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Prayagraj

Kumbh 2019

An Integrative Assessment



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The invitation to submit Proposals for Conducting Field research on Kumbh Mela 2019 came to IIMB on 12th Oct, 2019. The invitation emphasized “multidisciplinary field research at Kumbh Mela 2019 [and an] ... opportunity to study the organization of the world’s largest event with all its socio-cultural and logistical complexities.” The three of us, coming from different disciplinary orientations and affiliations (G Ramesh, Public Policy; Ritu Tripathi, Organizational Behaviour; and Prateek Raj, Strategy), found this an exciting meeting ground—‘a sangam’—of our own intellectual interests. We had heard and read of the Mela from afar, and we saw this as an immersive academic opportunity to understand it first-hand. As we put our thoughts together, and began conceptualizing the project, we realised our disciplinary boundaries had given way to a synergistic confluence of research ideas and frameworks. We submitted our proposal to the office of Prayagraj Mela Authority on Nov.20th, 2018, and got an acceptance within a month’s time.

We immediately plunged into the project with great enthusiasm, excitement, and eagerness to learn and know more about this phenomenon, which we have presented in this report as an integrative assessment.

We wish to thank the Chief Minister, the Government of Uttar Pradesh, and the Prayagraj Mela Pradhikaran for awarding IIMB the research grant for this study.

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Our first meeting with the Mela Adhikari, DM, Shri Vijay Anand was in the last week of November 2018, when we found him swarmed with visitors in his Mela Pradhikaran Office. He was busy with one of the many peaks, the administration faced. Land Allotment was getting firmed up. However, as in the first meeting, and throughout the duration of the Mela, he would extricate himself and spend time with us. We could always rely on him to get the insights on each of the plans and activities. He was hands-on, always available and we could always snatch moments with him. Often we used to just sit and observe the discussions which could be around planning, negotiations, operations, public relations, or even crisis management. It was valuable learning experience for us.

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Executive Summary

Introduction

Kumbh Mela 2019 was conducted during January 15 to March 4, 2019. Kumbh 2019 is considered to be unprecedented in attracting crores of pilgrims and for the visibility it received for the massive organisation of the event. It attracts one of the largest gatherings in the world and its uniqueness comes from the fact that it brings forth a combination of myth, religiosity, spirituality, and social aspects. It attracts an array of people from the spiritual world of sadhus and saints, followers and pilgrims, domestic and international tourists, media professionals, documentary makers and film producers from India as well as the global professional community, volunteers and vendors. A temporary city with all requisite infrastructure springs up to cater to the crores of visitors, throwing up its own challenges for the government and administrators. The complexity of the Kumbh is evident from the fact that scores of departments are engaged in providing various services, dozens of contractors are involved in the execution of projects, and hundreds, probably thousands, of vendors cater to the needs of the tourists.

The Kumbh is a much studied event and has been a subject of interest in the past to researchers from different disciplines. The Kumbh, as we mentioned, attracts media personnel, photographers, documentary makers and film producers, from national as well as the global arena, for its richness. It attracts researchers from various disciplines like sociologists, philosophers and historians, and professionals from sectors like health, town planning, transport, communication, etc. The previous Kumbh 2013 in Prayagraj was studied comprehensively by Harvard University, from different perspectives such as urban planning, health, communications and public policy. There is thus a wealth of resources including documentaries on the Kumbh, but the event still offers immense scope for research and documentation. In this context, when the Uttar Pradesh Government and the Kumbh Mela Authority invited IIM Bangalore to undertake a study of the management of Kumbh 2019, it seized the offer immediately. It provided a golden opportunity to the researchers as it offers a rich site for studying multiple dimensions of public administration in general, and management of various sectors like town planning, health and sanitation, transportation and logistics, etc., and from the perspective of disciplines such as public policy and management, organisational behaviour and social psychology.

To say that the Kumbh is a complex event is an understatement. It is complex in scale and is multidimensional; it involves a multitude of stakeholders operating in an open and dynamic environment. Its scale is beyond its numbers. It is about crores of people meeting at a point over a period of time in a continuous stream. It is not a one-day event but is spread over time and space. Every day is a day of unfolding events. It is a congregation in a small area over an extended duration. The project management stretches over the pre-Kumbh, Kumbh and post-Kumbh stages.

The Kumbh involves multiple and varied stakeholders. It has always required massive engagement between the government and society, not just since independence but even under

the British rule. During the British days, the interaction was restrictive and more authoritative. Since independence, the Indian government has taken over the administration of the mela by providing adequate infrastructure and facilities to the pilgrims so that they stay focused on the spiritual experience. However, within the government itself, there are different layers of central, state and local governments, and different categories of service providers like the army, police and civil administrators, and engineering and medical services.

In the context of urban planning, the research team from Harvard University mentioned: “Unlike a more permanent city where the construction of the physical environment happens as a simultaneous aggregation of relatively permanent parts that progressively materialise the space, the Kumbh Mela takes form like a choreographic process of temporal urbanisation, happening in coordination with environmental dynamics” (Mehrotra and Vera).

Within civil society, there are various segments of religious groups, service providers like pandas, pilgrims, domestic and international visitors, and volunteers and voluntary organisations. There are also hundreds of contractors and vendors who provide the services and the markets that these create. A combination of all these elements make the canvas.

The Kumbh is a dynamic and evolving phenomenon. The area over which the city is created depends on the receding Ganga, which keeps the administration on tenterhooks. The flow of pilgrims is uncertain, and the administrators have to plan for the maximum and still the preparations can fall short. Given the inflow of the crowd, and its interface with various systems like transport, bathing ghats and health, there is always a crisis waiting to happen. The only fixed feature about the mela is the bathing dates.

The Kumbh offers a rich research site as it involves coordinated plans of several themes namely urban planning and management, logistics management, health and hygiene, waste treatment and management, technology, etc. A whole township equipped with the necessary infrastructure such as residential camps, bus stands, roads, drainages, health clinics, public distribution, electrification, and lighting, springs up during the Kumbh Mela. This requires advance planning, leading up to a full-fledged administration being set up and descending on the town as it nears the date.

Essence of Kumbh

It should be mentioned here that the Ganga itself is a highly venerated river and Prayag is a historic city. So, the Kumbh at Prayag gains even more importance. The Prayaga Theertha is the most revered site in the Hindu Dharma as it is believed that even the rivers and rivulets flowing past this sacred site are cleansed of their accumulated sins. Hence, it is also called the Theertharaja – the king of Theerthas. It is an ancient practice where tens of millions of pilgrims assemble without any invite and this spiritual event has been happening from times immemorial.

Apart from its primary bathing rituals, the social aspect of the festival also revolves around the various Yajnas, the chanting of Vedic Mantras, holy elucidations, traditional dances, devotional

songs, programmes based on mythical stories, and prayers. The Kumbh Mela is considered a journey to look inwards and reflect on the self with an earnest resolve to contemplate on the cleansing of the mind and soul. The religious follow the traditions of sacred snan, spiritual discourses and rituals to mark the Kumbh, from time immemorial.

It is multidimensional in the sense that it is a confluence of many streams of influence such as mythology, astronomy, sociology and economics.

Since the Kumbh is also a platform for saints and scholars to discuss and exchange ideas; many social issues too are discussed at the Kumbh. In the recently held Kumbh in 2013, the idea of a pollution-free and eco-friendly Kumbh was propagated and demonstrated by the Paramartha Niketana Ashram through campaigning for planting trees, prohibiting plastic and clearing trash, preserving and protecting the Ganga. In the 2010 Haridwar Kumbh, the ‘All World Gayathri Pariwar’ (AWGP), a religious group headquartered at Haridwar, organised a convention titled “*Nationwide Tobacco Control for Mass Awareness*” to address the social issue of drug addiction.

Growth in Scale of Kumbh

The scale of the Kumbh along with pilgrim flow is increasing with rise in awareness, affordability and affluence of people, increasing the need for more facilities and developmental work. The scale has also improved with time due to better access through railways and roadways. Apart from the total number of pilgrims, what is even more important is the crowd on the Mouni Amavasya day, which defines the peak in visits.

Year	No. of Pilgrims (Prayag)	No. of Pilgrims on Mouni Amavasya
1954	50 lakh	NA
1977	1.50 crore	1 crore+
1989	2.90 crore	NA
2001	5 crore	2.76 crore
2007	7 crore	2 crore
2013	12 crore	3 crore

(Source: Sinha and Prakash, BSDMA)

Kumbh 2013

Kumbh 2013 took place for 55 days, starting on 14 January with Makar Sankranti and ending on 10 March. The duration of the Kumbh depends on planetary movements. In 2001, it was for 44 days (Chaturvedi, 2017). It was estimated that about 12 crore people visited the Kumbh in 2013 during the entire duration. There are two detailed reports of Kumbh 2013, one by Devesh Chaturvedi titled ‘The Holy Dip’ (2017) and another by a team of Harvard researchers. The Research Team of Harvard brought out a book edited by Professor Rahul Mehrotra and Professor Felipe Vera titled ‘*Kumbh Mela: Mapping the Ephemeral Megacity*’. Kumbh 2013 was the first major attempt at making Kumbh management systematic and gigantic. The administration looked into management of all aspects of infrastructure and

services. The Kumbh 2013 had in fact initiated several features like control room, massive deployment of toilets, cleanliness, telecom infrastructure, etc.

Vision for Kumbh 2019

The conceptualisation of Kumbh 2019 as a historic, unique and world-class event took birth way back in early 2017, when the Chief Minister, Shri Yogi Adityanath, shared his vision soon after assuming charge on 19 March 2017. In his first meeting on 21 April 2017, he outlined his vision for ‘Kumbh 2019’ as ‘Divya Kumbh, Bhavya Kumbh’. Back then, it was unclear what needed to be done to transform the mega event into a ‘Divya and Bhavya Kumbh’. A number of suggestions were made to make it grand, but the idea still lacked concreteness. The Chief Minister, again in his meeting of 4 June 2017, reiterated his emphasis on ‘Divya and Bhavya Kumbh’.

They then set about visualising and conceptualising what would be a Divya and Bhavya Kumbh. It was a challenge for the administration to translate every aspect and every sector into the idea of Divyata and Bhavyata. The administration decided that they will seek to give the pilgrims and tourists ‘user experience’ which would include spiritual experience. Gradually, it also became a Swachh Kumbh keeping in mind the government’s thrust on swachh and the inconveniences that pilgrims have been put through in the past.

Another important dimension Kumbh administration was the issue of security and safety of the people. Therefore, all four dimensions defined the mela – Divya, Bhavya, Swachh and Suraksha. It was then left to the PMA, police, and all other departments to translate these ideas into a meaningful action plan. Whether it was town planning, solid waste management, logistics, or even lost and found, these four dimensions played their role in varying degrees. For example, in town planning, there was space for religious institutions, religious leaders, pilgrims, and tourists to enjoy their own experience, and this was made possible without compromising safety, divyata and bhavyata. Similarly, departments vied with each other in trying to excel and going beyond the usual benchmarks. It is normal for governments to look into arrangements of previous melas and incrementally provide for the next one. This time, they began with the next level of scale of operations and sought to create new benchmarks and service levels. In each department, they sought to provide a wide range of services. It was also decided that to achieve their vision, they would go for massive deployment of technology.

The government did not stop there. It also followed up the announcement of a mega event with commitment of funds. The Chief Minister was of the view that budget should not be a constraint in the organization of such a mega event. The administrators were assured full support in managing the Kumbh both in terms of funds and manpower. The Central Government provided its support through its own departments and programmes like the Ganga Action Plan, Railways, Tourism, NDMA and Civil Aviation.

The Kumbh Mela 2013 was a major success, hailed by pilgrims as well as analysts as a showcase study of planning and public administration (see Khanna, Macomber, &

Chaturvedi, 2013; Mehrotra & Vera, 2015). However, by giving it a visionary start, from the beginning it was clear that it has to go beyond the basic provisioning of services and facilities. Kumbh 2013 attracted 120 million pilgrims and this time they started with the expectation of around 150 million. However, what is important is that more than the numbers they were clear about giving the pilgrims an ‘experience’. The primary goal was to enhance pilgrim experience. All departments were entrusted with the task to finish long-term works within the stipulated timeframe while ensuring the best quality. In order to expedite the process, Kumbh-related projects in Prayagraj were given undivided attention.

Divya and Bhavya Kumbh

The concept of a divine and a delightful – ‘Divya Kumbh and a Bhavya Kumbh’ was visualised and sought to combine modern technologies and ancient traditions. The restoration of the city’s ancient name of Prayagraj followed by setting up of a permanent Prayagraj Mela Authority added significance to the mela. Subsequent reopening of ancient sacred sites of worship like Akshayawat and SaraswathiKoop that is located inside Akbar’s Fort to the Kumbha pilgrims for the first time in post independent India was a booster to the spirit of the devotees and potential devotees. Revival of historical traditions of the Panchkoshi Parikrama – a significant and ancient ritual of circumambulation during the Kumbha Mela was facilitated by remapping its paths and developing the temples on its path for a better experience of Kumbh. Overall, it was envisaged to be a cultural and religious extravaganza.

Kumbh 2019: Study Objectives

The IIMB Team proposed to study the mela from the various perspectives of:

- Public Systems Administration in terms of organisational goals, structures, networks, systemic processes and performance, and motivational drivers.
- Network management including interface with religious institutions, pilgrims, tourists, citizens, media, NGOs, etc.; partnering and contract management.
- Technology and innovations.

Given the context of the mela, we expect that the above dimensions should converge into self-governing systems. The study proposed to focus on the following sub-systems:

- 1. Structures and Styles – Open and Adaptive:** The Kumbh Mela Authority is a project management structure unlike routine bureaucracy which follows regular organisational control. The Prayagraj Mela Authority (PMA) does not have the luxury of flexible deadlines and response time that a routine bureaucracy has. Routine bureaucracy has a repertoire of rules and precedents to go by whereas the knowledge of previous Kumbh Melas lies with officers in tacit form than in explicit form in documents. It was expected that the administration will have open and adaptive structures that the mela required with how routine bureaucracy functions. The researchers studied the mela administration keeping the Mela Authority as the nodal agency and covering various sectors. It intended to study the administration from the

perspectives of project structure, inter-departmental coordination, team management, accountability, reporting, etc. The team was keen to look at the flexibility of structures and openness to collaborate when faced with scale or crises as these arise and the sense of accountability that pervades the hierarchy in the PMA.

As part of the academic research, it proposed to look at the motivational drivers of the administrators and workers. It is temporarily set up, the scale of operations is massive, and the roles and responsibilities are fluid and potentially pressurising. The findings can have learnings for stable work environments because in modern-day work organisations, work is mostly carried out in project management teams which convene and disband after achieving the targets. The Kumbh Mela offers such a setting on a much larger and integrated scale.

- 2. Innovations – Customer at the Centre:** The Authority promised to give ‘user experience’ to the visitors. Defining such a goal is characteristically different defining the goal as service delivery which is the general norm. The emphasis in the previous melas used to stop with safety. Bhavyata was a promise that went beyond safety; it promised a wholesome experience. The challenge was to inculcate customer-centric administration in a humongous and amorphous programme like this throughout the administrative structure. It is expected that the innovations in implementation would place the customer at the centre rather than administrative convenience, which is usually the case. This means keeping innovations outcome-based rather than stopping with process-based changes. This involves shift in mental models as it has to run through not only administrators but also vendors. Innovations have to be synchronous.

Innovations can be delivered in every activity like, town planning, sanitation, accommodation, signage and communication, transport planning, crowd management, tourism promotion, resource management, etc. This Kumbh sought to be Swachh (Clean) Kumbh, and it will be interesting to see how this was implemented. It was considered interesting to study how these ideas get translated and manifested, how they respond to evolving situations, and also how pilgrims take to these innovations.

- 3. Technology Adoption – Outcome is the Key:** Technology has come a long way since Kumbh 2013, and technology adoption was expected to be a key element of this mela. It could be handheld devices, drones, electronic eyes, mobile apps, artificial intelligence, etc. Technology adoption can also happen in the area of waste handling and treatment, health care, water treatment, communication, etc. Technology adoption pertains to both administrators and users. It will be interesting to see how these were implemented by the administration and how these manifested in usage. We can see how far this has progressed and penetrated, and how far it is replicable.
- 4. Government-public Interface – Self-effacing Public:** The performance of a system depends on the clientele, among other things. A major challenge of the mela management is managing the interface with the public and last-mile delivery which is

where the effectiveness gets tested. This interface can be seen as government-public participation. Here, the public refers to various religious institutions like Akharas, public institutions, civil society organisations like Khoya Paya, social institutions like pandas, and private entities like tourist and transport operators. All these entities play a role in the final interface. The study will focus on their roles, how these old institutions are co-opted, how they form, what their exchanges are, etc.

At another level, there is the behaviour of the general public. It is expected that the crowd that visits the mela may be mentally tuned to the inconveniences and sub-optimal level of services. This may not be the case with routine administration wherein the clientele can have higher expectations and be assertive. The crowd may spontaneously volunteer to fill the gaps in service delivery wherever required. The study will try to understand how spontaneity and self-effacing behaviour compensate for gaps in service delivery.

- 5. Understanding Self-emerging Systems:** For centuries, large gatherings like the Kumbh have organised themselves without the formal support of the state. Yet today, the formal administration plays an increasingly important role in how the Kumbh gets organised. Where should the formal administration focus its efforts and where can the private players fill in?

Study Methodology and Analyses

The team proposed to follow a grounded theory perspective. We planned to gather data through interviews, as observers with administrators, at meetings and camps. We faced a handicap when we started the study. We started in the first week of December 2018 by when it was already well laid out and implementation was at its peak. Also, we realised that the administrators and consultants were extremely busy with the execution and it would have been difficult to start our study from the beginning. Therefore, we decided to get an overview of the plans for various sectors and proceed from the field observations to the plans. The team spent endless time in observing the administrators, consultants, vendors, workers and religious administrators. We observed how designs were implemented in the field, how they manifested, and how people adapted to them.

We decided to document the observations with thick descriptions of the happenings. We planned to gather all secondary data, reports, documents and digital data of administrators and pilgrims. In this, mela we expected enormous digital data to be generated.

In relation to the motivation of mela officials, the study proposed to explore the subject through semi-structured interviews, focus groups and survey research. In particular, top and mid-level mela officials were interviewed.

In the study of non-government players, we sought to divide the Kumbh into pilgrims and service providers. Our goal was to interview service providers and ask them to fill surveys outlining their work, objectives and incentives.

Key Focus

It was proposed to cover various sectors and service deliveries from different cross-cutting themes. It was intended to look at it from the perspectives of:

- Public policy and public administration,
- Social psychology,
- Project management,
- Operations management, supply chain, contracts and vendor management,
- Technology and innovation adoption.

It especially proposed to look at the activities of:

- Town-planning and accommodation
- Sanitation, sewage management and water supply
- Public health and primary care
- Crowd management, traffic management, safety, security, disaster and crisis management
- Lost and found
- Logistics, transport including railways, parking solutions
- Infrastructure both in the city and at the mela area
- IT, Command and Control, and Communications
- Food supply and supply chain arrangements
- Tourism, Cultural Heritage Management, Paint my City

Kumbh 2019 – Scale of the Event

The administration has targetted a huge gathering this time. They prepared for 15 crore visitors given that the last time it was around 12 crores. The critical estimates in the Kumbh are the estimation of the number of visitors on normal days, on bathing days, and in total for the entire duration. This time, the crowd beat all the projections by a wide margin. In the end, it was estimated to have attracted 25 crore people and on the peak Mouni Amavasya day, around 5 crore people. Crowd estimation in a mela like this is huge guesswork. Firstly, this happens once in 6 years and 12 years. So, neither linear nor any incremental forecast will work. There will invariably be huge estimation errors. Secondly, the numbers would also typically depend on the quality of arrangements made and the experience of the people who visit the mela. The proof of the quality of arrangements is borne by the share of old people, women, women carrying children, and children. This is proof of their trust in the system and arrangements.

The estimation of visitors, even if it is an approximation, is necessary because planning is vitally dependent on the estimation. The estimated numbers influence town planning, planning for food supplies, transport, policing, health care, etc. This time, fortunately, they had planned for infrastructure and facilities far beyond their estimates and this came in handy on Mouni Amavasya day. On Mouni Amavasya day, every resource was stretched to its

limit. This time, they doubled the mela area, food supplies, transportation, etc. Proof of the arrangements is also borne by the waves of tourists who visited the mela.

The scale is not just about the single dimension of crowd size. It is also in terms of grandeur of arrangements like laser shows, tent city, selfie point, scale of provisioning of services like increased mela area, building over one lakh toilets, large scale provisioning of bus services, the Paint my City campaign, air ambulance services, cultural shows, complexity of services like the ICCC-based crowd control and surveillance. All these arrangements were prominent, and nothing missed the eyes of the visitors for its scale. Fact sheet of all key statistics of the mela and all sectors are presented at the end of this chapter.

