Identification

- ♣ The foremost step of mass gathering event management planning is identification of hazards in the vicinity
- ♣ The hazards may vary from place to place but will include earthquake, floods, uncontrolled crowd, fire, bomb blast, public health hazards such as food poisoning, accident prone areas, etc.

ii. Risk Assessment

Based on the hazards identified, a proper risk assessment should be carried out based on demographic, environmental, and socio-political factors. The risk can be identified based on

- ♣ Event type, duration and location
- ♣ Time, day and season of the event
- ♣ Expected crowd numbers; age of crowd; mood of crowd
- ♣ Weather and local hazards
- ♣ Surveillance for public health & sanitation. (Fogging, hospital preparedness, solid waste management).

iii. Awareness and Sensitization

- ♣ Stress should be given on public awareness and sensitization.
- ♣ Adequate measures should be taken to ensure proper dissemination of Do's & Don'ts specific to hazards among the public through various Information, Education and Communication (IEC) materials. If possible, leaflets on the same should be widely distributed with all the information on emergency numbers and maps showing locations of public amenities and emergency services.
- ♣ Clear information on safe exits and route maps should be displayed at important junctions
- ♣ Electronic display boards should be placed at busy locations along with PA system speakers.
- ♣ To prevent rumors, proper information on real time basis should be provided to public.
- ♣ These signboards should also be used as media to spread awareness on Do's & Don'ts, announcement on any emergency situation, lost and found, public amenities information etc.
- ♣ Blown up maps of the area displaying important places such as police stations, hospitals, open spaces etc. should be displayed on billboards.



- ♣ Emergency numbers (police, fire service, medical service, ambulance, NDRF etc.) should be displayed at all the locations.
- ♣ Also, information on public amenities, and helpline numbers should be regularly announced on PA system
- ♣ Adequate numbers of “May I Help You” counters should be set up at strategic locations such as entry and entry routes, airports, railway stations, bus stands, auto stands and event areas to answer basic queries of the public
- ♣ One “Lost & Found” booth should be set up at strategic location in the area of event.

iv. Crowd Management

A mass of individuals/ people may have the following characteristics:

- ♣ Individuals attempt to move faster than normal.
- ♣ Interactions between individuals lead to formation of groups within the crowd.
- ♣ Exits become arched and clogged.
- ♣ Escape is slowed by fallen individuals serving as obstacles.
- ♣ Individuals display a tendency towards mass or copied behaviour.
- ♣ Alternative or less used exits are overlooked.

Crowd management may include

- ♣ Traffic control,
- ♣ Controlled access to restricted areas,
- ♣ Lost person reports, and
- ♣ Assistance for emergency service.

Provision of trained personnel to provide security and access to staff, authorized personnel and officials is recommended. Crowd management can best be achieved by;

- ♣ Training of security/volunteers in crowd control.
- ♣ Specific entrance and exit points clearly identified and displayed at site.

- ♣ Establishment of uni-directional flow of attendees/devotees.
- ♣ Avoidance of overcrowding with adequate filtering, limited entry and public address measures.
- ♣ Adherence to fire safety protocols.
- ♣ Emergency exits free from obstruction.
- ♣ Available fire and site evacuation plans.
- ♣ Crowd modelling based on space of movement, clear direction, available time and flow of crowd needs to be done.

The following strategies can also be adopted for efficient crowd management:

- ♣ Making traffic/crowd flow one way.
- ♣ Segregation of crowd based on vulnerable groups, VIPs, Media etc.
- ♣ All emergency services like fire fighters, security, police, NDRF, First-aiders to be stationed near the venue to avoid any eventuality.
- ♣ Restricted vehicular movement within event area.
- ♣ Use of coaches and buses to reduce private vehicle usage and any potential problems which large vehicles may present, for example access difficulties, parking requirements, potential road blockades.

v. Traffic Management

- ♣ A proper display of direction and important information will reduce chaotic situations in such events.
- ♣ Vehicle movement needs to be closely monitored and regulated in the area of event.
- ♣ Restriction on vehicles in crowded area, their diversion to some other non-crowded routes and permission to ply only small non-polluting vehicles such as “thela” and manual rickshaw should be given
- ♣ Also, the following points need to be kept in mind for regulating traffic:

1. Clear and visible signs and directions at important places



2. Wide entry and exit routes

3. Sufficient parking space

vi. Medical Aid and Hospital Preparedness

- ♣ Evaluate, plan and prioritize medical healthcare needs for the mass gathering including:
 - o Planning for the number and location of on-site First Aid Posts and medical facilities.
 - o Human resource planning, e.g. ambulance, paramedics, emergency physicians, nurses, first aid volunteers, safety/security officers
 - o Planning for provision of medicines, beds etc.
 - o Education and training of healthcare personnel/volunteers
 - o Co-ordination with local hospitals and nearby districts for additional medical assistance.
 - o Defining a chain of command and communication strategies (public and media).
- ♣ Establishing First Aid Posts at strategic locations within the event area
- ♣ The management of First Aid Posts should be done by doctors, paramedics, trained volunteers, district administration, and Red Cross
- ♣ Alert should be sent to hospitals of neighboring districts and towns for assistance during mass casualty.
- ♣ The administration should have the ambulance database handy.
- ♣ Allocation of certain number of beds in the government hospitals as well as the private ones should be done well in advance to address any emergency situation.
- ♣ A network of hospitals, doctors and health care centers need to be developed who would work in the period of event
- ♣ Stock piling of different groups of blood and emergency medicines along with list of possible donors should be kept ready.

vii. Fire Services

- ♣ Temporary fire station should be set-up at strategic locations based on the flow of the crowd and the density of shops and other establishments.
- ♣ Bike mounted firefighting equipment should be installed at all the important locations to increase accessibility of areas where fire-tenders can't reach.
- ♣ There needs to be specialized and dedicated team ready to respond to any emergency. Prepositioning of the officers and staffs should be done for the entire period.
- ♣ Additional water pipes should be laid and water drums should be kept at regular intervals to meet the demands for firefighting.
- ♣ Fire extinguishers should be installed at the places where the congregation is within an enclosure/ temporary structure/religious places or halls.
- ♣ Banning or very limited usage of combustible materials should be done in the area. This should be properly monitored by the security personnel.
- ♣ Display of fireworks/ crackers should be allowed only in open spaces and away from gathering/densely populated areas.
- ♣ Wherever temporary structures are to be constructed, they should be done using “Fire Retardant Solution”.
- ♣ Public should not be allowed to use incense sticks at a densely crowd area.

viii. Temporary Structures/ illumination/ lighting

- ♣ There can be temporary hazards such as damaged approach roads, bridges, pedestrian ways, subways etc.
- ♣ These temporary hazards can easily be removed by dressing of roads, repairing of bridges, proper tiling of pedestrian ways, repairing of other structures such as walls etc.
- ♣ In the events around any water bodies (such as Chhath Pooja, DurgaPooja, HariharKshetraMela etc.), temporary bridges have to be constructed to ease out traffic on few identified paths. The bridges need to incorporate safety aspects in terms of strength, width, length etc.

- ♣ Since the public activity in such events continue even at late evening hours, the roads should be properly illuminated and the area should be lighted with adequate street lights. This will even help curbing anti-social activities.

ix. Water supply

- ♣ Safe drinking water is one the basic requirements and adequate measures should be taken to ensure its constant supply during the period of event.
- ♣ Water supply through tankers, temporary pipelines and regular underground pipelines should be made available to people
- ♣ Quality of drinking water should be a high priority. Waters tanks should be chlorinated.
- ♣ Temporary outlets/taps for drinking water and bathing should be provisioned separately to meet surge in demands.

x. Sanitation and Solid Waste Management

- ♣ Adequate numbers of garbage containers should be placed at all locations. The containers should be emptied frequently, at least twice a day, to maintain a clean and safe environment. The number of containers will depend on the size of the event, the population density, crowd movement and the amount of waste generated per day.
- ♣ The placement of these dustbins at strategic positions likes near the venue, near vending shops, market places etc. will help in keeping the area clean
- ♣ The municipal corporation should ensure that there is availability of adequate sweepers and waste disposal units covering the entire area and sweeping is done every day before the crowd movement starts.
- ♣ Daily timely pick up and disposal of solid waste should be made.
- ♣ Waste disposal sites/ landfill sites should be identified well in advance and it should be out of the vicinity of the mela area.
- ♣ To prevent open air defecation, zero discharge toilets need to be constructed. Additionally, adequate number of mobile toilets should be arranged.