Finally, while forecasting before the mela is guesswork, estimating the scale of crowd even after the mela is further guesswork. It is complex as the visitors enter through several entry points into the city and again they can take bath in any of the bathing ghats. It is a continuous stream of people and it is difficult to make any reasonable estimate. This time, they estimated crowds at two levels. One was the crowd at bathing areas, especially the Sangam nose area; and two, the overall number of visitors. The police used crowd estimation through ICCC for crowd control at the bathing areas. The administration had set up cameras at vantage points to estimate arrival of crowds for overall crowd counting. It is a gross approximation and would require major efforts to arrive at anything close to a scientific estimation of crowds at melas, especially as they are spread over a large area, with many entry points, and over a long period. All these do not lend themselves to a scientific method of estimating crowd strength. However, we still need to have some estimate of the crowd strength as resources deployment and utilisation are dependent on it. It should be informed here that all administrators who have worked in the previous mela 2013 and people who have visited the previous mela uniformly mentioned that the scale of crowd who visited in 2019 could be easily double that of the previous one.

Main Bathing Days

The only predictable event about the Kumbh are the six main bathing days. The mela starts with Makara Sankranti on 15 January, peaked on Mouni Amavasya day on 4 February and ended on 4 March. These are again with reference to the planetary positions. Most important of all the bathing days is Mouni Amavasya day. This time in 2019, around 5 crores pilgrims visited on this day. After Mouni Amavasya day, the crowd starts waning and after Vasant Panchami on 10 February, the main religious institutions like Akharas start moving out. Then, the number of people staying at the mela starts to come down drastically. However, this time, the last bathing day of Maha Shivaratri witnessed unprecedented crowds, far beyond what the authorities had planned for.

In all their planning, the administration considered one day before and one day after the bathing days as the peak days. The planners had two plans for the mela, one for the normal days and another for the peak days. They made a high level of preparation and provision for services for peak days. In fact, the administration and services were planned for catering to

Mouni Amavasya day which was more than double that of the next peak day. So, this naturally took care of other peaks and normal days. On normal days, the preparations looked overprovided. The data for bathing days are given below. So, in all, around 18 peak days were factored into the planning and even then, the crowd for Mouni Amavasya started swelling much earlier than expected.

Major Bathing Dates	Significance of Days	No. of Visitors
15 January 2019	Makara Sankranti – 1 st Shahi Snan	2.2 crore
21 January 2019	Paush Purnima	1.7 crore
4 February 2019	Mouni Amavasya - 2 nd Shahi Snan	5 crore
10 February 2019	Vasant Panchami - 3 rd Shahi Snan	1.8 crore
19 February 2019	Magh Purnima	1.25 crore
4 March 2019	Maha Shivaratri - last day of Kumbh	1.10 crore

Peshwai

The arrival of Akharas and religious groups in the city and entry into the mela area is in itself a scene to observe. The religious groups enter one by one in large processions and the police make elaborate arrangements for their visit and also to ensure that there is no clash in arrival timings of the different groups. The religious heads enter with all their paraphernalia and the traffic is blocked along the way. They start arriving a few days before the first bathing day. Similarly, the administration also plans for their safe exit from the mela. These rituals are part of the mela celebrations and are highly valued by the religious heads and pilgrims. This time, the police administration was fully prepared, and as the roads had been widened and exclusive areas were earmarked, the rituals went off smoothly and it could be enjoyed by everybody. It was appreciated by the religious leaders as well as the pilgrims and citizens of Prayagraj.

Mission of PMA

Given that the Kumbh Mela Authority operates on a project mode, it has specific missions to fulfil. The primary mission of the Authority can be defined as giving a fulfilling experience to the pilgrims in realising their purpose of having a holy dip in the Ganga on the auspicious days.

After independence, various rules and regulations regarding Kumbh Mela administration were enunciated, which kept evolving over the years. According to the Kumbh Mela website, in the previous decades, “The government made provisions for providing basic amenities to the pilgrims. The government upon realising the importance of Kumbh and understanding the requirements of huge number of pilgrims visiting the mela, took multiple steps in public interest in order to facilitate the pilgrim [experience].” The PMA also sought to enhance the Divyata and Bhavyata of the mela as follows:

- The primary goal of the PMA will to help the pilgrims realise the spiritual experience.

- The critical goal of the Authority will be to ensure the safety of the millions of pilgrims and manage the mela incident free. This mission overrides any concern for other goals that the PMA may seek to fulfil. The critical goal will be to ensure that there are no accidents or catastrophe or epidemic or even a traffic jam.
- The Authority seeks to ensure equity in the whole system as the mela attracts large groups of sadhus, VIPs and foreign tourists; but the main segment consists of millions of pilgrims who come from various strata. The Authority will not only ensure that they get an equal opportunity to experience the holy dip but also provide for food, transport, shelter, etc.
- In this mela, the Authority promised to deliver an enhanced customer experience to the pilgrims. This is a challenge as it raises the expectations of the visitors who are otherwise content with an unhindered dip in the Ganga.

Brand Kumbh

We discussed earlier how it was decided to manage the mela as Divya and Bhavya Kumbh. The authorities also took the initiative to promote the event as a brand and created a logo. This time, they created a brand also through a consultative process and invited suggestions from the general public. This is an interesting shift as the Kumbh normally does not need a brand identity as it is well known and attended by large numbers. However, the authorities thought it is necessary to promote it as a brand and to communicate the major initiatives that were being undertaken. It was not just the Kumbh that was promoted during the event, they also promoted tourism with Uttar Pradesh as a key destination. Branding is important if we need to reposition an image. Generally, the Kumbh used to carry an image of unmanageable crowds, poorly organised infrastructure and facilities, and risk-prone in terms of accidents, diseases and even losing near and dear ones in the melee. However, people still thronged the mela for spiritual reasons. If that could be made better with a more pleasant experience, it would enhance the spiritual experience too. This was the belief of the government. So, concerted efforts were made to communicate the quality of arrangements, safety, and cultural events. Other features like Paint My City, tourist city, selfie point, Pravasi Bharathi, etc., added to the glamour of the campaign. It thus catered to all categories of visitors. There was also a social media campaign. It was successful in attracting not just pilgrims but also youth and tourists –domestic as well as international.

Governance and Administration

In administration, several key innovative methods were introduced. The structure followed the usual hierarchy of state, region, district and mela levels. The delivery hinged on the Prayagraj Mela Authority and the apex Committee. However, there were many infrastructure projects and services delivered outside the mela area such as the Prayagraj city infrastructure, bus transport, municipal services, railways, etc. The most important department both within and outside the mela area was the Police.

All services were integrated through the Committee headed by the Commissioner of Allahabad region. The mela area was divided into sectors which mimicked district administration. Each sector was headed by a Sub Divisional Magistrate and a Deputy Superintendent of Police. Each sector had its own cluster of services provided by various departments. These are described in the chapter on Administration. As we know, each service whether it was policing or health care, had multiple departments involved, and the coordination was effected through a committee structure. At the outset, the Commissioner played the integrative role and was the linking pin among the mela authority and district authority, administration and police and other concerned state level departments, and also with central departments.

The PMA takes shape with the appointment of the DM who then sets up his team of SDMs and ADMs. The other concerned departments also simultaneously appoint their district in-charge. The administrative structure of the mela area, though headed by the DM, followed a project management structure and style rather than that of a typical Collectorate. The DM was assisted by the SDMs / ADMs who worked in coordination with various departments. It was thus like a single window vehicle. The structure was lean and was managed in a professional way. Another important factor contributing to the effectiveness of the administration was that the key personnel were all handpicked which is very rare in regular bureaucracy. These individuals were highly motivated and showed good team spirit. Some of them had worked in previous melas and that was seen as very essential in terms of knowledge transfer. The police department had a similar structure which was headed by ADGP at regional level and his team consisted of IG and SP of the district. The mela area was managed by a DIG.

The administration experienced multiple peaks in operations as anticipated, given the nature of the mela. It was observed that operations peaked in November and December as the mela had to start on 15 January. The arrangements had to be ready at least 10 days in advance for mock runs. The mela period also had peaks till the end of Mouni Amavasya, by when normally, crowds should have started waning. However, thanks to the promotion, the mela suddenly witnessed a 'second surge', mainly of tourists. The crowd on the last bathing day surprised the administration as well. We observed that after the mela, the next peak started. The administration hardly had any respite after the mela as they were saddled with clearing the mela of all debris, in addition to preparing all reports, accounts, and postings. It was thus a cycle of continuous peaks.

It should be mentioned here that in crisis management, it is said that it is difficult to maintain a system and its people at peak levels of stress for long periods. This is indeed a risk that the administration runs. Ideally, another team could have helped in unwinding and closures. This additional team could have been in place from 10 February. It is better ensure optimum management than overmanage implementation. Since it was peak time all the time, everyone had to multitask and play multiple roles, and the system appeared to be one of firefighting all the time.

The structure was entirely inward-looking and contained within the administrative structure. There is need to include external stakeholders in the committee structure or they could have a committee with external stakeholders like religious institutions, citizens and academicians of Prayagraj, and experts. This should also include civil consultation with the residents of Prayagraj which should be a continuous process.

Consultants' Role

Another important factor of this mela was the engagement of the consulting firm Ernst and Young (EY). This helped in systemising planning, designing and operations in the mela area. The consultants provided the templates for decision making which helped the administration in taking a comprehensive look. They helped in designing contracts, especially in specifying services, in the tender and contract management process, in developing SOPS, and in monitoring. They remained in the background but played a key role in the management. They played useful role in town planning, tentage and accommodation management, lost and found management, promotion, branding and social media management, the Paint my City, voluntary sector management, etc. This time, the DM Office also engaged young professionals who again helped the DM coordinate with other departments.

Land Allotment

It was observed that land allotment took an inordinate amount of time of the DM and administration. There was a streamlined process of online registration of institutions and allotment of land and tents. This time, they have made a complete inventory of religious institutions and this can be the starting point for future melas. Even then it was observed that as the mela was approaching, the DM was largely preoccupied with this process of allotment as there were several claimants. We understand this is also a sensitive process, and there are protocols and seniorities defined. It was observed that the time got divided between the religious leaders, institutions and other institutions on the one hand, and all the other departments and services on the other hand. It may require another role to be created to engage with the religious institutions under PMA and DM, which would help the DM to stay focused on management of the mela. He was of course, helped with this by a senior ADM who was knowledgeable about the processes. It will also help in management of scheduling religious institutions groups on the snan days and also in the management of VIP visits. The religious institutions are of course very important and need a high level of attention and the responsibility cannot be delegated.

The Government needs to explore if it needs a permanent infrastructure to look after mela management which happens every year.

Initiation and Planning

The planning started with the setting up of Prayagraj Mela Authority (PMA) in mid 2018 which is the nodal agency. The PMA 2018 adopted the vision of 'Divyata' and 'Bhavyata'

and promised to usher in technology adoption in this Kumbh. The Administration proposed to give the site a facelift including façade lighting, promising a unique experience. While previously, the thrust of the administration was ensuring safety and reinforcing spiritual experience for which the pilgrims came; this time, the emphasis was on the grandeur as well as the ‘surrealism’ of the experience.

Key steps after the initial defining of the Kumbh were the formation of three committees. The first, at the government level, was under the Urban Development Minister for overall supervision and guidance; the second was under the Chief Secretary for review and sanction of all the projects; and the third was under the Divisional Commissioner to execute and review these projects. With no roadmap yet on how to make Kumbh 2019 a world-class event, the Divisional Commissioner was asked to prepare a primary plan. After about two weeks of brainstorming sessions with over 23 departments and other stakeholders, a primary plan was drawn.

On 15 July 2018, at the Chief Secretary’s meeting in Lucknow, the first phase of sanction was given. It was then that things started happening in full swing. Special emphasis was given to the permanent development of major roads connecting Allahabad to other cities. It was also suggested that a number of road overbridges (RoBs) and road underbridges (RuBs) were needed. An initial list of projects was made which later underwent numerous changes. Finally, areas where RoBs and RUBs were to be built were identified and a blueprint on how and what needed to be done was made. A decision to use the 2018 Magh Mela as a rehearsal ground for testing all the pilot projects was also taken during that time. With a new focus on this direction, a list of initial projects was discussed with special emphasis on an online Project Monitoring and Information System (PMIS), having a third party inspection agency, and including Swachhata (cleanliness) and mega cultural activities.

Planning was evident in all aspects of administration whether it was town planning or crowd or disaster management, planning for toilets or food supplies or lost and found. It should also be mentioned that they provided for all exigencies and had several back-up plans with Plan A, B and C. At the outset, it should be mentioned that the authorities had provided for adequate redundancies and these were useful at different points of time. The important thing is that contingencies were provided for.

We could see that a complete control cycle was maintained. They followed 360 degree control cycle of planning, execution, tracking, reporting, review meeting and evaluation, with provision for penalties. The payment was streamlined and synchronised with the progress of work. They used extensively the project management system and they engaged third party consultants to monitor the progress and report to the PMA. Every infrastructure project was entered in the system.

In the execution, it was observed that probably due to delayed contracting, timelines were very close to the deadlines. What gets started probably one or two months late results in delay by a day or week at the time of the mela. The delays got compressed but could have had some

comfortable leeway with an earlier start. It puts a lot of pressure on the administration as well as on the vendors.

There was mismatch in the competencies of the different departments, and the quality of administration was also person dependent. Key departments should be upgraded to bring them up to better levels.

This mela led to the creation of critical and useful generation of soft infrastructure. This mela has helped in arriving at a town planning structure for all melas of this type, contracting models, manuals and SOPs, and reporting and monitoring structures.

City Infrastructure

It looks like the administration decided to make Prayagraj Kumbh-ready for all time to come. Prayagraj was declared a Smart City around that time and it was decided to use this opportunity to develop the infrastructure of the city before the Kumbh. So, they worked at great speed and undertook many initiatives which were completed before the Kumbh. All main roads and national highways leading to the city and the Kumbh Mela were widened and beautified. They completed all the underpasses on time in coordination with the Railways. They beautified the city with traffic circles, high mast lights, artistic streetlights, the Paint my City campaign, etc. They established adequate car parking areas. The street widening also took care of relocation of power lines, telecom lines and upgraded drainages. Incidentally, in future, Kumbh Melas and tourism should be part of any town planning as these are likely to grow.

Its biggest gain was the Integrated Command and Control Centre (ICCC) which was set up and the hundreds of cameras installed in the city of Prayagraj as well as mela area. More importantly, the policemen learnt to operate the ICCC in a complex situation at such large scale. It also developed software for monitoring traffic and services. The city has now scope to become a leading smart city.

The city now has the herculean task of maintaining the infrastructure. It should build on this foundation. It should make a good plan for maintenance of the infrastructure and services. The Kumbh should be part of regular town planning. It should consider developing cycle tracks. The city should continue its thrust on greening massively. It has now potential to be the complete city in infrastructure.

Town Planning

Town planning for the Kumbh is like planning on sand. The mela area depends on the plains left by the receding water of the Ganga. One can keep planning for the whole event, but the final topography is known only by previous November, which is just two months before the start of the mela. It also keeps everybody guessing as to which side of the Ganga and Yamuna

will yield land and how much. The research team from Harvard had written extensively about town planning for Kumbh 2013.

The effectiveness of the administration showed up well in town planning. This time, the administration went for a massive 3,200 ha and made good use of the area. It was observed that 3,200 ha were quite adequate and the administration in future could consider this as the model scale and take it as a starting point. Probably, in future, the authorities can plan with this area in mind subject to the flow of river. It can be said that one of the main drivers of cost is the mela area; as once the area is divided into sectors, each sector has to be provided with all the services. In the chapter on town planning, we have described how the symbiotic relationship between the city and the mela area worked out. The town planning team from the administration and EY made dynamic plans keeping in mind the changing terrain left by the river. The plan ensured that there is space for every segment – religious institutions, Kalpavasis, pilgrims, tourists, service departments, etc. Everybody could enjoy their space and experience. They ensured that all movements were unhindered and mostly one way from railway stations and bus stands to the snan area and back. The area could accommodate the flow of crowd of this magnitude and could cope with the pressure even on Mouni Amavasya day. They had also made way for emergency and essential services, and VIPs, without inconveniencing anybody. The visits of the VIPs started only after the main snan days were over.

The town planners followed typical ward or block development structures at district level. Each sector was designed as a self-contained unit with all required infrastructure and services. This time, they provided prominent locations for toilets and services. They ensured adequate space for crowd movement. They provided space even for workers working in the mela area. The EY team ensured that the execution of the town plan was according to the plan. The plan was also such that the mela area could be dismantled on completion of the mela. In fact, once the Akharas left, the mela area shrank, leaving many areas empty. This aspect of rolling back could have been considered in planning.

Sanitation, Solid Waste, and Health Care

A visible impact of this mela is the management of sanitation facilities and services, and solid waste. In keeping with the objective of the mela, the authorities defined the goals of sanitation as:

- (i) Open defecation free (ODF),
- (ii) Odour free, and
- (iii) Garbage free.

They defined their objectives not in terms of provision of facilities and services but in terms of total absence of defecation and odour. They sought to ensure a clean and epidemic-free environment. Traditionally, these activities are managed by the Health Department and that was the case of this mela too. Of course, the overall in-charge was the DM along with a

committee for coordination. This time, they had the expert guidance of an Advisor who was a specialist in this domain. This helped to bring systemic thinking into the management.

The authorities made a comprehensive plan for sanitation and solid waste management. They provided for more than adequate provisioning of toilets and ensured hassle-free movement of tankers and complete handling of sewage. There was adequate provisioning of toilets for women also. The arrangements were backed by adequate availability of manpower and supervisors. It was also backed by technology for monitoring and grievance handling. All parties had their SOPs defined for various activities and responses and these were tracked. These were monitored centrally from a control room at the medical centre. Similarly, they placed dustbins everywhere and made end-to-end provision for collection and treatment. It was observed that the workers and supervisors were highly committed. They were also taken through rapid training. They also made adequate provision in the tents, on the riverside, and in the city.

The general public observed the availability of the facilities and cleanliness of the place, and they all adapted to the situation. They were equally particular about maintaining the cleanliness of the place. Our research team surveyed several areas from the railway station to the mela area, bus stands to the mela area, and the toilets. On the main bathing days, we observed that pilgrims formed queues and patiently waited their turn. It could be observed that on the whole, the places were clear of garbage and defecation. We also observed in general that the pilgrims, given the strata from which they came, used very little plastic. It was one of the largest social experiments.

The mela authority, along with the Advisor and the consulting organisation, had designed effective contract documents in terms of specifying service conditions, monitoring, reporting etc. and penalties. These contracts will be useful for other smart city projects.

After the mela, there were reports that garbage from the mela had accumulated in the city landfill awaiting treatment. This could have been anticipated and provided for, though it was expected to take time. Given the scale of the mela, this was expected but it does not take away the efficiency with which it was managed during the mela.

Toilets were quite well maintained. However, many toilets did not have lights during mela. At the time of dismantling, the toilets could have been locked as it was used randomly by visitors. We could observe that toilets were on the way to getting dismantled.

Policing, Crowd and Disaster Management

Police played the lead role when it came to safety and security and they had bigger role on the main bathing days. It should be mentioned that all exigencies were provided for with many contingency plans like Plan A, Plan B, etc. It should be mentioned that all contingency plans had to be activated, especially in terms of crowd management, on the day of Mouni Amavasya.

The police department took utmost care to ensure a safe Kumbh experience for the participants. In the provision of all services, safety concerns dominated the planning. For example, whether it was providing transport to the pilgrims or town planning, safety was given utmost importance. They followed a fail-safe policy. Crowd management and disaster management were supervised by the Police Department under the overall supervision of the ADGP and IG, and operationally by DIGs and by a team of SPs of the mela area and Prayagraj. They were members of the Mela Committee and worked closely in coordination with the DM of the PMA. They were also guided by the NDMA and NDRF and state-level disaster management agency.

The police made elaborate arrangements for normal days and for bathing days with contingency plans. They planned for redundancies and it is due to this level of planning that on the Mouni Amavasya day, all redundancies had to be activated. Their traffic plans included a plan for neighbouring districts as well. They made extensive SOPs and manuals. They also conducted mock drills and the learnings were incorporated.

Due to extreme safety concerns, vehicles were not allowed anywhere near the mela area. On bathing days, several people complained of long walking distances. It was felt that transportation arrangements could have been made for older people at least on days other than bathing days. Closer to the mela area. However, we were told that the Police authorities did not want to take any chance with traffic jam and safety.

It should be mentioned that a stampede depends more on crowd density at a given point than on the overall crowd. They made good use of the ICCC and focused especially on critical junctions and bathing ghats. On Mouni Amavasya day, they had alternate plans to keep the crowd moving and prevent congestion. They could have used analytics and AI better. They needed more programmable cameras. It should be mentioned that one rarely witnessed a panic situation through the mela whether at bathing ghats, railways stations or bus stands.

It is creditable that on the whole, the mela was incident-free, which is a reflection of the planning and execution that went into it. They adhered to strict polices on VIP movement until the major Snans. The larger area also helped in dispersing the crowd and directing them to more bathings ghats. There were more ralways stations and the Railways had made elaborate plans at the main Allahabad station. The distributed bus transpotation and dispersed car parking also helped the management of the traffic and crowds. They also made provision for emergency evacuation of patients and deployment of forces and this increased everyone's comfort level.

Lost and Found

The management of Lost and Found persons was something that attracted everybody's attention. The authorities introduced a formal system of lost and found management which was supplented by the traditional practice of Khoya Paya and Bhule Batke. The lost and found centres had a complete system to receive, record and trace lost persons. However, the

rest of the arrangements were so good that the total number of lost persons reported was much lower this time. And yet, people still thronged the Khoya Paya and Bhule Batke centres. We can say it was a meshing of technology and traditional native skills. We now have a model to operate and replicate.

Transport and Parking

In transportation management, safety played a major role. They planned to stop all the outstation vehicles at the entry points of the city along the major state and national highways, and bring the passengers to the mela area by Kumbh special buses. They deployed largest fleet of 500 buses for which they got an award for setting a Guinness World Record. They made massive plans for parking spaces for vehicles at the city limits. During the bathing days, they completely stopped all the vehicles from entering the city. They made adequate plans for transporting pilgrims and there was no panic at any stage. The car passengers also adapted to it understanding the gravity of the situation. The police were very particular in stopping all vehicular movement near mela area but these could have been dynamically modified depending on traffic. But the police were clear that it could lead to traffic jams and safety concerns even if there way. The locals were put to inconvenience due to traffic restrictions, though the authorities did take care to keep them informed. However, they all mentioned this time that they were put to much less inconvenience compared what they went through during melas.

Railways

The Railways made several permanent arrangements for passengers this time, keeping in mind the Kumbh 2013 experience. They were again overcautious. They transported around 40 lakh pilgrims during the duration of the mela. They completely upgraded the infrastructure at the Allahabad railway station by upgrading the foot overbridge, adding one more platform, and building holding areas. They planned in such a way that the moving crowds did not come face to face, and even entry into the station was only from one side. This was the cause of the accident at the previous mela. People going on long distance travel may have faced some inconvenience on bathing days but they tried to separate the movement of pilgrims from that of normal passengers. They set up the ICCC and tracked the crowds from various entry points and at the platforms. They also upgraded other railway stations of Naini, Jhusi, Prayag, and Phaphamau.

Accommodation and Tentage

Provision of accommodation is an important aspect of user experience. The accommodation within the Akharas, and religious and voluntary institutions are managed by themselves. The government had also built public accommodation at very reasonable rates of Rs. 200 per day and it also promoted a tent city which was quite exquisite but expensive, for the better off segment. These tents were well maintained. There was also provision for online booking of tents but this being the first time, vendors were not equipped to market the space. The tents

were full on the bathing days but on other days, they were not fully occupied. Tents did help in promoting tourism.

Tourism

This time, the mela authorities tried to brand the event around tourism. They planned to attract tourists as well as pilgrims. The plan was to also provide a better experience to pilgrims. There were several attractions like the evening aarti, cultural and music events. There was an air of tourism especially after the Mouni Amavasya. It started attracting tourists after the main Snans and they came upon hearing about the arrangements. There was all-round appreciation for the arrangements of transport, sanitation, accommodation, cultural events, etc. We prefer to call it the 'second surge'.

Dismantling

Dismantling again was planned in a systematic way. After the mela got over, the next peak was settling all the accounts and dismantling. The PMA immediately reconfigured to delivering on these and each department was followed-up on completing all the tasks including settling all accounts and pending bills. The structures in the mela were such that these could be easily dismantled without damage to the site. Dismantling was quite well factored into the contracts and was well executed. The materials were all dismantlable and easy to relocate. The operation was also closely monitored. The mela authority also took inventory of all remaining equipment and drew up a plan for allocating to municipalities and various departments.

Gains in Soft Infrastructure

An important contribution of the mela management is the emergence of many areas of soft infrastructure which are intangible. There have been several gains and these are replicable in routine bureaucracy and also in specialised contexts like the smart city project or in disaster contingency. We can say now that the government has a template to manage events of this nature and scale. It is also extendable to areas of crisis and disaster management.

The whole mela management can be seen as a major experiment in project management and in public systems management. It demonstrated the effectiveness of lean structures and committee management, with each department acting as an autonomous unit within them. There was congruence in the system. However, it should be mentioned that there was palpable tension among the people involved. They had to maintain a heightened level of preparedness over a long period, which can be quite stressful. They could have been provided more human resources and provision for rotation.

All departments, functionaries, consultants, vendors and stakeholders shared the common goal of the mela – Divya and Bhavya Kumbh. It was a rare display of a shared goal and every

unit of the administration and vendors were aware of the consequences of any incident occurring from any slack or slippages.

There was an undercurrent of belief in the omnipresence of Ganga among the administrative functionaries and the vendors.

The police demonstrated an effective model of crowd management and disaster management. There is now a framework and a set of templates to manage events of this scale and complexity. It has led to several training modules, especially in the area of policing, crowd and disaster management.

This mela provides a good illustration of working with management professionals and their effective utilisation. It demonstrated the respective roles that administration and professionals can play in public system management.

The authorities had an effective monitoring of projects through Project Monitoring Information System (PMIS). PMIS is available in many states but not used effectively. This time, it was used for coordination, tracking, decision-making and problem-solving, reporting and finally payments.

They developed more than 100 contracts with the help of consultants and these are of good quality. These have comprehensive specifications of services, quality, SOPs, reporting, etc. These contracts can be used for regular purposes. However, it should be pointed out that given that many contractors were small and medium-sized, they lacked proper systems and the government should take steps to upgrade the skills of vendors. On the government's part, the management of contracts was not uniform and for some departments, it was business as usual. It implemented third-party inspection and monitoring.

The consulting team produced many operating manuals and SOPs for various operations in different sectors. These should be made use of. These can be templates for contracts and monitoring in smart city projects.

The mela has demonstrated good sanitation management models and this should be emulated. The health department gained immense experience in preventing and controlling epidemics in mass gatherings. The usual episodes were fairly well controlled in this mela. They also now have a group of trained medical professionals in disaster management. This experience can be useful in managing disasters and epidemics.

The transport department managed the transportation system quite well and now have an overall model for managing events of this nature. Its Kumbh Specials were appreciated.

The ICCC is a major gain for the city. This will be highly useful for its smart city project. It has also successfully implemented the software for operations of the centre and has also trained the officers. This is something which Prayagraj City can immediately leverage. An

important contribution of the ICCC is the huge data of images that it has created. It can be highly useful for the police department and for Artificial Intelligence application.

It successfully implemented programmes like Paint My City, Volunteer programme, brand promotion, etc. It managed to build tourism and create better scope for regular tourism.

Social Media and Volunteers

The government made an attempt this time to use social media to promote the mela, tourism and various features such as the tent city. It set up a website but it could have been more fruitfully exploited. The departments need to proactively send feeds to the social media team.

This mela also engaged volunteers in a significant way in a range of services like guiding pilgrims and tourists, crowd management, medical services delivery, Paint my City, etc. The mela authorities should more proactively engage them in activities and should have a structure to engage them.

Fact Sheet

1. Construction of 9 over bridges and widening of 6 underpasses for the purpose of the Mela through intensive coordination among all the concerned departments such as Bridge Corporation, PWD, Municipal Corporation, Jal Nigam, Railways, Defence and Forest.
2. Ghat Development and River Front Protection work was undertaken in 7 Ghats in Mela area.
3. Upgradation and beautification of over 60 transit crossroads in the city alongside large-scale reinforcing and widening of all roads connecting to the Mela area.
4. All bus depots and passenger waiting rooms were refurbished and developed.
5. Power settings and electrical lines were elevated.
6. Augmentation of Water Supply System.
7. Improvement of Drainage and Sewerage System.
8. Renovation and modernisation of hospitals, development of new wards and upgradation of medical equipment.
9. Construction, development and renovation of police stations and hostels
10. Upgradation of tourist infrastructure and improvement of key tourist sites
11. Electrification of Mela area with 40,700 LED lights with 1030 LT line, 105 km HT Line, 175 high masts, 54 temporary sub stations and 280,000 camp connections with MCBs installed.
12. Electrification of Pontoon Bridges, Parking areas and Heritage routes like Panchkoshi Parikrama Marg and Dwadasha Marg
13. 125,000 checkered plates used in construction of over 444 km of Mela roads
14. 22 pontoons bridges were built

15. 650 km of temporary drains were constructed, Construction of 10 new tube-wells and rebore of 17 existing tube-wells, Construction of 67 tube-wells and construction of 20 mini tube-wells
16. Ponding sites and bio-medical treatment sites were built around the Mela area
17. Permanent sewer lines were built in a few sectors to ensure efficient sewage transportation from Mela area to treatment plants
18. A total of 1,22,500 toilets were built which is almost 4 times the 2013 Mela numbers.
19. 20,000 dustbins, 120 tippers and 40 compactors were provided for solid waste management. The above work plans are funded by the State Government and under the Namami Gange Scheme of the Government of India. More than twice the number of cleanliness workers were deployed this time as compared to 2013 Mela.
20. 10,000 capacity Ganga Pandal was built; one Pravachan Pandal hall, 4 Cultural Pandals and accommodation for 20,000 pilgrims was arranged.
21. 95 parking spots across 1,253 hectares were developed. Of these, 18 were developed as satellite towns. All basic amenities were provided at these parking spots.
22. More than 1,176 signage boards were installed.
23. A new airport terminal was constructed at Bamrauli in Prayagraj by the Airport Authority.
24. Jetties were constructed at 5 spots by the Inland Water Authority and ferries carried the pilgrims from point to point.
25. Façade lighting of bridges and important structures
26. Food courts, tourist walk paths were built.
27. Tourist spots in Prayagraj district were refurbished.
28. 'Paint My City' campaign was launched in the entire city and the Mela area. As part of this, for the first time, government offices, flyovers, water tanks, boats etc. were painted with pictures depicting the Kumbh and other spiritual and cultural aspects.
29. Under the Smart City Program, Kumbh Command and Control Centre was set up with a control room. More than 1,137 cameras across 268 locations were fitted, smart traffic junctions were built, and video analytics of crowds were used.
30. 2 Command and Control Centres and 4 viewing Centres and 30 video wall cubes were set up for 24/7 surveillance
31. Digitised Lost and Found Centres were set up
32. 34 mobile towers and 40 ATMs were set up in the Mela area
33. Setting up of exhibition areas of Sanskriti Gram and Kala Gram
34. A tent city comprising more than 2,000 tents was developed for comfortable accommodation of domestic and foreign tourists visiting the Kumbh Mela.
35. 20 Sectors with 160 ration shops, 300 milk booths, 5 godowns, 20 Sector Offices were built.

Chapter 1

Introduction

Kumbh Mela 2019 took place in Prayagraj from January 15 to March 4, 2019. Kumbh 2019 is considered to be unprecedented in attracting crores of pilgrims and for the preparations that went into it. It attracts one of the largest gatherings in the world and its uniqueness comes from the fact that it brings forth a confluence of mythology, religiosity, spirituality, and social aspects. It attracts an array of people from the spiritual world of sadhus and saints, followers and pilgrims, domestic and international tourists, media professionals, documentary makers and film producers from India as well as the global professional community, volunteers and vendors. A temporary city with all the requisite infrastructure springs up to cater to the crores of visitors, throwing up its own challenges for the government and administrators. The complexity of the Kumbh is evident from the fact that scores of departments are engaged in providing various services, dozens of contractors are involved in the execution of projects, and hundreds, probably thousands, of vendors cater to the needs of the tourists.

The Kumbh has been a much-studied event and also a subject of interest to researchers from different disciplines. The Kumbh attracts researchers from various disciplines like sociologists, philosophers and historians, and professionals from sectors like health, town planning, transport, communication, etc. The Kumbh 2013 was studied comprehensively by a Research Team from Harvard University from various perspectives such as urban planning, health, communications and public policy. There are reports, travelogues, and studies which provide rich information on various Kumbh melas conducted for few centuries intermittently and for several decades of the recent past. There are documentaries, coffee table books, and photo essays on the Kumbh to add to the variety. There is thus a wealth of resources including documentaries on the Kumbh, but the event still offers immense scope for research and documentation. In this context, when the Uttar Pradesh Government and the Kumbh Mela Authority invited IIM Bangalore to undertake a study of the management of Kumbh 2019, it seized the offer immediately. It provided a golden opportunity to the researchers as it offers a rich site for studying multiple dimensions of public administration in general, and management of various sectors like town planning, health and sanitation, transportation and logistics, etc., from the perspective of disciplines such as public policy and management, organisational behaviour and social psychology.

The Kumbh involves multiple stakeholders. It involves intense engagement between the government and society. It was intense not just since independence but even under British rule. During the British days, the interaction was restrictive and more confrontational. Since independence, the government has always taken responsibility to manage the mela by providing adequate infrastructure and facilities to the pilgrims so that they stay focused on the spiritual experience.

Within the civil society, there are various segments of religious groups like akharas, kalpavasis, etc., service providers like pandas; pilgrims, domestic and international visitors;

and volunteers and voluntary organisations. There are also hundreds of contractors and vendors who provide the services and the markets that these create. A combination of all these make the canvas.

The Kumbh is a dynamic and evolving phenomenon. The area over which the city is created depends on the receding Ganga, which keeps the administration on tenterhooks. The flow of pilgrims is uncertain, and the administrators have to plan for the maximum and still the preparations can fall short. Given the flow of the crowd, and its interface with various systems like transport, bathing ghats and health, there is always a crisis waiting to happen.

The Kumbh offers a rich research site as it involves coordinated plans of several themes namely urban planning and management, logistics management, health and hygiene, waste treatment and management, technology, etc. A whole township equipped with the necessary infrastructure such as residential camps, bus stands, roads, drainages, health clinics, public distribution, electrification, and lighting springs up during the Kumbh Mela. This requires massive planning for months, leading up to a full-fledged administration being set up and descending on the town as it nears the date.



Figure 1.1. A View from Kumbh 2019

1.1. Essence of Kumbh

The Kumbh Mela is an ageless tradition. The story behind the Kumbh is well known. According to tradition, it is believed that Lord Vishnu (disguised as the enchantress Mohini) whisked the Kumbh out of the grasp of covetous demons who had tried to claim it. As he took it heavenwards, a few drops of the precious nectar fell on the four sacred sites we know as Haridwar, Ujjain, Nashik and Prayag. The flight and the pursuit that followed are said to have

lasted twelve divine days which is equivalent to twelve human years and therefore, the Mela is celebrated every twelve years, staggered at each of the four sacred sites in this cycle. The corresponding rivers are believed to have turned into Amrit at the cosmic moment, giving pilgrims the chance to bathe in the essence of purity, auspiciousness, and immortality (source: Kumbh website). The importance of the Kumbh is that the tradition has been carried down through the centuries and is marked in the calendar for posterity also.

It should be mentioned here that the Ganga is a highly venerated river and Prayag is a historic city. So, the Kumbh at Prayag gains even more importance. The Prayaga Theertha is the most revered site in the Hindu Dharma as it is believed that even the rivers and rivulets flowing past this sacred site are cleansed of their accumulated sins. Hence, it is also called the Theertharaja – the king of Theerthas.

The Kumbh Mela happens once in 12 years in these four sites in a rotational sequence. The Mela is scheduled as per the Hindu calendar when the Kumbh Yoga occurs where a specific astronomical combination of the Moon, Sun and Jupiter are aligned with specific zodiacs or Rashis. Jupiter takes 12 years to transit all the 12 signs which is the time taken for it to orbit the Sun. The Kumbh Mela locations and dates are decided based on the position of Jupiter and the Sun. When Jupiter is in Taurus and Sun is in Capricorn, the Kumbh Mela is held at Prayag. When the Sun transits to the Northern Hemisphere during Makara Sankranti in January, it marks the onset of Magh Masa which heralds the Kumbh.

Since the Kumbh is also a platform for saints and scholars to discuss and exchange ideas, many social issues too have been discussed at the Kumbh, as societies were run within the framework of Dharma, and addressing social issues through spiritual discourses is an age-old practice of ancient India. In the recently held Kumbh in 2013, the idea of a pollution-free and eco-friendly Kumbh was propagated and demonstrated by the Paramartha Niketana Ashram through campaigning for planting trees, prohibiting plastic and clearing trash, and preserving and protecting of the Ganga.

1.2. Past Kumbhs

The Kumbh Mela is a spiritual and cultural heritage passed on from ancient times. The earliest historic evidence we have of the Kumbh is the record of Hiuen Tsang's travelogues of the 7th century which mentions a large fair at Prayag held every 5 years in which King Harshavardana was supposed to have participated. The *Ramcharitha Manasa* (1574-76) also refers to the annual Magh Mela at Prayag, the *Bitaka* (1684) of Laladasa refers to the 1678 Kumbh Mela at Haridwar (Ref: N. Mishra 2019).

Past Kumbhs and Kumbh 2013

The scale of the Kumbh along with pilgrim flow is increasing with rise in awareness, affordability and affluence of the people, increasing the need for more facilities and developmental work. The scale has also improved with time due to better access of railways

and roadways. Apart from the total number of pilgrims, what is even more important is the crowd on the Mouni Amavasya day, which defines the peak of crowd of the mela.

Year	No of Pilgrims (Prayag)	No. of Pilgrims on Mouni Amavasya
1954	50 lakh	NA
1977	1.50 crore	1 crore+
1989	2.90 crore	NA
2001	5 crore	2.76 crore
2007	7 crore	2 crore
2013	12 crore	3 crore

Source: Shodhganga.inflib.net.ac.in, BSDMA paper

Table 1.1. Scale of Past Kumbhs

Kumbh 2013 was conducted for 55 days starting on 14 January with Makar Sankranti and ending on 10 March. The duration of the Kumbh depends on planetary movements. The Kalpavasis started arriving on 5 January and the administration’s planning was synced to this (Chaturvedi, 2015). The administration looked into all the aspects of services and management. There are two detailed reports of Kumbh 2013, one by Devesh Chaturvedi titled ‘The Holy Dip’ (2015) and another by the team of faculty researchers from Harvard University. The Harvard research team brought out a book edited by Professor Rahul Mehrotra and Professor Felipe Vera titled ‘*Kumbh Mela: Mapping the Ephemeral Megacity*’. Kumbh 2013 was the first major attempt at making Kumbh management systematic and gigantic. The administration looked into management of all aspects of infrastructure and services. The Kumbh 2013 had in fact initiated several features like control room, massive deployment of toilets, cleanliness, telecom infrastructure, etc.

1.3. Vision for Kumbh 2019

The conceptualisation of Kumbh 2019 as a historic, unique and world-class event took birth way back in early 2017, when Chief Minister, Shri Yogi Adityanath, shared his vision soon after taking charge on 19 March 2017. In his first meeting of 21 April 2017, he outlined his vision for ‘Kumbh 2019’ as ‘Divya Kumbh, Bhavya Kumbh’, although back then, it was unclear what needed to be done to transform the mega event into a ‘Divya and Bhavya Kumbh’. The Chief Minister, again in his meeting of 4 June 2017, reiterated his emphasis on ‘Divya and Bhavya Kumbh’.

They then set about visualising and conceptualising what would be a Divya and Bhavya Kumbh. It was a challenge for the administration to translate every aspect and every sector into the idea of Divyata and Bhavyata. The administration decided that they will seek to give the pilgrims spiritual experience and tourists ‘user experience’ apart from spiritual experience which is central to the Kumbh. Gradually, it also became Swachh Kumbh keeping in mind the government’s thrust on Swachh and the inconveniences that pilgrims have been put through in the past.

However, it should be mentioned that the government kept foremost thrust on security and safety of the people. Therefore, all four dimensions defined the mela – Divya, Bhavya, Swachh and Suraksha. It was then left to the PMA, police, and all other departments to translate these briefs into a meaningful action plan. In each department, they sought to provide a wide range of services which would meet the expectation of user experience. It was also decided that technology will be an important instrument of delivering on the vision. Another important aspect was thrust on innovations in every field wherever it can be adopted. This time, they also engaged extensively management and technical professionals in many fields to support the administration.