- ♣ The drainage system of the event area should be properly inspected to unclog it so as to prepare the area for any unprecedented hydrological event such as flash flood or cloud bursts.
- ♣ Regular fogging, sprinkling of bleaching powder and other pest control measures can be taken to contain communicable/ non communicable diseases.
- ♣ A Health Inspector can be deputed in all zone areas to supervise the sanitation and solid waste management related activities.
- ♣ Regular and frequent cleaning of Ghats and areas around water bodies should be carried out.
- ♣ Filtering of pollutants and waste material from water bodies should be done regularly to prevent diseases and skin related ailments.
- ♣ Green initiatives such as banning of polythene bags during event period and use of paper bags, clothed carry bags etc. should be promoted.

xi. Capacity Building of stakeholders/ volunteers

- ♣ The place where the event is being held, should identify the volunteers group such as NCC, Red Cross volunteers, students from local schools and colleges with training these groups can be excellent resources for responding to any unforeseen events and they can be helping hands to police.
- ♣ The Police officials can be given basic refresher on disaster management and imparted training on behavioral skills as they would be interfacing very closely with general public.

xii. Special Care for vulnerable groups

- ♣ In general, elderly citizens, pregnant women and children form a very sensitive and vulnerable group of the society. Hence, they need special care and attention.
- ♣ Hand pulled rickshaw, thela, and battery operated vehicles etc. should be made available to such groups.
- ♣ Temporary/ permanent changing room for women near the Ghats should be provided for privacy and to reduce anti-social activities.



xiii. Law and Order, Safety & Security

- ♣ In planning and throughout all stages of the event, a close coordination and working relationship should be maintained amongst:
 - o District administration;
 - o Health and medical services;
 - o Other Police and other emergency services (Fire fighters); and
 - o Other security services, for example Civil Defense, Home Guard, NCC, Scouts & Guides.
- ♣ Police patrolling needs to be beefed up during the event with mobile vans and temporary check posts positioned strategically to contain anti-social activities such as chain snatching, eve-teasing, looting, vandalism etc.
- ♣ CCTV should be installed at important junctions, markets, bus stands, railway stations and event areas to have better monitoring mechanism. The CCTV system should be having sufficiently large back up periods (72 hrs or more).
- ♣ Watch towers can be constructed at important places for constant monitoring of the event area.
- ♣ These events are soft targets for terrorists. Hence, to be ready for any unprecedented situation, Home Guards, NDRF along with bomb squad and sniffer dog squad should be stationed at strategic locations in the area.
- ♣ NDRF has a highly developed team of divers and motor boats. They should have their presence in and around the Ghats.

xiv. Incident Command Centre (ICC)/ Control Room

- ♣ To monitor, manage and make decisions, a dedicated center needs to be established.
- ♣ An Incident Command Center (ICC) will also act as an Emergency Operation Center.
- ♣ It will house the CCTV display/monitoring units, the communication equipment such as satellite phones, fax, fixed line and mobile phones, computers, laptops,

internet connectivity, video calling facility, power back-up, trained technical staffs and important decision makers (in proper shifts round the clock)

- ♣ ICC will also control the PA system and coordinate between the Lost and Found Booth and the security.

xv. Electricity Supply:

- ♣ The entire area should be divided into zones for electricity supply based on extent and duration of event.
- ♣ Adequate substations (based on load) and transformers need to be installed.
- ♣ There should be mobile transformers readily available to meet any sudden surge in demand.
- ♣ There should be no wiring very close to the water bodies. This will minimize chances of live wires falling into water thus increasing risk of electrocution.
- ♣ Electric wiring at stalls can be properly done so as to cut-off electricity supply in event of breach in wiring.
- ♣ Places, where wires come in close vicinity of people, usage of PVC conduit pipes should be used.
- ♣ Use of MCB and copper wiring further reduces any chance of electrical overloads
- ♣ A proper planning of electricity supply and network of High Tension wires and Low Tension wires should be made so as to avoid heavy crisscrossing at major/ crowded junctions.
- ♣ The entire street light should be repaired and additional temporary street lights should be installed.
- ♣ Power back-up with provision of adequate generator should be done to avoid any blackout.

xvi. Use of Technologies

The governments should start investing on technologies such as

- ♣ Geospatial technology for mapping of the space for better planning and quicker response,



- ♣ RFID (Radio Frequency Identification) to check movement of people,
- ♣ Good Public Addressing system,
- ♣ Enhanced Information Technology to visually monitor the space such as surveillance camera/CCTV etc.
- ♣ Cyber security team should be on high alert monitoring popular social media sites so as to prevent rumors and incorrect information to public.
- ♣ There should be ban imposed on improper announcement systems and keep a check on unnecessary replication of the same information. Inappropriate announcements add to rumors and create confusion.
- ♣ Information regarding the place, weather, traffic, route, public amenities etc. is made available to public on internet and through mobile apps.