The government did not stop there. It also followed up the announcement of the mega event with commitment of funds. The Chief Minister was of the view that the budget should not be a constraint in this mega event. The administrators were assured full support in managing the Kumbh both in terms of funds and manpower. The Central Government provided its support through its own departments and programmes like the Ganga Action Plan, Railways, Tourism, NDMA and Civil Aviation.

The primary goal was to enhance pilgrim experience. All stakeholders were entrusted with the task to finish long-term works within the stipulated timeframe while ensuring the best quality. In order to expedite the process, Kumbh-related projects in Prayagraj were given undivided attention. Finally, the proof of the pudding is that the Kumbh was incident-free, the service delivery was satisfactory, and the pilgrims and tourists were by and large satisfied. They kept the pilgrims and tourists at the centre in all planning and the systems were configured to deliver service. This is quite different from keeping systems and procedures at the centre and customers as peripheral to the system.

1.4. Study Focus and Methodology

The IIMB team was awarded the study in early December 2018 and the team immediately went about setting up the team of Research Associates in Prayagraj. The research team intended to study the mela from the various perspectives of:

- Public Systems Administration in terms of goal alignment and achievement, structures, networks, systemic processes and performance, and motivational drivers, keeping in mind the various sectors that operated.
- Management of network and the interface of religious institutions, pilgrims, tourists, citizens, media, NGOs, etc.; partnering and contract management.
- Application of technology, especially IT and Communication, and innovations.

The focus of the study was completely on management of public systems with reference to mela administration. The objective was to capture the design and manifestation of the administration as it emerged, and in contrast to regular bureaucracy.

Given the spiritual context of the mela, we expected that the above dimensions should converge into self-governing systems. We expected these systems to be adaptive, flexible,

innovative, and dynamic as these are designed to scale as well as handle exigencies at any time. The study proposed to focus on the following sub-systems:

- 1. Structures and Styles – Open and Adaptive:** The Prayagraj Mela Authority (PMA) is a project management structure unlike routine bureaucracy which follows regular organisational control through a repertoire of rules and precedents. The knowledge of previous Kumbh Melas lies with officers in tacit form than in explicit form in documents. The team sought to look at the flexibility of structures and openness to collaborate when faced with scale or crises as these arise and the sense of accountability that pervades the hierarchy in the PMA.
- 2. Customer at the Centre:** The Authority promised to give ‘user experience’ to the pilgrims as well as to the tourists. Bhavyata was a promise that went beyond safety. The challenge was to inculcate customer-centric administration in a humongous and amorphous temporary project management network structure like this throughout the administrative structure. This Kumbh also sought to be Swachh (Clean) Kumbh. It was considered interesting to study how these ideas get translated and manifested, how they respond to evolving situations, and also how pilgrims take to these innovations.
- 3. Technology Adoption – Outcome is the Key:** Technology has come a long way since Kumbh 2013, and its adoption was a key element of this mela. We expect that the adoption will depend on the appetite for technology with both the administrators and the users. We proposed to see how far this has progressed and penetrated, and how far it is replicable.
- 4. Government-public Interface Management:** The performance of a system depends on the clientele, among other things. A major challenge of the mela management is managing the interface with the public and last-mile delivery which is where the effectiveness gets tested. This interface can be seen at two levels: government interface with religious institutions and with the general public. The study focused on the role of traditional institutions, how these old institutions get co-opted, how they form, what their exchanges are, etc. At another level, there is the behaviour of the general public. It is expected that the crowd that visits the mela may be mentally tuned to the inconveniences and sub-optimal level of services. Given that the PMA promises to provide a wholesome experience, it will be interesting to see how the self-effacing public reacts when offered upgraded services.
- 5. Understanding Self-emerging Systems:** For centuries, large gatherings like the Kumbh have organised themselves without the formal support of the state. Yet today, the formal administration plays an increasingly important role in how the Kumbh gets organised. Where should the formal administration focus its efforts and where can the private players fill in? This is again an important area of study.

Overall Methodology and Analyses

The team proposed to follow a grounded theory perspective. We started our study in the first week of December 2018 and we observed that the PMA was at the peak of preparation for the mela. So, we planned to gather data through interviews, as observers with administrators, at meetings and camps. We spent many hours in the meetings conducted by the DM, had interviews with the SDMs with PMA, district in-charge, and department heads. We also decided to document the observations with thick descriptions of the happenings. We planned to gather all secondary data, reports, documents and digital data of administrators and pilgrims. In relation to the motivation of mela officials, the study proposed to explore the subject through semi-structured interviews, focus groups and survey research. In particular, top and mid-level mela officials would be interviewed. Focus group and survey data would be collected from the workers.

In the study of non-government players, we sought to divide the Kumbh into pilgrims and service providers. Once a diverse set of service providers was identified and surveyed/interviewed, we aimed to analyse the complex ways in which these service providers performed their tasks, mapping their interdependencies. The ultimate goal was, through a bottom-up survey/interview, to identify the complex organisational structure of the Kumbh, and its various actors, activities, history and incentives.

Key Focus

It was proposed to cover various sectors and service deliveries from different cross-cutting themes. It was intended to look at it from the perspectives of:

- Public policy and public administration,
- Project management,
- Operations and process management,
- Operation management, supply chain, contracts and vendor management,
- Technology and innovation adoption.
- Social psychology

It especially proposed to look at the management and sectors of:

- Governance and Administration
- Planning of an Urban Symbiosis
- Infrastructural Development Works and Kumbh Mela
- Accommodation, Tents and Religious Institutions at the Kumbh Mela 2019
- Police Administration, Crowd Management, and Disaster Prevention
- Swachh Kumbh and Healthcare Management
- System of Lost and Found
- Transport Infrastructure and Logistics
- ICCC, Communications and Information Technology

- Vendor and Procurement Management, Contract Management
- Tourism, Culture and Aesthetics

Report Structure

This report is organized sector-wise and services-wise. Each chapter covers one major sector with corresponding services and the management of these. We have taken care to cover the following in all the chapters:

- Insights from the previous Kumbh,
- Planning for this Kumbh,
- Organizational design and structure,
- Processes, implementation, and control,
- Resource deployment, technology adoption, innovations, and additional features of this Kumbh, and finally,
- Actual manifestation and outcome.

It brings forth the activities or programmes that are additionally attempted this time and the innovations in conceptualization, planning, and implementing.

The Report is based on all the presentations made by the departments and consultants, report of Commissioner on the Kumbh as well as report of the previous Commissioners on past Kumbhs, Kumbh official websites, interviews with officials and consultants, and field observations.

Chapter 2

Governance and Administration

Kumbh is incomparable in scope and a complex happening and it is difficult to characterise such a unique social phenomenon. Such is the exceptional multifaceted nature of Kumbh that it is hard to categorise it as an event or a project. It is both on occasions. It is neither in some. It is a phenomenon that is in search of a label. However, as is the case, for all practical purposes even in the present chapter, it is interchangeably referred to as an event, a project, a phenomenon, an organisation, depending on where the focus lies.

In our quest to understand the administration of the Kumbh 2019, we sought to unravel the behind-the-scenes mystery of the event. Administration, otherwise remains a black box hidden in the façade and glory of the Mela. As we tried to get a first-hand view of this, we observed the Mela Pradhikaran office on Sangam grounds as a high-octane 24 × 7 non-stop hub of activity during, before, and after the peak events. As we spent time with the administrators, conducting in-depth interviews, observing their meetings, poring over the available documents, and then carrying out assessment surveys with the public, we realised there is much more to the Kumbh administration than meets the eye.

In common parlance, our main quest was: How does everything fall in place? Is there a way to zoom in and out of the administrative machinery to comment on the ground-level activities, as well as the higher order bureaucratic framework? How do the District departments and Mela Authority work as a cohesive whole? How does Kumbh administration differ from regular bureaucracy? Is the Kumbh a programme and project management or a mega event management affair? Do the bureaucrats recruited for this job display different characteristics? How did the administration—in terms of services provided to the public fare in the eyes of the masses? How do the administrators and officers keep themselves motivated and focused? What are the lessons and where could it have done better—these are the questions that we sought to address.

To this end, this chapter is divided into three sections. Section one provides an overview—the barebone presentation of the organisational structure, network, and processes of the core Mela administration team, section two describes the overall successful completion of the Mela, while also providing the results of the public assessment of the civic amenities provided—how did the Mela fare in the eyes of the masses. Section three is a critical analysis—the lessons and recommendations that our team can provide based on our observations and first-hand understanding of the Mela administration.

2.1. Overview of the Administration

Although the administrative set-up of the Kumbh Melas—the organisational structure, the division of responsibilities, the overall functioning of the administration, had implicitly got streamlined over the years; the statutes for the same were laid out in the pre-independence era

United Provinces Mela Act, 1938. In a major development, Uttar Pradesh Prayagraj Mela Authority Act, 2017, came into force on 30 November 2017, which set the guidelines for the administration of Kumbh 2019 in a more structured manner.

2.1.1. Prayagraj Mela Authority Act, 2017

The 2017 Act recognised the Prayagraj Mela Authority (PMA) as an entity and the Head Quarter of the Authority in Allahabad. This facilitated the construction of a permanent office for the Prayagraj Mela Authority on the Mela grounds. As displayed in Figure 2.6, the Commissioner, Allahabad Division was designated the Chairperson, and Inspector General of Police, Allahabad Zone and the District Magistrate, Allahabad, as Vice-Chairpersons. The Mela Adhikari/Mela Magistrate, per the Act, was the ‘Chief Executive Officer.’ Mela Adhikari and the Additional Mela Adhikari/Additional Mela Magistrate would be appointed by the State Government at the time of Maha Kumbh Mela or Kumbh Mela. The officers-in-charge of various executing agencies, namely, the Allahabad Development Authority, Municipal Corporation, City Transport Services, Medical Department, PWD, Irrigation, Power Corporation, Cantonment Board, Ganga Pollution Control Board, the Allahabad and the Kumbh Mela Senior Superintendents of the Police, one representative of the Army, and three eminent persons nominated by the State Government, were included as Members of the Authority.

The three Mela events organised on Sangam grounds, the annual Magh Mela, the six-yearly Kumbh, and the twelve -yearly Mahakumbh, were covered under this Act, thereby explicitly recognising the inter-linkages of the three events.

The Divisional Commissioner of Allahabad division, served as the centre point between the Kumbh Mela administrators, and the Prayagraj district administration and all departments at both state and central levels. The decision-making powers were vested with the Mela Authority that complied with the directions of the State Government from time to time. The Authority was entitled to make bye-laws which further streamlined the process of governance and execution of the tasks.

The bye-laws provided stringent and nuanced guidelines on the code of conduct for the Mela activities, including administrative protocol such as the quorum required for decision-making, the voting rights of the members, etc. The bye-laws also contained rules for external stakeholders such as for those applying for certain licenses, display of hoardings, advertising, among others. The bye-laws, in sum, provided a base document and a standard set of procedures for future Mela administration to adhere to. The procedures for amending the bye-laws are provided in the Act.

2.1.2. Mission Kumbh 2019

The social-political milieu in the state capital also heralded a fresh vision and mission for Kumbh 2019. In a landmark meeting attended by the top-level bureaucrats and officials in the

state capital, Lucknow, on 21 April 2017, The Hon'ble Chief Minister of Uttar Pradesh, Yogi Adityanath—who had been sworn in as the Chief Minister barely a month ago on 19 March 2017, announced the vision of a 'Divya Kumbh, Bhavya Kumbh' for Kumbh 2019. The Divisional Commissioner having taken up his own office the same day started with this brief. With this announcement of the CM, the Commissioner brought home the key message that while previously, the thrust of administration was ensuring the safety, security, and comfort of the pilgrims and visitors, Kumbh 2019 was vested with a grander vision and mission. This included magnifying the surrealism and splendour of the Kumbh, which in operational terms, meant 'enhanced pilgrim experience.' Another key message was that the host city of Prayagraj had to be made Kumbh-ready which involved major upgrading of the existing infrastructure, as well as massive newer civil construction projects, including highways, road overbridges and underbridges, road widening, new airport, city beautification, etc. The strategic mission for Kumbh 2019, therefore, involved planning and completing the legacy infrastructure along with the Mela-centric activities. The Divisional Commissioner articulated the strategy of planning for the Kumbh as follows:

“With the sole aim to enhance pilgrim experience, the Kumbh 2019 vision rested on five key pillars: Inclusion of all sections of the society, improved quality of services and new cultural/spiritual experience, aesthetically coherent and pleasing Mela, use of digital technology as an enabler to further planning goals and overall efficiency improvement, and finally, creation of a worthwhile legacy for future Kumbhs.”

Subsequently at the Chief Secretary's meeting in Lucknow, the first phase of sanction was given which kickstarted the planning for the mega event. The Divisional Commissioner was made the nodal officer. Three committees were formed: the first at the government level under the Urban Development Minister for overall supervision and guidance; second under the Chief Secretary for review and sanction of all the projects; and third under the Divisional Commissioner to execute and review these projects. Most legacy projects and major works were to be completed by October 2018. The projects included participation and coordination with 28 state departments and 6 central departments with Prayagraj Mela Authority serving as a nodal agency for entire Mela management. A decision to use 'Magh Mela 2018' as a rehearsal ground for testing all the pilot projects, was taken during this time.

On 7 December 2017, in yet another landmark event, the Intergovernmental Committee for the Safeguarding of Intangible Cultural Heritage under UNESCO recognised Kumbh Mela, the largest peaceful congregation of pilgrims on earth, as an 'Intangible Cultural Heritage of Humanity'. This gave further impetus to the state government and district administration's aspiration of attaining a world-class 'divya and bhavya Kumbh'. The vision was thus set, and the Administration and the Executing Agencies rolled into action with a high degree of ambition, aspiration, and achievement-orientation.

The Administrative team was assured that the budget would not be a constraint and in an unprecedented feat, the Kumbh Mela 2019 was allotted a generous budget allocation of ₹ 4,06,234.80 lakh with the primary goal of enhancing pilgrim experience. Out of the allocated

budget, ₹ 2,67,693.01 lakh was allotted specifically to the Prayagraj Mela Authority. The executing departments were entrusted with the task of finishing long-term works within the stipulated timeframe while ensuring the best quality.



Figure 2.1. Hon'ble Chief Minister at Kumbh Mela Meeting

2.1.3. Mela Adhikari's Appointment and Subsequent Team Building

“Mela Adhikari” as defined by the Act, is “an officer appointed by the state government for executing and managing the Mela affairs under the supervision of the Authority” (The Mela Adhikari for Kumbh 2019 was appointed on 20 December, 2017. The next layer of administrative appointees included one Additional Mela Adhikaris (ADM) and five Sub-Divisional Magistrates who would work closely with the Mela Adhikari in planning and executing the various Mela activities. This comprised the core administrative team. The date of these appointments was critical as the Mela Adhikari and his team, had the unique opportunity to experience and get their feet wet with Magh Mela 2018 before embarking on the larger mission. Most of the core team members from Magh 2018 were retained, with the addition of other officers namely additional ADMs, additional SDMs, Finance Controller, Mela Ameen, Deputy Collectors, Managers, Assistant Managers (Naib Tehsildar Level), Assistant Revenue Accountants, Senior Assistants and Junior Assistants.

Four high-level committees were established under the chairmanship of Hon'ble Minister of Urban Development Department of Government of Uttar Pradesh, Hon'ble Chief Secretary of Uttar Pradesh, Hon'ble Principal Secretary of Uttar Pradesh and Divisional Commissioner of Prayagraj. Additionally, a Traffic Advisory Committee was formed at the district level for accessibility and movement planning under the chairmanship of Additional Director General of Uttar Pradesh Police Department, Prayagraj Zone. The organising committees were set up for overall supervision, approvals, coordination, reviews, inspections and execution of the

proposed Mela works within and outside the Mela area boundaries. These include three high-level committees headed by:

- Hon'ble Minister of Urban Development Department, UP
- Additional Chief Secretary, Urban Development Department, UP
- Divisional Commissioner, Prayagraj, UP

Additionally, a Traffic Advisory Committee was formed at the District level for accessibility and movement planning under the Chairmanship of ADG, Prayagraj Zone.

The details of the four committees and their responsibilities are outlined in the following section.

The committee headed by the Hon'ble Minister of Urban Development, UP for overall supervision and guidance was formed on 9 May 2017. The committee comprised 25 members including Chairperson (UP Jal Nigam), Hon'ble Chief Secretary (GoUP), Chairperson (UPPCL), Hon'ble Principal Secretaries of Finance Department, Home Department etc., ADG (Lucknow), Divisional Commissioner (Prayagraj), IG (Prayagraj Zone), DM (Prayagraj), SSP (Kumbh), Mela officer, Municipal Commissioner etc. Detailed list of committee members has been attached in Annexure 2. This Committee in its very first meeting held on 31 May 2017 decided on:

- Preparation of one proposal with all the projects for each department
- Emphasis on sanitation
- Engagement of experienced agencies for carrying out waste management
- Roping in officials having prior experience of being a part of the organising team of Mela
- Timely completion of all the projects
- Monitoring by a Third-Party Inspection Agency and PMIS tool

The committee headed by the Additional Chief Secretary, UP for review and sanction of all projects including permanent works was formed on 9 May 2017. The committee comprised 27 members including DGP (UP), Hon'ble Principal Secretaries of Finance Department, Home Department, etc., ADG (Lucknow), Divisional Commissioner (Prayagraj), IG (Prayagraj Zone), DM (Prayagraj), SSP (Kumbh), Mela officer, Municipal Commissioner, etc.



Figure 2.2. Mela Administrators with Sadhus

The committee headed by the Commissioner, Prayagraj Division, Prayagraj, for division-level review and monitoring of the Mela works was formed on 9 May 2017. The committee comprised 22 members including DIG (UP Police), DM (Prayagraj), Vice Chairman (Prayagraj Development Authority), Mela officer, additional Mela officers, additional Director (Health Department), Superintendent engineers of Irrigation department, PWD, UP Jal Nigam, etc. The nodal officers from each department were a part of the Committee. Apart from this there was the Prayagraj Mela Authority's Board of Directors consisted of the following members headed by the DC (Figure 2.9).

Task-force committees such as those for tentage and accommodation, event management, and culture, were formed for streamlining and demarcating the work. Most—if not all—the committee composition included the Mela Adhikari, the Additional Mela Adhikari, the respective SDM, the Controller of Finance, and officers-in-charge of the associated executing agencies (e.g., Superintendent Engineer, Public Works Department; Regional Tourism Officer, Deputy Director, Department of Information). See figure 2.9 for an overall conceptual representation of the Mela administration.

In all, a team of 16 members comprising a Team lead, Urban Planners, Sanitation Expert, Security, Surveillance and Crowd Management Expert, Digital Solutions Expert, Command and Control Centre Consultant, IT Infrastructure, Networking and Communication Expert, Consultants for Business Process improvement and SOPs, Consultants for Documentation and Reporting, Content Writer, Event Planners, and Consultant for Procurement and Vendor Management was deployed in Prayagraj. Each member of the team worked beyond their call of duty and took up additional tasks which were over and above the terms of reference mentioned in the request of proposal. Constitution of other Mela management committees of various sectors can also be seen in Figure 2.9.

The appointment of Mela Adhikari was appointed on 20th December 2017, which gave some lead time for planning and formation of the administrative team. The officers were handpicked by the top management team on criteria such as passion, commitment, and sound interpersonal skills. The DM of PMA mentioned that the choice of officers for PMA is critical to the success of mela administration. He said they require multiple skills and should be good in handling stress.

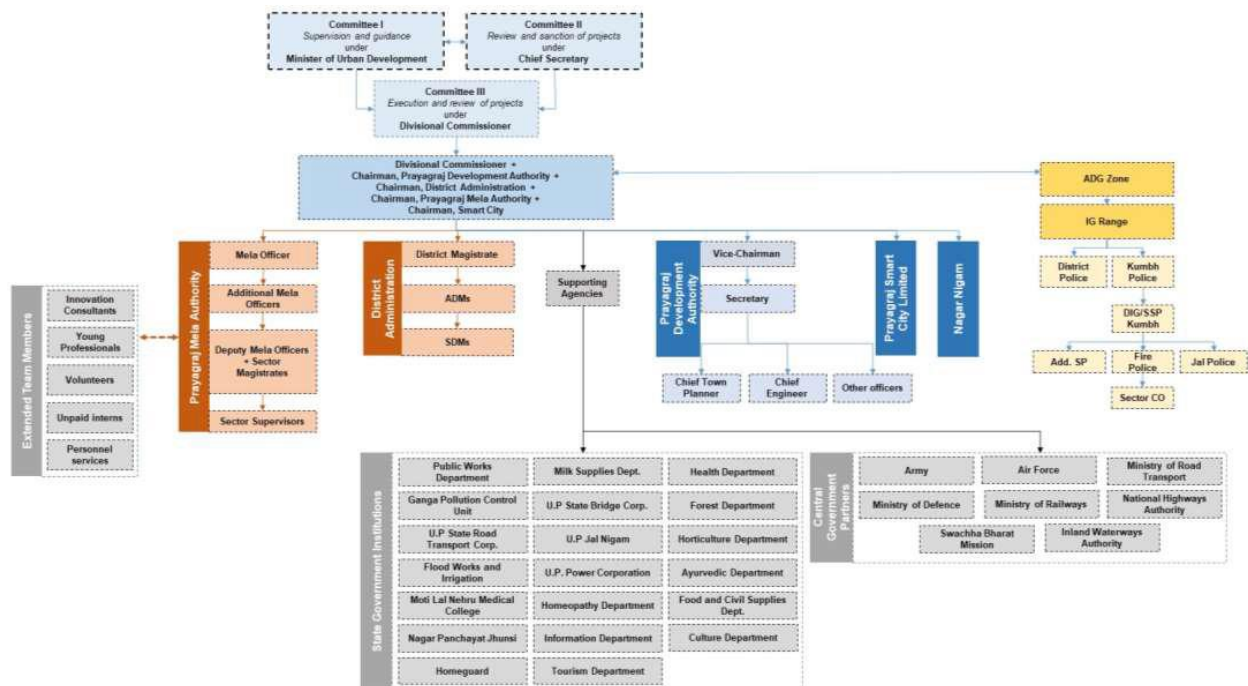


Figure 2.3 Organisational Structure of Kumbh Administration

2.1.4. Twenty Sectors at the Mela: Sub-districts within the Mela District

The 2019 ‘Divya and Bhavya’ Kumbh theme emerged in the Mela being organised at a mega scale, which translated to a larger land area also. Kumbh 2019 was organised in 3200 hectares, compared to 1936 hectares in 2013. The 2019 Mela area was divided into 20 sectors, compared to 14 in 2013. A Sector Magistrate was appointed for each sector. Each Sector Magistrate was assisted by one Sector Supervisor and a Revenue official (see Figures 2.5 and 2.6 for a conceptual representation of the governance). The Sector-level Team supervised the work at the sector level and liaised and coordinated with the officers of the executing agencies, such as the engineers of PWD, Irrigation, Power Corporation, doctors from the Medical department. They also served as the key points of contact for the public and vendors for trouble-shooting any sector-specific issues. For fast and efficient resolution of problems and decision-making the sector-level team reported directly to the Mela Adhikari. As such the sectors mimicked the district formation and administration. It became easy for each concerned department to configure itself around the formation of sectors.

2.1.5. Appointment of Innovation Consultants and Young Professionals

An important thrust of the mela administration this time was appointment of professional management consultants and young professionals. A detailed 43-page RFP document, with the application was floated in the first week of February 2018 with the deadline of 28 February soliciting proposals from consulting agencies to help the Mela Authority achieve its objective of enhancing the pilgrim experience. The RFP said;

The Consultant is expected to provide support in all applicable planning and execution domains that touch the journeys of a pilgrim (or a user):

- I. Define and design ‘better pilgrim experiences’
- II. Identification of stakeholders to implement the design. This may include third party service providers, government agencies/departments, non-governmental organisations, and people
- III. Establish selection processes, plan operations and management of various stakeholders
- IV. Identification of communication and coordination needs with all stakeholders
- V. Mela risk management – planning and communication of risk scenarios, including potential mitigations
- VI. Project documentation and legacy planning (Kumbh Mela RFP, p.8)

Ernest & Young won this bid and a team of 16 members comprising a Project Director, Urban Planners, Sanitation Expert, Security, Surveillance and Crowd Management Expert, Digital Solutions Expert, Command and Control Centre Consultant, IT Infrastructure, Networking and Communication Expert, Consultants for Business Process improvement and SOPs, Consultants for Documentation and Reporting, Content Writer, Event Planners, and Consultant for Procurement and Vendor Management were in the Pradhikaran office by March-April 2018. We could observe that the DM used tactically the combination of experience of his administrative officers and the professional contribution of the consultants. The consultants’ role was primarily to advise the DM but they also helped in keeping track of the progress and coordinating with concerned departments. They helped preparing plans for the sectors they were involved and they also kept track of the progress of the works. This mela also demonstrated the roles consultants can play along with administrators. One of the contributory factors was also the astute leadership.

In yet another initiative to get young educated and committed individuals associate with the Mela administration, a recruitment job advertisement was placed in the ADA website that solicited applications from interested individuals: The recruitment ad mentioned, “In order to achieve the Chief Minister’s vision of ‘Divya Kumbh, Bhavya Kumbh’ the Authority is looking to engage the services of Young Professionals (YPs) for their support in bringing new-age innovation in effective planning and execution of Kumbh 2019 on contract.” The candidates were required to be below 35 years of age as on 1 July 2018, and the job description was more or less similar to that of the consultants. As advertised, 10 individuals were recruited for this position in a 12-month contract, at the same time as the innovation consultants.

In addition to the consultants and young professionals, a community engagement programme of volunteers, called the ‘Kumbh Seva Mitra’ solicited the participation of young men and women to carry out field activities such as tourist services, lost and found services, tent and ghat management services, among others. More than 5000 participants volunteered their time and service to this initiative. The initiative was reciprocally rewarding to the youth and the Administration, as the youngsters gained experience and exposure to the Mela Activities, and the Administration got helping hands in the field jobs.

2.1.6. E-governance and Digitisation

A Project Management Information System (PMIS) for digital monitoring and tracking of projects was used in Kumbh 2013 but the scope and scale of projects in Kumbh 2019 was far greater because the SMART City Project, involving mega infrastructure overhaul of the city was integrated with Kumbh planning. Seven hundred odd projects were within the purview of the district and Mela administration; all infrastructure projects were planned to be completed well before the end of 2018. The Commissioner as well as the DM stressed upon the utility of the PMIS in helping in project management. It could be observed in the meetings that the DM was often referring to the progress charts prepared by the Consultants and YP for making their observations. In the end, we observed PMIS was used for reporting on completion and settling the accounts also. With the support of the PMIS, we could observe that the DM was hands-on in the progress of the projects at any point of time.

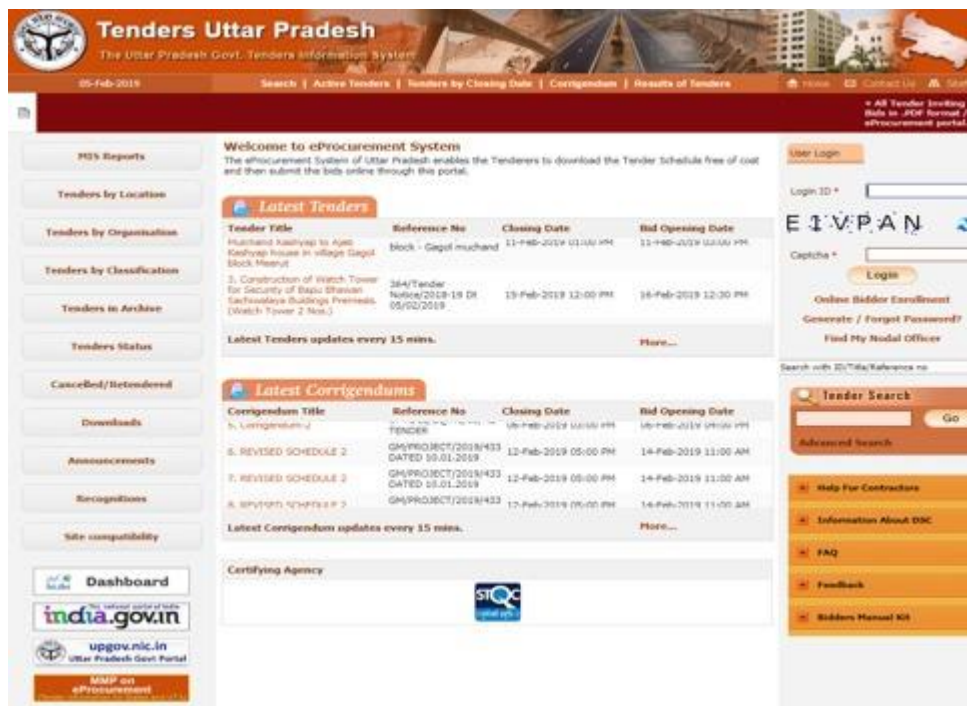


Figure 2.4. PMIS

Effective use of Whatsapp groups facilitated coordination and fast exchange of information on smart phones among the administrative officials. These also served as platforms for

interconnectedness and provided conduits for top leadership to convey short messages of encouragement and feedback upon successful completion of projects and events.

E-tendering: All 101 tenders floated during the period August 2018 to January 2019 with respect to the Kumbh 2019 and the SMART city project were available online <http://kumbh.gov.in/en/tenders>

The Kumbh 2019 website was more detailed and visually appealing. Compared to the 2013 website http://kumbhmelaallahabad.gov.in/english/important_numbers.html, the 2019 website was also more interactive <http://kumbh.gov.in/en/prayagraj> Contact details such as cell phone numbers were provided to the public. Social media such as Twitter, Facebook, and Instagram were actively used as outreach channels to spread information and awareness about the Mela, and also serve as resources for online help.

2.1.7. Process-focused Project Management

The administrative activities of the PMA involved overseeing the timely and quality-compliant completion of the various projects undertaken by the different executing agencies within the Mela. While most infrastructure projects within the Mela drew from legacy frameworks, the ‘Divya and Bhavya Kumbh’ manifesto not only translated to a larger scale of projects, but it also had the administration brainstorm and invite proposals for state-of-the-art technologies and newer and innovative schemes within each of the executing agency’s domain of work.

For project management within the Mela, the planning lifecycle was broken into four key phases i.e. 1) strategy development, 2) budget estimation and sanctioning, 3) procurement and vendor onboarding and 4) execution. Strategy development, in most departments began in November 2017 and continued till March 2018, where each executing department conceived projects that would strategically fit the CM’s vision of *Divya Kumbh*, *Bhavya Kumbh*. The executing agencies then submitted the proposal and budget estimation to the Prayagraj Mela Authority—for any project that required support from PMA. The proposal was submitted to the Chief Secretary for approval before being forwarded to the EFC Committee for evaluation and release of Government Order. This exercise was planned to be completed by April 2018. Procurement and Vendor Onboarding was carried out till August 2018 and the projects were expected to be completed by December 2018.

The Innovation Consultants played a key role in streamlining and documenting the entire bid management process which was regulated through set formats for each bidding document. In order to set clear expectations to the vendors and for the administration to provide control over quality and timely completion, the be-spoke contract conditions were clearly laid out. The process of e-tending made the whole process transparent, efficient, and streamlined.

The execution phase of the project was concentrated on two aspects: quality and timeliness. In order to assure quality, Third Party Inspection Agencies were signed up for periodic reviews

and checks and balances on the quality. The Commissioner in our interview stressed upon the appointment of Third Party Monitoring as an important contributory factor of this mela. In the Committee meetings the Third Party, reports often formed the basis for discussion, apart from the reports of the concerned departments. For constant monitoring and review of projects on timelines, an Online Project Monitoring System was set up, that provided a snapshot of the work activities along the timelines. The Divisional Commissioner and the executing agencies met regularly to monitor the completion of activities and adherence to timelines.

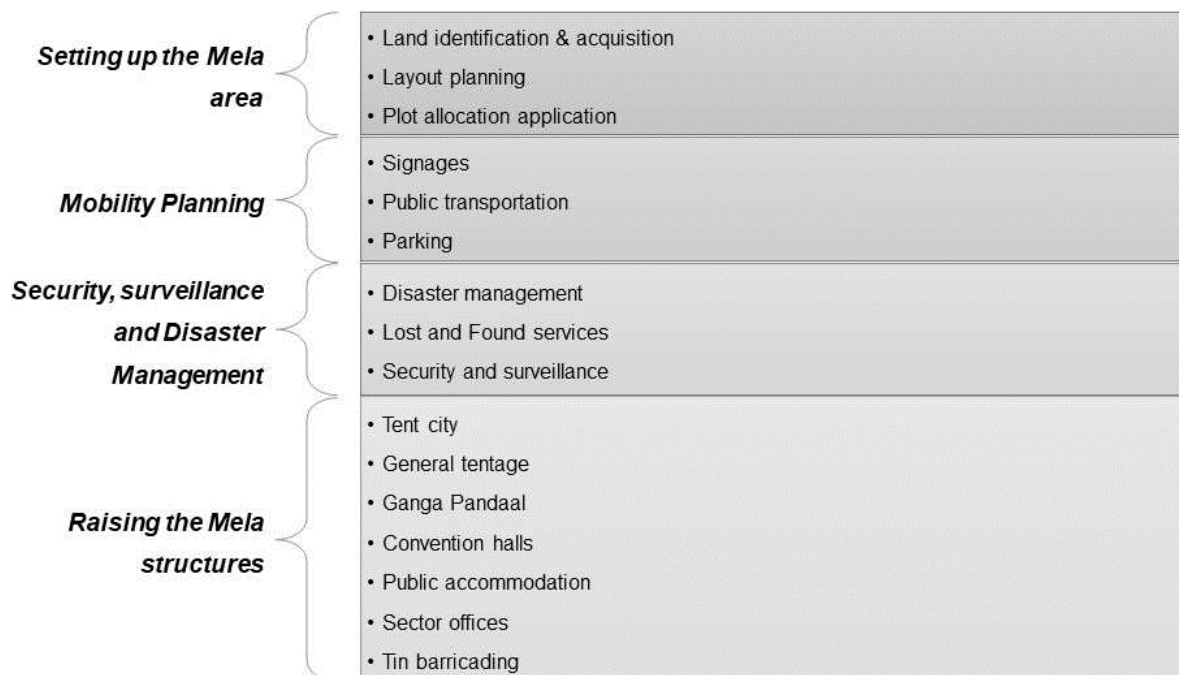
2.2. Kumbh: Outcomes-oriented Administration

An ironical feature involved in organising Kumbh is that whatever may be the grandiose arrangements – a single untoward incident could mar the efforts and completely tarnish the image of the Mela administration. The preparations, the hard work involved, the due diligence exercised in the planning phase—all comes to a nought—against a single untoward incident. Maha Kumbh Mela of 2013, for example, got eclipsed by the mishap at the Railway Station. Nothing succeeds like success—is the mantra that defines the post-hoc evaluation of the Kumbh administration.

The key pillars of planning an enhanced pilgrim experience are described as follows:

1. Inclusive: Facilitating easier ‘access’ to a record number of visitors
2. Experiential: Improved quality of services and new spiritual/cultural experiences.
3. Visual: Creating an aesthetically coherent and pleasing Mela.
4. Digital: Using technology as an enabler to further planning goals and overall efficiency improvement.

The Mela administration and activities of various sectors were divided into the following aspects:



<p>Swachha Kumbh: From ambition to reality</p>	<ul style="list-style-type: none"> • Community toilets and urinals • Solid Waste management • Personnel • Monitoring of sanitary services • Dustbins and liner bags • Sub-structure works • Vector borne consumables • IEC campaign
<p>Community Engagement</p>	<ul style="list-style-type: none"> • Community Engagement • CSR • Youth for Kumbh
<p>Media Outreach, Social Media and Documentation</p>	<ul style="list-style-type: none"> • Coffee Table Books • Incredible India Campaign • Marketing PR and branding • Media Centre • Creative Consultants • Licensing and Merchandising • Website • Social Media
<p>Enhancing the Tourism Experience</p>	<ul style="list-style-type: none"> • Paint my city • Interpretation centre • Laser light show • Façade lighting • Temporary thematic gates • Tourist walk • Tourist packages
<p>Event Management</p>	<ul style="list-style-type: none"> • Events • Catering
<p>Revenue Enhancement</p>	<ul style="list-style-type: none"> • Advertisements • Vending Zones (and food courts)
<p>Modernizing the Kumbh</p>	<ul style="list-style-type: none"> • CDMA • Banking • Telecom
<p>City Infrastructure and Development Works</p>	<ul style="list-style-type: none"> • Strengthening/ widening of roads • City beautification • Traffic improvement • Traffic junctions and roundabouts • ROB and RUB • Street lights • Integrated command and control centre • Temple development • Development of parks/ greenery • Water supply

2.2.1. Glitch-free, Incident-free mela

Kumbh 2019 fared exceptionally well on the expectation they set for themselves. Administrative project and activities, at the district level and at the Mela, were executed successfully, without any glitches that would have undone all the strategic planning and execution. The achievements of the Kumbh 2019, therefore, glaringly spoke for themselves. The mela itself was incident free which is the *single most proof of the success*. As mentioned, the Mela itself being so humongous and complex, any small incident could have marred the ambience and image of the Mela.

All the planned projects taken up in connection with the Kumbh were successfully completed and approved by third parties without any glitches. The National Highway Authority of India widened 9 national highways. The Uttar Pradesh State Bridge Corporation Limited constructed 9 ROB across the city within an allocated budget of ₹435cr. The Uttar Pradesh Public Works Department was responsible for beautification and widening of 140 road stretches within an allocated budget of ₹ 1061cr across the city of Prayagraj. However, inside the Mela Area, construction of 600 km of temporary roads using 1,25,000 chequered plates, development of 45 temporary parking areas and approach roads was done. The Prayagraj Development Authority widened 34 road stretches and redevelopment of 64 traffic intersections across the city of Prayagraj within the allocated budget of ₹ 298.3cr was done. The Inland Waterways Authority of India developed 5 Jetties across the Mela Area. The Airport Authority of India was involved in development of new civil enclave Airport Terminal at Bamrauli spread across an area of 6400 square meters. The Indian Railways initiated Kumbh Special train services and renovated all the major stations situated within Prayagraj.

More than 25 crore (250 million) people visited Prayagraj between January 15 and March 4. This also included national and international dignitaries. The testimonials and congratulatory messages from the national and international dignitaries attested to the resounding success of the Kumbh. But, how did the Kumbh fare in the eyes of the masses?

2.3. Public Opinion Survey on the Civic Amenities and Services Provided at the Mela Conducted by IIM Bangalore

In order to assess how the visitors to the Kumbh rated the various government facilities provided to them in the Mela, we conducted a public opinion survey on the visitors' satisfaction levels with the respective facilities. Respondents were randomly chosen on key locations on the Mela (e.g., Kali Marg, Sangam grounds) and were asked for the "top three services" that appealed to them the most, and for their satisfaction levels with the various services and amenities they experienced at the Mela. In some cases, the respondents filled out the survey themselves, in a few they asked the research assistant to read the question aloud to them. The research assistant then noted their response. The questionnaires were administered in Hindi.

As displayed in Figure 2.10, the visitors and pilgrims rated all facilities quite positively. If all services were put on a continuum, Electricity topped the list, and food, although, not rated unsatisfactorily, received the lowest rating. In the top three services provided, as displayed in the word cloud in Fig 2.12, the most notable services were safety, hygiene, and ghats arrangements. The bigger size of the services denote that these were mentioned more frequently.

2.3.1. Second Surge Survey

After Vasant Panchmi (10 February 2019), when the major bathing days were over and the Akhadas had wound up from the Mela grounds, there was an upsurge in activity to an unanticipated extent. So much so, that the administration and the police seemed to have been taken by surprise. In order to understand this sudden influx better, we conducted a survey to assess the source of the influence. Like the previous survey, respondents were randomly chosen on key locations on the Mela (e.g., Kali Marg, Sangam grounds) and were asked questions on what influenced their decision to come to Kumbh, to what extent their own experience met the expectation, and their overall satisfaction level. In some cases, the respondents filled out the survey themselves, in a few, they asked the research assistant to read the question aloud to them. The research assistant then noted their response.

As indicated in Figure 2.13, mass media such as newspaper and TV played a major role in influencing people's decision to visit the Kumbh, after Vasant Panchmi. Overall, there was a high level of satisfaction with the services experienced in-person. The second-surge visitors also found safety, hygiene, sanitation facilities, ghat arrangements, and electricity and lighting as the most impressive feature of the Kumbh.

2.4. Kumbh 2019 Governance and Administration: Critical Assessment

Performance of the mela administration can be viewed various perspectives.

- Successful completion of the infrastructure projects
- Planning, designing and finally executing the various activities of the mela in a methodical manner.
- Designing and delivering on process management of all services and activities
- Monitoring and tracking the performance of the mela activities and having a system for these.
- Finally, delivering on the planned services and activities as per plan and processes.
- A key dimension will be keeping a control on the budget.
- The outcomes are ensuring incident free or disaster free mela, and user experience of all the segments ranging from spiritual leaders to pilgrims to visitors to the prayagwasis to vendors.