xvii. Media Relations

- ♣ The administration should plan a dedicated time and place for disseminating the information on regular basis from the field.
- ♣ The media personnel should be given strict instruction on type of information that needs to be disseminated.
- ♣ Regular briefing of media by administration should be made to help developing a better coordination between media personnel and administration.
- ♣ Media - print, voice or visual - is an organized means of reaching a large number of people, quickly, effectively and efficiently. The suggestive, informative and analytical role of the media must form a key component of disaster education, before a disaster, educating people about the hazard, prevention and self-help during the disaster. Media can play important role in the following areas:
 - ♣ Early warning to the people
 - ♣ In making appeal to the people
 - ♣ In preventing rumors and panic management
 - ♣ In controlling law and order situation



- ♣ As replacement of established communication network

xviii. Involvement of local groups

- ♣ Administration should clearly identify the roles and responsibilities of the local groups NGOs, CBOs and issue clear instructions to them in discharging their part of duties in collaborative and accountable manner.
- ♣ The administration needs to ensure that there is no mushrooming of such local groups thus causing conflict, civil unrest and confusion.

xix. Post Disaster Incidents Management

- ♣ A comprehensive Disaster Response Plan should be ready with all the departments.
- ♣ Prepositioning of specialized teams such as that of NDRE, Civil Defense, Search & Rescue team, First Aid team, Logistics Management team etc. should be as a precautionary and preparedness measure.

xx. Reverse Logistics/Exit Plan

- ♣ As mentioned earlier, these events of mass gathering are temporary in nature. Hence, a clear exit plan and reverse logistics need to be included in the planning process. This is needed to bring the city or the locality back to state of normalcy.

xxi. Documentation

- ♣ A proper documentation of each and every aspect of event should be done right from the beginning/ planning phase extending up to the event execution and exit.
- ♣ Documentation is most helpful toolkit to learn from the past and implement the good practices evolved during the last event, and the need assessment for future events.

8. Conclusion

As one of the biggest congregations in the world, Harihar Ksetra Sonapur Mela saw a massive 3 million people coming to attend it. With a population so large, it was a herculean task for the district administration to manage the event. The task was well managed by the administration as there were no isolated incidents of injury, life loss or any other incidents.

The Mela is acknowledged to be traditionally managed; however, this time the state government introduced modern technologies to manage the crowd. There were CCTV cameras, modern firefighting instruments, well equipped search and rescue team etc. The total effort was a planned one and hence most of the activities were executed seamlessly.

With no shortfalls, one must appreciate that the government and district administration have done splendid work in managing this event of mass gathering and it has been able to handle a crowd of 2-3 million at a space as small as 3 square kilometers. Additionally, it has adopted some of the best practices that have captured attentions of many practitioners, governments, international research firms etc.

This case study undertaken by BSDMA aims to capture these best practices from Harihar Kshetra Sonapur Mela. It may be useful for the government of Bihar in managing Chhath Pooja or similar events of Mass Gathering in a peaceful way with utmost safety and security.

9. Bibliography

1. City, P.M., 2013. Mapping the Archive for January 2013 Mapping the Mela in the Media. , (January), pp.1–22.
2. Frykberg, E.R., 2003. Disaster and mass casualty management: a commentary on the American College of Surgeons position statement. Journal of the American College of Surgeons, 197(5), pp.857–9. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/14585426> [Accessed March 11, 2013].
3. Green, W.G., 2000. MASS CASUALTY INCIDENT MANAGEMENT: THE VIRGINIA MODEL. , (May), pp.1–7.

4. Harvard Global Health Institute, 2012. The Annotated Bibliography of Selected
5. Resources Part 2. , pp.106–107.
6. Kammeier, H.D., 2008. Coping with “pulsar effects” in the context of sustainable urban development : Towards a conceptual framework. , (Ad 79), pp.1–12.
7. Kishore, S., 2012. Toronto Host City : Mass Gatherings Risks and Perception Applied Research and Innovation Centre. , (July).
8. WHO, 2007. Mass Casualty Management Systems Strategies and guidelines.
9. Yamin, M., 2005. A framework for improved hajj management and research.
10. Yamin, M., Huang, X. & Sharma, D., WIRELESS & SENSOR TECHNOLOGY AND CROWD MANAGEMENT.

Yin. R.K., 2003, Case Study Research, Design and Method, Sage Pub, 3rd ed, Vol. 5.