When looked at from a historical perspective, the administration of Kumbh has come a long way. Kumbhs were run by the Akharas before the Company rule took over. During the

Company and British rule, the district administration was providing organisational support to the Melas. However, with many challenges like the land allotment for the Mela, monitoring of epidemic outbreaks, internecine conflicts amongst Akharas, revenue and tax collection, law and order, crowd management – the administration needed statutory streamlining. Hence, a United Provinces Mela Act was passed in 1938 under section 75 of Government of India Act 1935 by the Legislature of United Provinces (erstwhile Uttar Pradesh). It was called the Allahabad Magh Mela Rules 1940, that was applicable only to Magh Melas at Allahabad.

The Prayagraj Mela Authority Act, 2017, therefore, was a historic milestone. Correspondingly, the Mela Authority's brick-and-mortar office was constructed titled Triveni in Prayagraj symbolising solidity, strength, stability, and continuity, and most importantly, the permanence in the administrative activity of a supposedly 'ephemeral' event.

By recognising the Divisional Commissioner as the ex-officio chairperson, the involvement of the State presumably made way for greater autonomy and authority to the district administration. Although the Urban Development Minister of Uttar Pradesh provided the oversight for the overall jurisdiction, and the Chief Secretary of the State Government was the authority for sanctioning works and guiding and monitoring the work at the highest level, it was the Divisional Commissioner at the District level who was entrusted with the task to plan and implement the project. Greater autonomy, in organising an event of this scale, also means greater responsibility and the administrative officers took it in their stride.

The 2019 Administration actually used the Magh 2018 as the rehearsal ground to test certain ideas. For example, the sanitation template—the temporary toilets, garbage and waste management infrastructure, such as the dustbins and tipper vehicles—was tried and tested at a smaller scale in Magh 2018 before being fully deployed in Kumbh 2019. This was a good strategy and this paid off.

The Report of the Commissioner on the Kumbh (2019) mentions these as five sutras for the success of the mela management:

1. Teamwork, Passion and Commitment
2. Project Monitoring
3. Quality Assurance
4. Multi-stakeholder management
5. Seamless blend of tradition and modernity

When the DM was asked his opinion on the success of the mela, he mentioned the factors as follows:

- Comprehensive planning and execution.
- Utility of PMIS in project planning, monitoring and reporting.
- Development of manuals, SOPs, and practise drills.

- Team work of the officers from PMA, other departments and consultants. He kept stressing the team work. We could see that he is a task master and believed in taking everybody along.
- He also stressed the drill they went through and the preparedness.
- He also stressed communication within the administration and to the outside world about the arrangements.

We could see that he kept himself accessible all the time and he would systematically address the issues of all the stakeholders. The DM stressed the importance of making this Mela highly user friendly for women and the old. Their care was considered in each sector and they tried to provide for it. They ensured women safety and changing rooms for women at the Ghats. These mela facilities were as such gender sensitive.

2.4.1. Project and Mela Management Orientation

As we observed the working of the officers at the Mela Pradhikaran office during the duration of our study, we realised that there were two phases of administrative focus. The first phase was until December 2018 when the focus was mainly on infrastructure development and management—that is on overseeing the timely completion of projects—such as accommodation, tentage, water supply, layered roads, pontoon bridges, lighting, ghats, etc. The administration, therefore, operated in a project management mode—the administration trying to enforce and ensure the timely completion of Kumbh’s infrastructural requirements. Many a time, the administration was seen in a fire-fighting mode with the vendors who may have compromised on the quality and timelines.

The second phase was from 15 January onwards when there was a shift in focus with the efforts and attention directed towards Mela management—the focus was on the peaceful and safe organisation of peak bathing days. 15 January served as a test of the infrastructural capacity. Loopholes reported by the sector officers, in their respective sectors were attended to ensuring a ‘surakshit’ or safe Kumbh. During peak bathing days, it was the police that swung into action in activities such as crowd management, traffic and law enforcement.

In fact, one lesson we can draw is that the Mela authority starting from the Commissioner, and ADGP to DM and DIG maintained a good rapport with the media and general public. They paid off during the Mela because they adjusted to any inconveniences that they might have been put together as they knew the efforts that are being taken. They kept the communication channel opened.

2.4.2. Multiple Peaks of Enhanced Activity

The administration experienced multiple peaks as anticipated, given the nature of the mela. It was observed that operations peaked in November and December as the Mela had to start on 15 January come what may. The arrangements had to be ready at least 10 days earlier for mock runs. The Mela period also had peaks till the end of Mouni Amavasya, by when

normally, crowds should have started waning. However, due to the promotion, the mela suddenly witnessed a 'second surge', mainly of tourists. The crowd on the last bathing day surprised the administration as well. We observed that after the Mela, the next peak started. The administration hardly had any respite after the mela as they were saddled with clearing the Mela of all debris, in addition to preparing all reports, accounts, and postings. It was thus a cycle of continuous peaks.

It should be mentioned here that in crisis management, it is said that it is difficult to maintain a system and its people at peak levels of stress for long periods. This is indeed a risk that the administration runs. Ideally additional strength could have helped in unwinding and closures. This additional team could have been in place from 10 February. It is better to ensure optimum management than overmanage implementation. Since it was peak time all the time, everyone had to multitask and play multiple roles, and the system appeared to be one of firefighting all the time.

2.4.3. Involvement of Innovation Consultants: A Lesson in Public-Private Partnership

Another important factor of this mela was the engagement of the consulting firm Ernst and Young (EY). This helped in systemising planning, designing and operations in the mela area. They provided the templates for decision making which helped the administration in taking a comprehensive look. They helped in designing contracts, especially in specifying services, in the tender and contract management process, in developing SOPS, and in monitoring. They remained in the background but played a key role in the management. They were especially useful in town planning, tentage and accommodation management, lost and found management, promotion, branding and social media management, the Paint my City campaign, voluntary sector management, etc. was mostly advantageous to the working of the administration and was an example of a healthy public-private partnership. The IIMB research team conducted one-on-one interviews with the consultants and KYPs, and found that the leadership of the Mela Adhikari was critical in both motivating the team and accomplishing the target objectives. The consultants and young professionals also found it rewarding that they were able to contribute to an event of national importance and this was a way to connect with the cultural heritage of the country.

The presence of consultants and young professionals not only brought a lot of young energy, enthusiasm, to the administrative headquarters, but it also lent a contemporary, modernistic touch to the documentation and communication. This can be seen as a welcome futuristic move as the Mela strived to become an event of national and international importance with an intergenerational appeal.

The consultants were much more agile and eager to take up the responsibilities beyond the defined roles. When the call of duty demanded, they were willing to transcend the formal role boundaries to achieve the set targets. The likely reasons for this were: 1) Working in the Kumbh, to many consultants and young professionals, was personally meaningful as they felt they could relate to something that symbolizes the cultural heritage of the country, 2)

Working style of Mela Adhikari was very hands-on—he constantly reviewed the set goals, targets achieved, and suggested prompt resolutions and remedial actions to bottlenecks; this leadership which was high on task as well as relationship-orientation was potentially instrumental in achieving a highly cohesive team, 3) Regular review meetings convened by the Mela Adhikari and Divisional Commissioner were an exercise in stock taking, as well as in goal setting and goal monitoring.

To the Mela Authority, the presence of consultants and young professionals provided round-the-clock help and support in planned activities as well as unforeseen contingencies. Lest the cultures of the public and private sector clash, the administration officers and staff were instructed by the senior leadership to be respectful to the young consultants. The consultants, on their part, received guidance and informal training from their Partners and Directors to navigate the system. The informal network that the consultants and the young professionals built among themselves as well as with the officers lent an air of ease and engagement at the Pradhikaran office.

2.4.4. Mela Adhikari's Roles and Responsibilities

The Mela Adhikari proficiently handled the role, but as one could observe, he was not only inundated with multiple tasks at hand, but the responsibilities—from land allotment to reviewing the work—were also extremely demanding on his time and resources. The role of such a nature, therefore, demands key personal qualities such as resilience and effective stress management skills over a long period. These also include putting in long hours of work with utmost physical and mental alertness, a high degree of hands-on involvement with the administrative team, and being available almost 24 × 7 for emergency situations and trouble shooting. The Authority, therefore, must implicitly or explicitly assess the potential candidates for this position for such qualities. From an organizational perspective, one can also brainstorm on ways that the demands upon the Mela Adhikari can be reduced. For example, it may require another role to be created to engage with the religious institutions under the DM which will help the DM to stay focused on management of the mela. We observed that land allotment took an inordinate amount of time of the DM and administration. As such, it was observed that the time got divided between the religious leaders, institutions and other institutions on the one hand, and all the other departments and services on the other hand. It will also help in managing the protocol on the day of Snan and also the management of VIP visits. The religious institutions are of course very important and need a high level of attention and the responsibility has to be handled tactfully.

2.5 Gains in Soft Infrastructure

An important contribution of the Mela management is the emergence of many areas of soft infrastructure which are intangible. There have been several gains and these are replicable in routine bureaucracy and also in specialised contexts like the smart city project or in disaster contingency. We can now say that the government has a template to manage events of this nature and scale. It is also extendable to areas of crisis and disaster management.

The whole Mela management can be seen as a major experiment in project management and in public systems management. It demonstrated the effectiveness of lean structures and committee management, with each department acting as an autonomous unit within them. There was congruence in the system. However, it should be mentioned that there was palpable tension among the people involved. They had to maintain a heightened level of preparedness over a long period, which can be quite stressful. They could have been provided more human resources and provision for rotation.

All departments, functionaries, consultants, vendors and stakeholders shared the common goal of the mela – Divya and Bhavya Kumbh. It was a rare display of a shared goal and every unit of the administration and vendors were aware of the consequences of any incident occurring from any slack or slippages.

There was an undercurrent of belief in the omnipresence of Ganga among the administrative functionaries and the vendors.

The police demonstrated an effective model of crowd management and disaster management. There is now a framework and a set of templates to manage events of this scale and complexity. It has led to several training modules, especially in the area of policing, crowd and disaster management.

This Mela provides a good illustration of working with management professionals and their effective utilisation. It demonstrated the respective roles that administration and professionals can play in public system management.

The authorities had an effective monitoring of projects through Project Monitoring Information System (PMIS). PMIS is available in many states but not used effectively. This time, it was used for coordination, tracking, decision-making and problem-solving, reporting and finally payments.

They developed more than 100 contracts with the help of consultants and these are of good quality. These have comprehensive specifications of services, quality, SOPs, reporting, etc. These contracts can be used for regular purposes. However, it should be pointed out that given that many contractors were small and medium-sized, they lacked proper systems and the government should take steps to upgrade the skills of vendors. On the government's part, the management of contracts was not uniform and for some departments, it was business as usual. It implemented third-party inspection and monitoring.

The consulting team produced many operating manuals and SOPs for various operations in different sectors. These can be used as templates for contracts and monitoring in smart city projects.

The Mela has demonstrated good sanitation management models and this should be emulated. The health department gained immense experience in preventing and controlling

epidemics in mass gatherings. The usual episodes were fairly well controlled in this Mela. They also now have a group of trained medical professionals in disaster management. This experience can be useful in managing disasters and epidemics.

The transport department managed the transportation system quite well and now have an overall model for managing events of this nature. Its Kumbh Specials were appreciated.

The ICCC is a major gain for the city. This will be highly useful for its smart city project. It has also successfully implemented the software for operations of the centre and has also trained the officers. This is something which Prayagraj City can immediately leverage. An important contribution of the ICCC is the huge data of images that it has created. It can be highly useful for the police department and for Artificial Intelligence application.

It successfully implemented programmes like Paint My City, Volunteer programme, brand promotion, etc. It managed to build tourism and create better scope for regular tourism.

2.6 Other Miscellaneous Observations and Recommendations

Technology use. Technology was harnessed in an effective manner, but in current times when data storage and data privacy are big concerns, the Kumbh Administration can consider providing dedicated servers for all administrative exchange of information, and for keeping the data generated out of the Command and Control Centre for legacy purposes.

Gender representation. There were hardly any women officers in the Mela Administration team, although the young women were well-represented in the consultants' team. A concerted effort can be made for women participation in the administrative activities, even if that requires special facilities such as family accommodation or the purposive hiring of the officers already residing in the city.

Critical role of the sectoral layer. The Sector Magistrate layer is critical as they are the face of the Mela Authority on the ground. Their technical expertise as well as administrative acumen in dealing with diverse stakeholders must be carefully evaluated, or they should be provided appropriate training and feedback from time to time. In some of the busy and geographically large areas, the number of sector officers can be increased. We also recommend that a public opinion survey such as ours become a regular stock-taking metric in future Melas. Survey data, from the visitors, can also be collected in a more nuanced manner, say, at the sectoral level, to assess the efficacy and impact of the various services and activities planned in the respective sectors at the Kumbh.

Interface with commercial vendors. The relationship between the administration and the commercial vendors was not always amicable. Issues such as vendors not meeting the quality benchmarks, not completing the work on time, would surface in review meetings and the interpersonal clashes in such situations were caustic. More effective ways of vendor

management are required. This could even be done through intermediaries with sound negotiation and interpersonal skills.

Mechanisms to capture tacit learning through exit surveys and reflective exercise for officers. There is hardly any systematic exercise on documenting the personal learnings of the officers who serve in the Mela. Such an effort could serve as valuable lessons for future Mela administration, especially on topics such as handling of critical incidents, last mile issues, personal involvement, stress management. The reflections, of course, as have been previously done (e.g., Chaturvedi, 2016) can be put in personal memoirs but officers must be encouraged to take notes or engage in such discussions in meetings, especially organised for such documentation from time-to-time. The process of reflection and introspection would provide unique insights on personal and professional experiences, which otherwise would get lost as officers get transferred to their new roles, upon the completion of the Mela. We ourselves offered a reflective diary to the officers, but the response rate on these diaries was very low. Administration might consider organising a dedicated forum to just capture tacit learnings, such as managing critical incidents, dealing with stress, learnings on the ground, which would provide a good closure to not only the Mela but to an important milestone in the professional journeys of the officers and workers involved.

2.7 Conclusion

Kumbh 2019 in Prayagraj was in many significant and unique ways, a breakthrough. It departed from its predecessors in ushering in a new wave of project and event management, of leadership, teamwork, and of infrastructural innovations planning and execution. This provides insights not only for future Kumbhs but also for organisational and administrative contexts outside of the Kumbh. It would not be far-fetched to say that VUCA—volatility, uncertainty, complexity, and ambiguity—the defining features of the modern-day work organisations are the very characteristics that define the phenomenon called Kumbh.

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Figure 2.5. Conceptual representation of the nested nature of the governance and geographical location

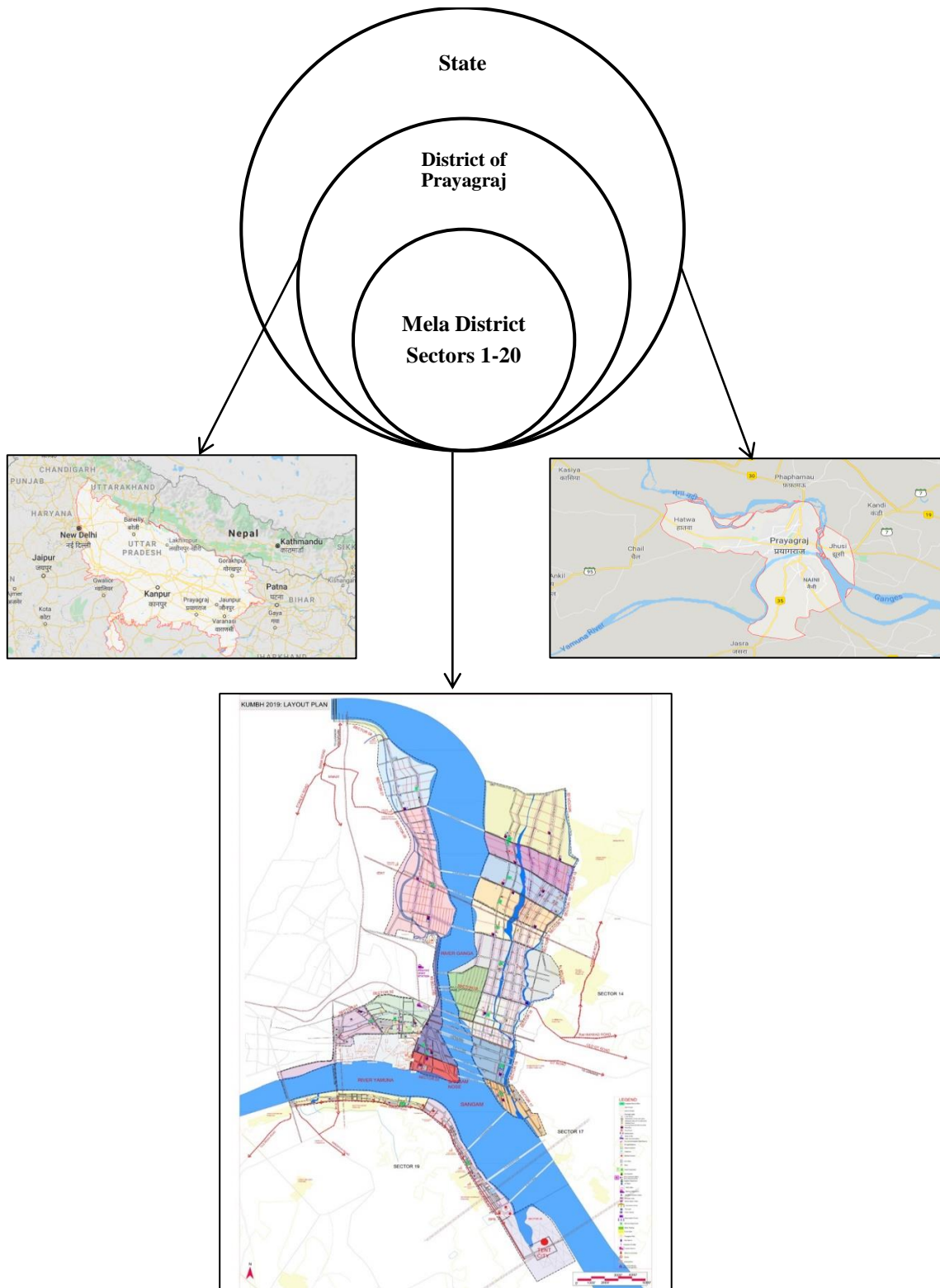


Figure 2.6. Organizational Structure per the Mela Pradhikaran Act, 2017

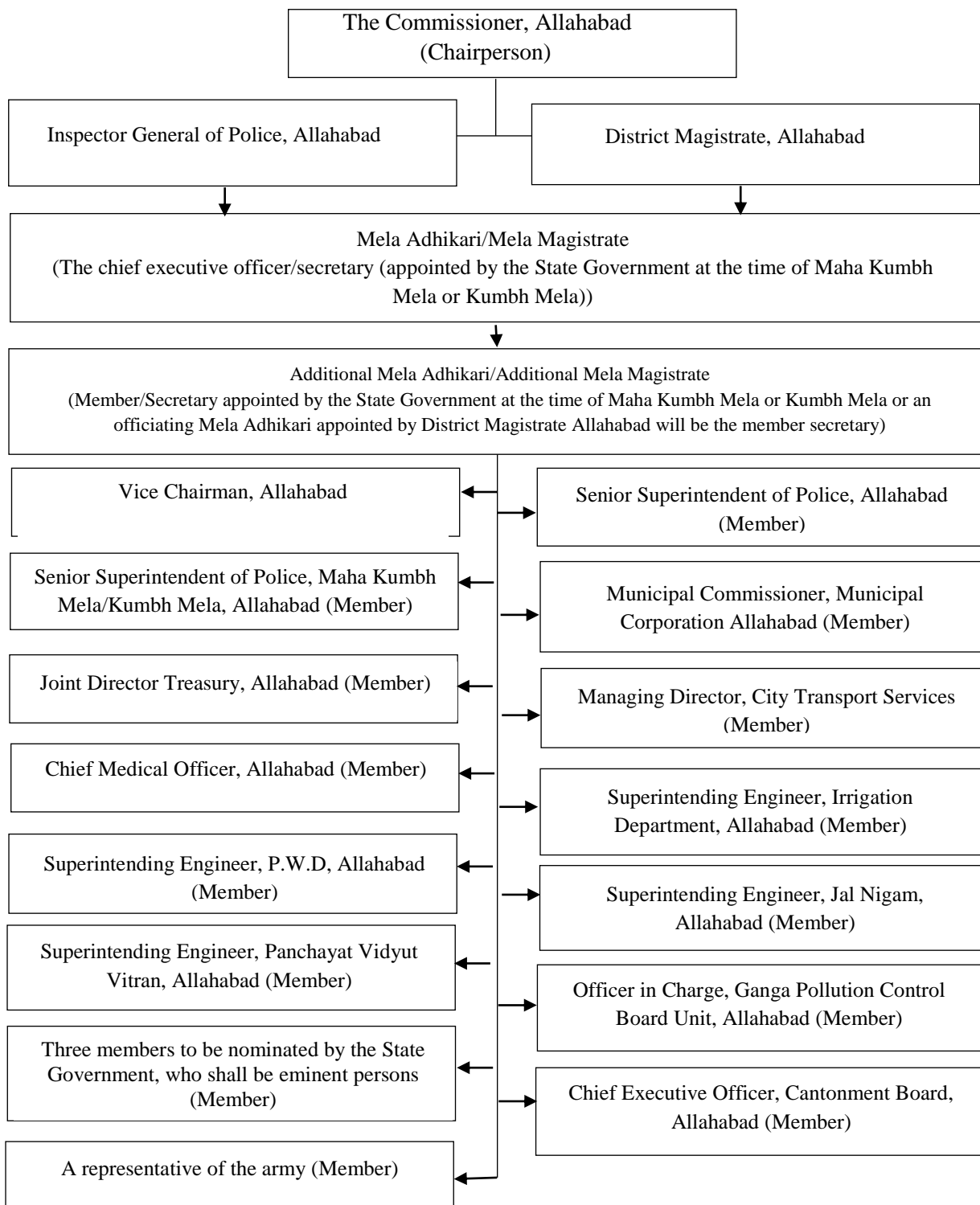


Figure 2.7. Detailed overall organizational structure for strategic planning, administration, and implementation

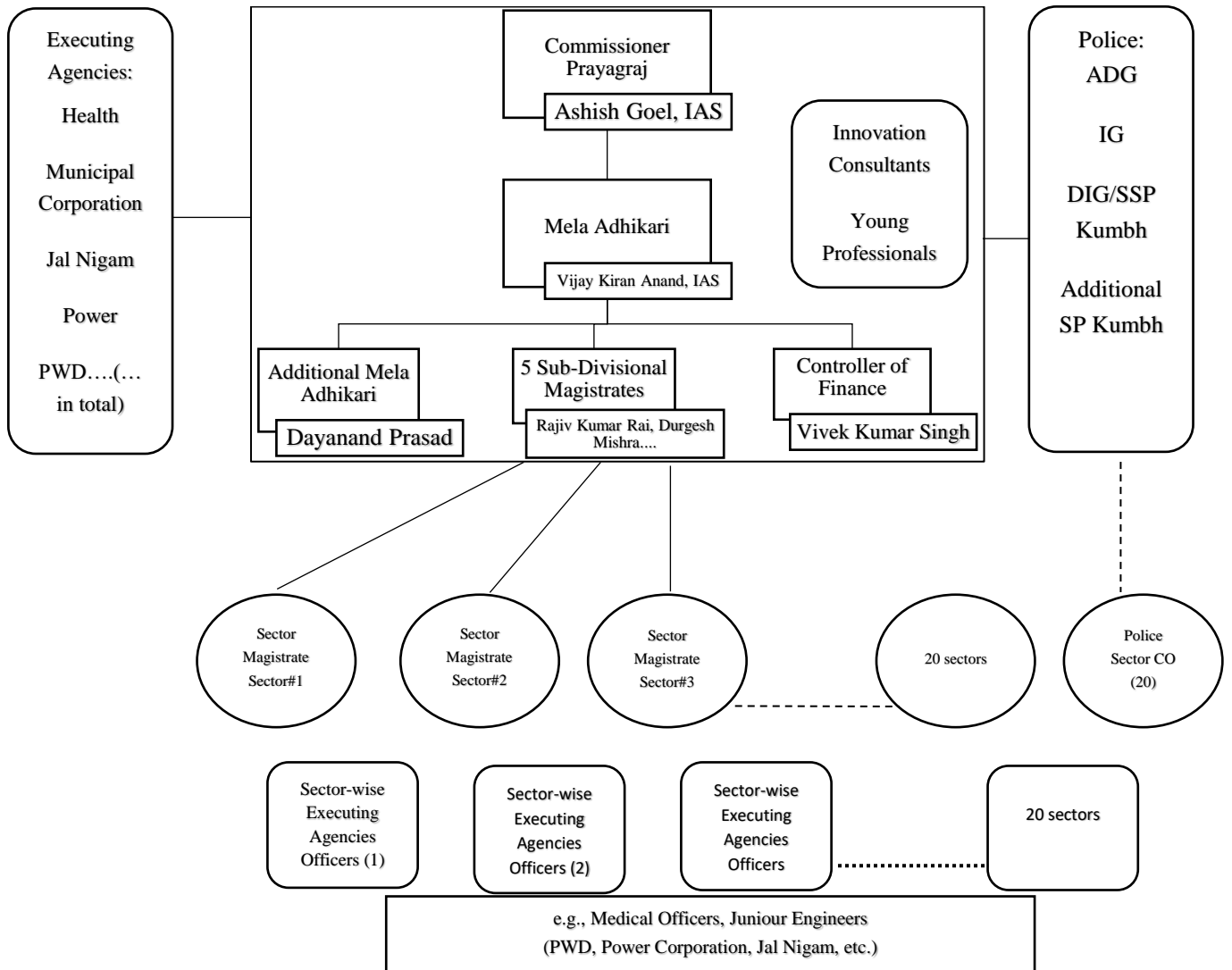


Figure 2.8. Key ‘executing agencies’ and services provided

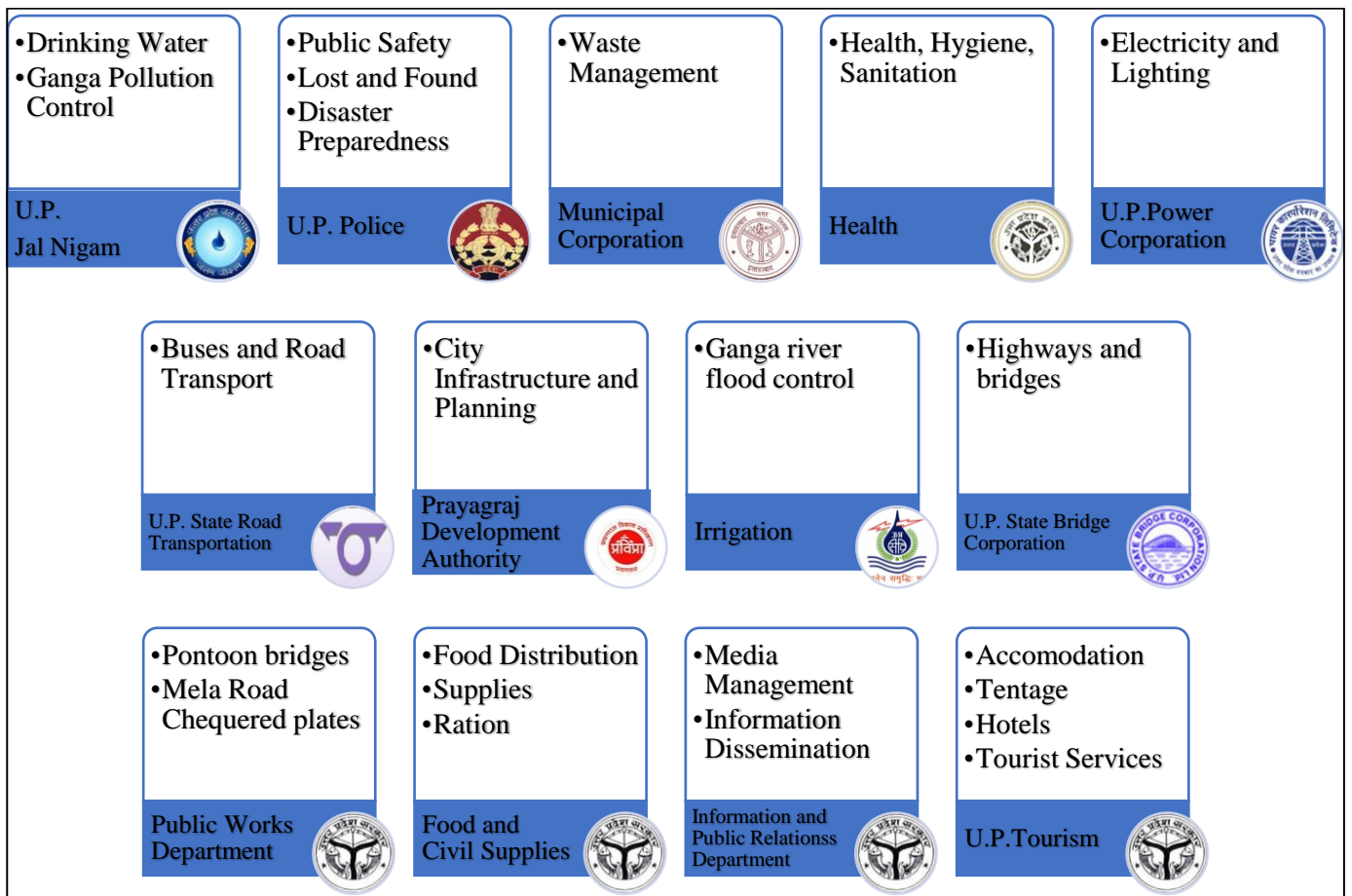
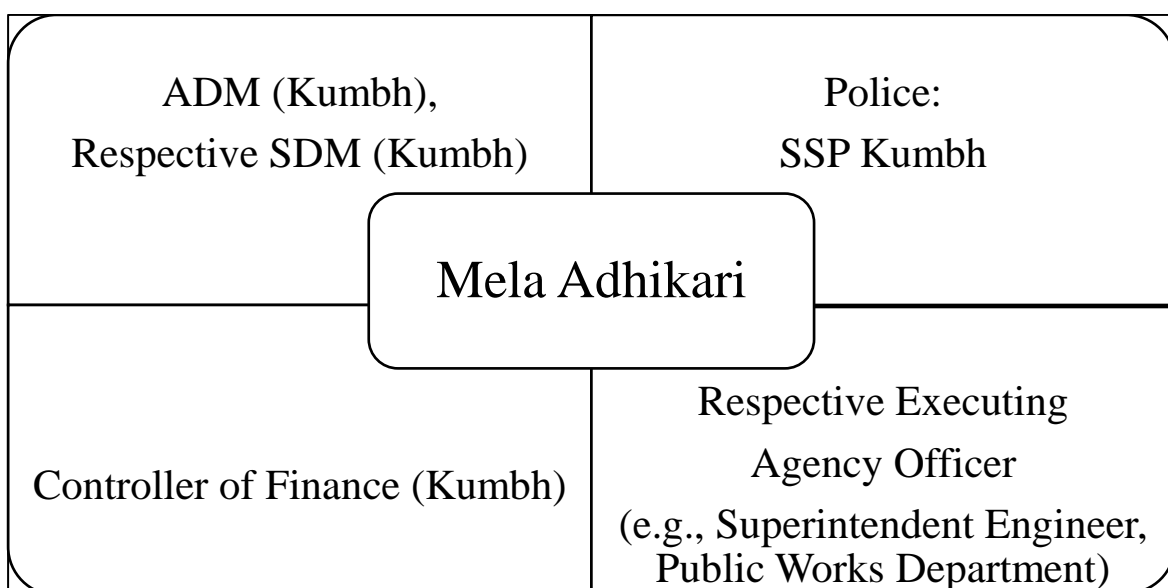


Figure 2.9. Typical composition of committee for specific Mela-related works



Annexures

Annexure 1. Representative Committee Meetings:

Prayagraj Mela Authority Board of Directors

Chairperson: Divisional Commissioner (Prayagraj)

2. Vice Chairman: Inspector General of Police (Prayagraj)

3. Vice Chairman: District Magistrate (Prayagraj)

4. CEO: Mela Officer

5. Member/Secretary: Additional Mela Officers

6. Member: Vice Chairman (Prayagraj Development Authority)

7. Member: Senior Superintendent of Police (Prayagraj)

8. Member: Senior Superintendent of Police (Kumbh Mela)

9. Member: Municipal Commissioner/ CEO Prayagraj Smart City (Municipal Corporation, Prayagraj)

10. Member: Joint Director Treasury (Prayagraj)

11. Member: Managing Director (City Transport Services)

12. Member: Chief Medical Officer (Prayagraj)

13. Member: Superintending Engineer (Irrigation Department, Prayagraj)

14. Member: Superintending Engineer (PWD, Prayagraj)

15. Member: Superintending Engineer (Jal Nigam, Prayagraj)

16. Member: Superintending Engineer (Purvanchal Vidyut Vitran Nigam, Prayagraj)

17. Member: Chief Executive Officer (Cantonment Board, Prayagraj)

18. Member: Representative of the Army (Prayagraj)

19. Member: Officer-in-charge (Ganga Pollution Control Board Unit, Prayagraj)

Annexure 1.1. Meeting Attendees: Tentage

1. Shri Vijay Kiran Anand (IAS), Mela Adhikari, Kumbh Mela Allahabad
2. Shri KP Singh, DIG/SSP Kumbh, Allahabad
3. Shri Dayanand Prasad, A.D.MI, Kumbh Mela Allahabad
4. Shri Vivek Kumar Singh, Controller of Finance, Prayagraj Mela Authority
5. Shri Rajiv Kumar Rai, S.D.M, Kumbh Mela Allahabad
6. Shri Anil Verma, S.E (Power), Temporary Kumbh Circle, Allahabad
7. Shri Sanjay Kumar Srivastava S.E, P.W.D, Allahabad Circle

Annexure 1.2. Meeting Attendees: Advertisement

1. Shri Vijay Kiran Anand (IAS), Mela Adhikari, Kumbh Mela, Prayagraj
2. Shri K.P. Singh SSP / DIG, Kumbh Mela, Prayagraj
3. Shri Dayanand Prasad, A.D.M, Kumbh Mela, Prayagraj
4. Shri Gudakesh Sharma, Additional Secretary, ADA, Prayagraj
5. Shri Rajiv Kumar Rai, S.D.M, Kumbh Mela, Prayagraj
6. Shri Vivek Kumar Singh, Controller of Finance, Kumbh Mela, Prayagraj
7. Shri Satish Kumar, Chief Engineer, Nagar Nigam, Prayagraj
8. Shri Sanjay Kumar Srivastava, S.E, P.W.D, Prayagraj Circle
9. Shri Anupam Srivastava, Regional Tourism Officer, Prayagraj
10. Dr. Sanjay Rai, Deputy Director, Information Department

Annexure 1.3. Meeting Attendees: Creative Consultant

1. Shri Vijay Kiran Anand (IAS), Mela Adhikari, Kumbh Mela Allahabad
2. Shri Dayanand Prasad, A.D.M.I, Prayagraj Mela Pradhikaran
3. Shri Vivek Kumar Singh Finance Controller Kumbh Mela Allahabad
4. Shri Rajiv Kumar Rai, S.D.M, Kumbh Mela Allahabad
5. Shri Anupam Srivastava, Regional Tourism Officer, Allahabad
6. Dr. Sanjay Rai, Deputy Director, Information Department
7. Shri Vivek Singh, District Food Marketing Officer, Allahabad

Annexure 1.4. Meeting Attendees: Land/ Living

1. Shri Vijay Kiran Anand, Mela Adhikari, Kumbh Mela, Allahabad
2. Shri K.P. Singh, SSP/DIG, Kumbh Mela, Allahabad
3. Shri Dayanand Prasad, A.D.M, Kumbh Mela, Allahabad
4. Shri Rajiv Kumar Rai, S.D.M, Kumbh Mela, Allahabad
5. Shri Vivek Kumar Singh, Controller of Finance, Kumbh Mela, Allahabad
6. Shri Sanjay Kumar Srivastava, S.E, P.W.D, Allahabad Circle
7. Shri Siddharth Kumar Singh, S.E, Irrigation, Allahabad

Annexure 1.5. Meeting Attendees: Event Management

1. Shri Vijay Kiran Anand (IAS), Mela Adhikari, Kumbh Mela Allahabad
2. Shri Dayanand Prasad, A.D.M.I, Kumbh Mela Allahabad
3. Shri Rajiv Kumar Rai, S.D.M, Kumbh Mela Allahabad
4. Shri Sanjay Kumar Srivastava S.E, P.W.D, Allahabad Circle
5. Shri Anupam Srivastava, Regional Tourism Officer, Allahabad
6. Dr. Sanjay Rai, Deputy Director, Information Department
7. Shri Vivek Singh, District F.M.O, Allahabad

Annexure 1.6. Meeting Attendees: Digital Media

1. Shri Vijay Kiran Anand (IAS), Mela Adhikari, Kumbh Mela, Prayagraj
2. Shri Dayanand Prasad, A.D.M, Kumbh Mela, Prayagraj
3. Shri Vivek Kumar Singh, Finance Control, Prayagraj
4. Shri Durgesh Mishra, S.D.M. 3, Prayagraj Mela Pradhikaran, Prayagraj
5. Shri Vijay Kumar, DIO, NIC, Prayagraj
6. Shri Anupam Srivastava, Regional Tourism Officer, Prayagraj

Annexure 1.7. Meeting Attendees: Committee of Parking Facilities

1. Shri Vijay Kiran Anand, Mela Adhikari, Kumbh Mela Allahabad
2. Shri K.P. Singh, SSP/DIG Kumbh Mela
3. Shri Dayanand Prasad, Apar Mela Adhikari (ADM 1), Allahabad
4. Shri Vivek Kumar Singh, Finance Controller, Kumbh Mela, Allahabad
5. Shri Rajeev Rai, Deputy Mela Adhikari (SDM 1), Allahabad
6. Shri O.P. Mishra, Chief Engineer, Allahabad Development Authority, Allahabad
7. Shri Harish Chandra, RM Roadways, UPSRTC
8. Shri S.K. Srivastava, S.E, P.W.D Allahabad Circle, Allahabad
9. Shri Anil Verma, S.E, Temporary Kumbh Mela Circle, UPPCL, Allahabad

Annexure 2. Composition of the Committee for Town Development (first meeting on 9 May 2017, Lucknow)

1. Hon'ble Urban Development Minister
2. Chairman, UP Jal Nigam
3. Chief Secretary, Uttar Pradesh Government
4. Chairman, Uttar Pradesh Power Corporation Ltd.
5. Principal Secretary, Finance Department, Government of Uttar Pradesh
6. Principal Secretary, Home Department, Government of Uttar Pradesh
7. Principal Secretary, Medical and Health Department, Government of Uttar Pradesh
8. Principal Secretary, Public Works Department, Government of Uttar Pradesh
9. Principal Secretary, Charitable Affairs Department, Government of Uttar Pradesh
10. Principal Secretary, Energy Department, Government of Uttar Pradesh
11. Principal Secretary, Urban Development Department, Government of Uttar Pradesh
12. Principal Secretary, Food and Logistics Department, Government of Uttar Pradesh
13. Principal Secretary, Tourism Department, Government of Uttar Pradesh
14. Principal Secretary, Department of Culture, Government of Uttar Pradesh
15. Principal Secretary, Transport Department, Government of Uttar Pradesh
16. Principal Secretary, Finance Department, Government of Uttar Pradesh
17. Additional Director General of Police (Law and Order), Lucknow
18. Commissioner, Allahabad Circle, Allahabad
19. District Magistrate, Allahabad
20. Inspector-General of Police, Allahabad Zone, Allahabad
21. Senior Superintendent of Police, Ardh Kumbh Mela Allahabad
22. Meladhikari, Ardh Kumbh Mela, Allahabad
23. Special Secretary, Urban Development Department
24. Managing Director, Uttar Pradesh Water Corporation, Lucknow
25. Municipal Commissioner, Municipal Corporation, Allahabad

Annexure 3. Composition of the Committee to test the necessity, appropriateness, and cost of projects (23 May 2018, Lucknow)

1. Principal Secretary, Urban Development Department, Government of Uttar Pradesh. Speaker
2. Additional Project Director, Uttar Pradesh Ganga River Conservation Agency, Lucknow, Member
3. Chief Engineer, Uttar Pradesh Ganga River Conservation Agency, Lucknow, Member
4. Managing Director, Uttar Pradesh Water Corporation, Lucknow, Member
5. Chief Engineer (Allahabad Region) Uttar Pradesh Jal Nigam, Allahabad, Member

Table. 2.1 Total Budget for Different Departments (Commissioner Report, 2020)

KUMBH MELA WORKS DEPARTMENT-WISE					
S. no.	Implementing Agencies	Amount Sanctioned (₹ Cr)	Revision Submitted (₹ Cr)	Savings (₹ Cr)	Net Expenditure (₹ Cr)
KUMBH MELA BUDGET					
1	Prayagraj Development Authority	266.26	-	52.29	213.97
2	Health Department	59.19	-	11.96	47.23
3	Flood Works Irrigation	59.59	10.45	6.35	63.69
4	Mela Authority	133.68	46.60	2.42	177.86
5	Moti Lal Nehru Medical College	68.91	-	4.35	64.56
6	Nagar Panchayat Jhunsi	8.81	-	1.26	7.55
7	Police Department	57.53	12.70	2.39	67.84
8	Public Works Department	790.24	-	121.88	668.36
9	Tourism Department	56.75	-	18.96	37.79
10	UP State Bridge Corporation	185.46	4.55	2.66	187.35
11	UP Jal Nigam	259.89	-	20.52	239.37
12	UP Power Corporation	204.54	-	61.63	142.91
13	UP State Road Transport Corporation	23.48	-	1.24	22.24
14	Municipal Corporation Prayagraj	179.74	-	24.99	154.75
15	Ganga Pradushan Unit	7.25	-	0.13	7.12
16	Milk Supplies	5.99	-	1.17	4.82
17	Forest Department	4.41	-	0.87	3.54
18	Horticulture Department	3.20	-	1.13	2.07
19	Homeopathy Department	1.11	-	0.01	1.10
20	Ayurvedic Department	1.42	-	0.03	1.39
21	Food and Civil Supplies Department	44.07	-	27.45	16.62
22	Culture Department	32.14	-	0.72	31.42
23	Health (Sanitation)	161.25	-	42.05	119.2
24	Information Department	70	-	1.29	68.71
25	Homeguard	21.55	-	-	21.55

	Total (A)	2706.53	74.32	407.79	2373.06
	Savings as per percentage of sanctioned cost			12.32%	
OTHER BUDGET					
1	Public Works Department	720.34	-	23.86	696.48
2	UP State Bridge Corporation	249.65	-	2.14	247.51
3	Municipal Corporation Prayagraj (NULM, SBM and AMRUT Fund)	30.46	-	2.15	28.32
4	Police Department (Disaster Fund)	65.87	-	0.35	65.52
5	Flood Works Irrigation	27.07	-	-	27.07
6	Prayagraj Development Authority	62.51	-	9.32	53.19
7	Tourism Department	37.4	-	-	37.4
8	Smart City (Kumbh Command and Control Center)	58.79	-	-	58.79
9	Health Department (NMCG)	133.28	-	35.27	98.01
	Total (B)	1,385.41	-	35.26	98.01
	Grand Total (A+B)	4,091.95	74.32	480.89	3685.38
	Savings as per percentage of sanctioned cost			9.93%	

Survey Data (Primary research conducted by the research Team)

Figure 2.10. Pilgrims/Visitors Satisfaction Level with Various Services Provided by the Government (N=758) 7: very much satisfied, 1: very less satisfied

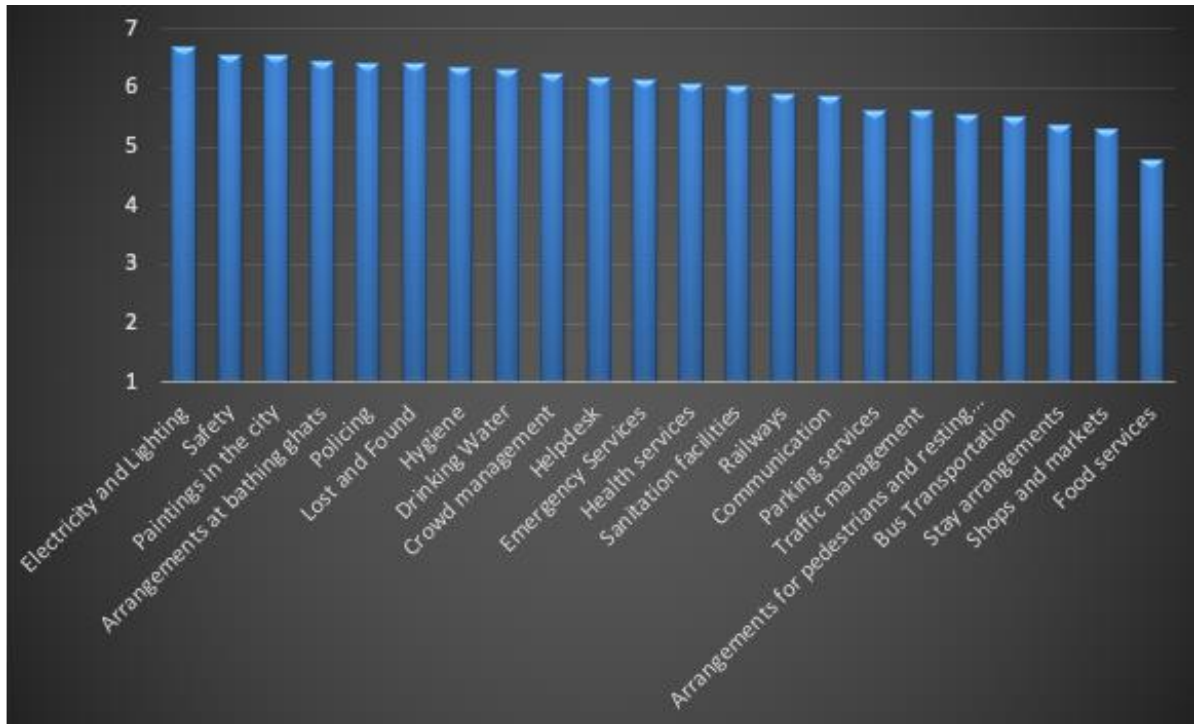
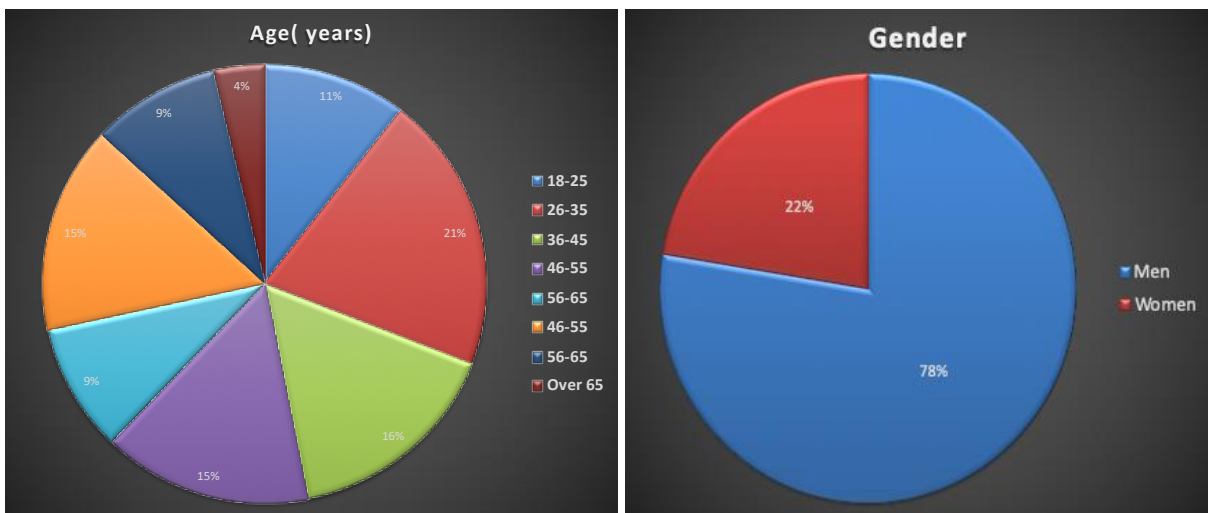


Figure 2.11 Demographics of the respondents



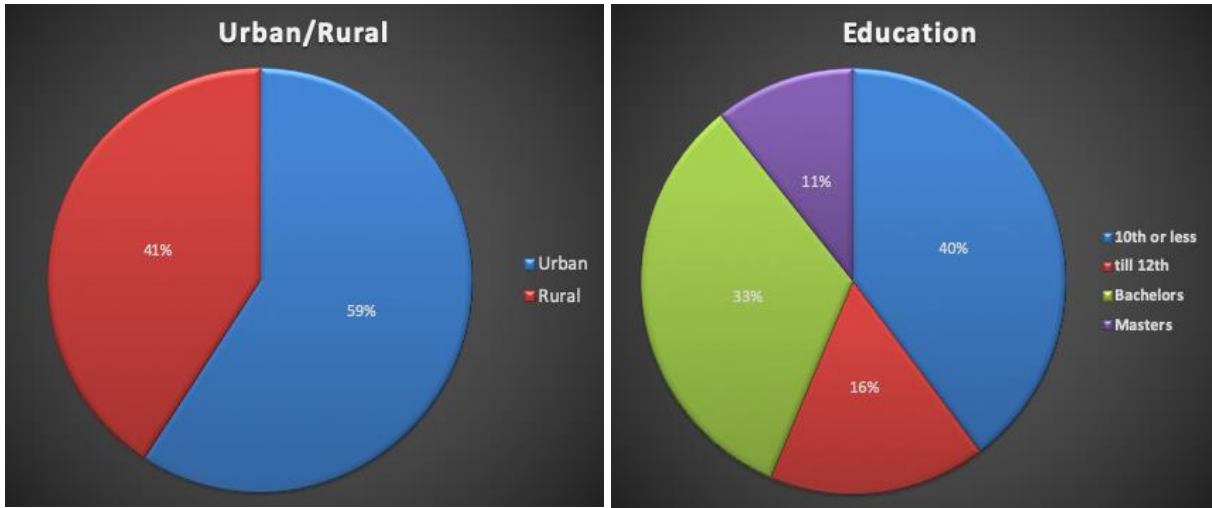


Figure 2.12. Public’s response to “Top three services that most appealed to you in Kumbh 2019” (n=758)



Second Surge Survey

Figure 2.13. Source of influence:

Public’s response to “Apart from your personal beliefs, what other factors influenced your decision to visit Kumbh (please see the list below and tick all that apply to you)”:

Friends _____ Family/Relatives ____ Office colleagues ____
 Media (e.g., newspaper, TV) ____ Social Media (e.g., Facebook, Instagram) ____ Whatsapp groups ____

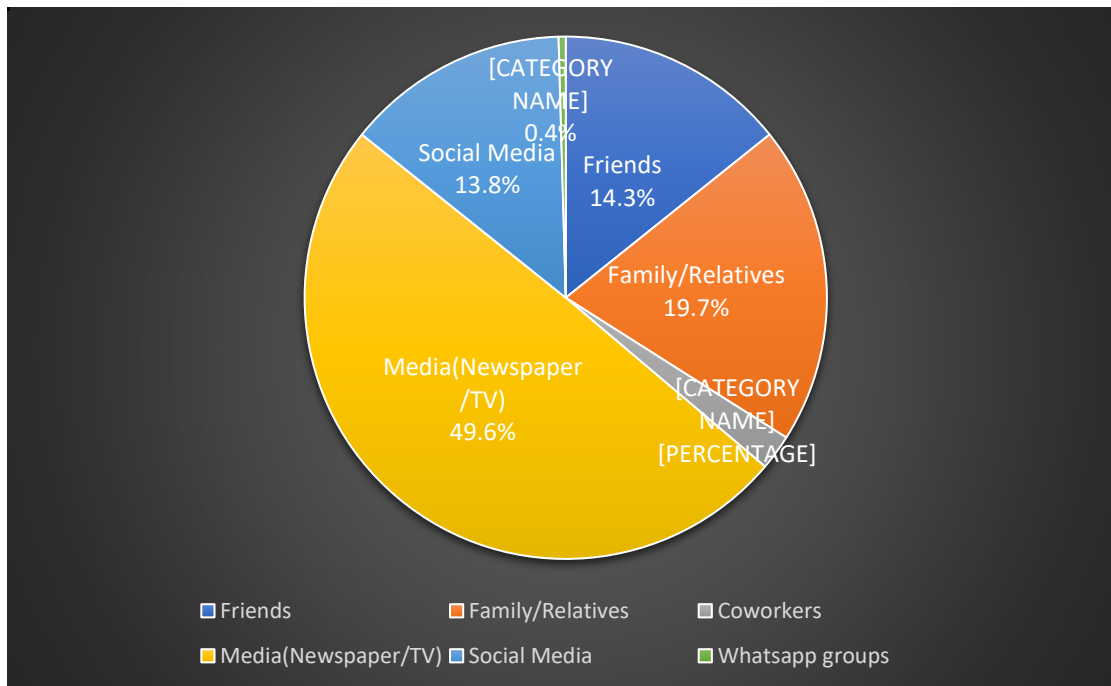


Figure 2.14. Public’s most voiced responses to “What are the three most interesting things that you gathered from these sources” (n=305; word size corresponds to frequency)

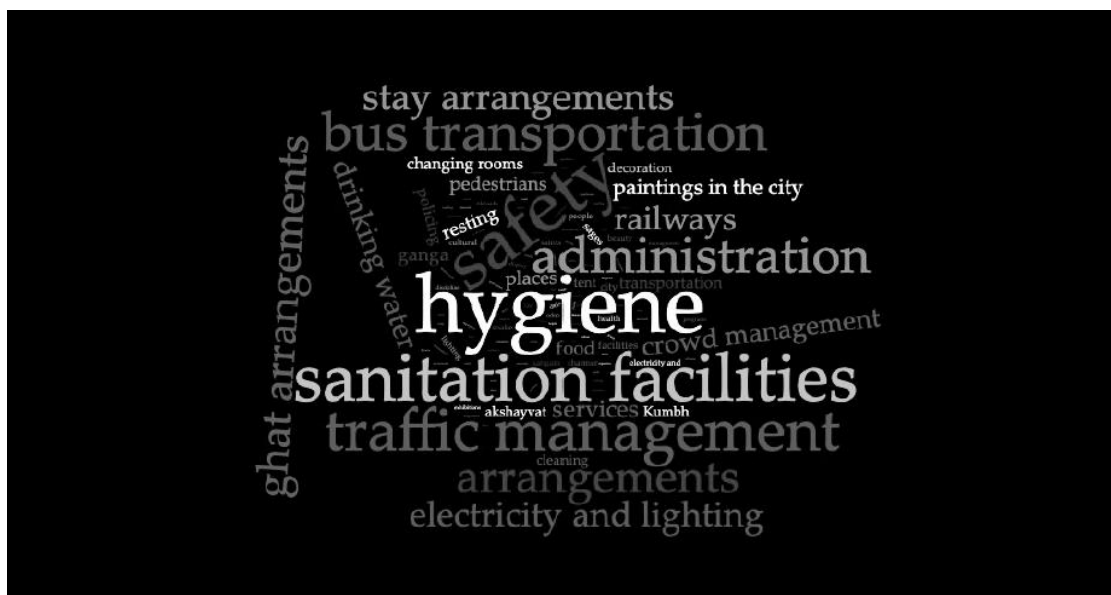


Figure 2.15. Mean level of feedback influence, expectation, and satisfaction ($n=304$ 296, 302, respectively)



Figure 2.16. Public’s most frequent response to “Which three infrastructure services/ facilities impressed you the most?” (Word size corresponds to the frequency; $n=305$)



Chapter 3

Planning of an Urban Symbiosis

3.1. Introduction

The core of all administrative arrangements for Kumbh Mela is town planning. This determines the structure, design and efficiency of the Kumbh service delivery. In planning for the Kumbh, the administration and town planners are entirely dependent on the flow of the Ganga river after the monsoon. The vagaries of its course leave the town planners in uncertainty. They can begin planning one year before the event, but they get only a few months' time before the start of the mela to finalise the plan when the contours of the river becomes clear. This is where both experience and technology helped. The town planning team this time included experienced town planners from the town planning department of the state and tech-savvy planning professionals from Ernst & Young (EY). They developed templates for the Kumbh city plan based on past Kumbhs and the dynamic changes in the flow of river that determine the final contours of the riverbed. The planners from the town planning departments could tell from their experience how the river unfolded during the previous melas, and the consultants made templates for dynamic planning. The consultants had complete rendering of the town plan and all the facilities that these could be immediately implemented.

It is repeated ad nauseum that the Kumbh Mela is one of the most important congregations of human beings on the face of the planet. The massive administration of Kumbh Mela, celebrated every sixth and twelfth year, is the narration of the tale of human attempts to design, build and deconstruct temporal cities. A temporal city nested within a parent city is a classic case of urban symbiosis.

Temporal cities have captured the attention of urban planners for quite some time now. The growing number of refugee crises, disasters and displacement of populations has suggested a critical need for raising temporal and pop-up cities housed within a parent city. The traditional urban systems of governance, urban infrastructure planning, land management strategies, social infrastructure management, etc. get redefined to fit the needs of the increasing need for pop-up/temporal cities. It is in this context that the Kumbh Mela gains prominence as a traditional pop-up city that has been built.

In order to appreciate the city planning and urban design of the Kumbh Mela, one needs to carefully understand two major factors that decide the form and extent of the Kumbh site: The urban planning of Prayagraj city and the extent of floodplains of the Ganga. The symbiotic relationship that these two entities share with one another is the reason for the functional and formal qualities of the Kumbh Mela. While the floodplains determine the land available for the mela, the physical and social infrastructure of Prayagraj determine the urban form of the mela. This chapter discusses the factors that determine the urban planning and design of Kumbh Mela 2019 in comparison with the melas of the past.

3.1.1. The Ganga - Changing Morphology



Figure 3.1. Satellite Image of the Ganga

The confluence of the Ganga and Yamuna constitutes the floodplain. The morphology of the land available for the Mela is determined by the rivers' shifting boundaries every year. The shifting of the river does not allow the city to have a constant layout of the riverbed. The grids change with the land available from the receding of the rivers during November. The variability of flow and stability of the Ganga affect and influence agriculture, industrial uses and residential uses. The 'ephemeral city', as the Harvard research team called it (Mehrotra and Vera, 2015), that is built into the riverbed, has a different plan each time it comes up. It is impossible to standardise the plan of the city as the waters of the Ganga recede differently each year, depositing different configurations of sandbars and edges.

"The process of slow-motion change that takes place at the Sangam in Allahabad is a microcosm of the changes that take place all along the Ganges. Seasonal farmers along the river divide the silt deposited after the monsoons into fields. They build temporary thatch homes and dig shallow wells to take advantage of the high-water table level. Desolate dirt paths that terminate in the river, when connected by pontoon bridges, turn into bustling corridors and marketplaces. Stalls open and children swim in the river and play cricket on the shoals. The entire Ganges corridor is transformed into a continuous quilt of agropoleis." (Mehrotra and Vera, 2015)

It is in such terrain that a whole new city emerges. Chaturvedi (2016) quotes the anthropologist Namita Dharia according to whom: "The Kumbh is a deeply visceral and sensory experience. They call the city of Kumbh 'Maya Nagari' and I quickly understood why. As a student of architecture and anthropology, I realise that the ability of a city to literally rise from the dust is an administrative and architectural feat".

3.1.2. Prayagraj – The Host City

Prayagraj is known for the Triveni Sangam, one of the most auspicious sites for Hindus. The Kumbh Mela attracts crores of pilgrims from across the country who attend these festivities to achieve religious salvation. Prayagraj boasts of a strategic position connecting some of the big cities in the state of Uttar Pradesh. It is well connected to Lucknow, Kanpur and Varanasi through roads and rail networks. It is also one of the largest commercial centres of UP as also a centre of infrastructural network for agriculture, fishing, manufacturing and tourism industries.

Spread across a 70 sq. km area and divided into 80 wards, the city has three distinct physical parts: The Trans-Ganga plain, the Ganga-Yamuna Daob and the Yamuna tract. The city has a population density of 205 persons per hectare, and as per the 2011 census a total population of 11.16 crores, with a decadal growth rate of 14% between 2001 and 2011. One of the key components of the population is that of tourists who constitute more than 8% of the total population.

Prayagraj is an ancient city, and the city's initial contours were shaped by the British, and further development of the city was shaped and reshaped by the city's town planning department. Kumbh Mela as a temporal installation in the riverbed is an extension of British legacy into the modern-day planning of the city, taking cues from the past and building for the moment. In this process, the city and the temporal city of Kumbh engage in a symbiotic relationship in form and use.

In present times, the total planning area of Prayagraj Development Authority includes Prayagraj city, Naini, Jhusi and Phaphamau constituting 309.17 sq. km. The urban structure of Prayagraj comprises an inner core old city with its distinct Mughal characteristics. The new city conceived during the British period surrounds the old city. The new city area is surrounded by outer growth regions that include satellite towns such as Jhusi, Naini, Bamrauli, Manauri, etc. It is important to note here the urban planning of "The Civil Lines" area, which is one of the oldest cities planned by the British rulers in India on a gridiron road pattern with diagonal roads connecting the different parts of the city.

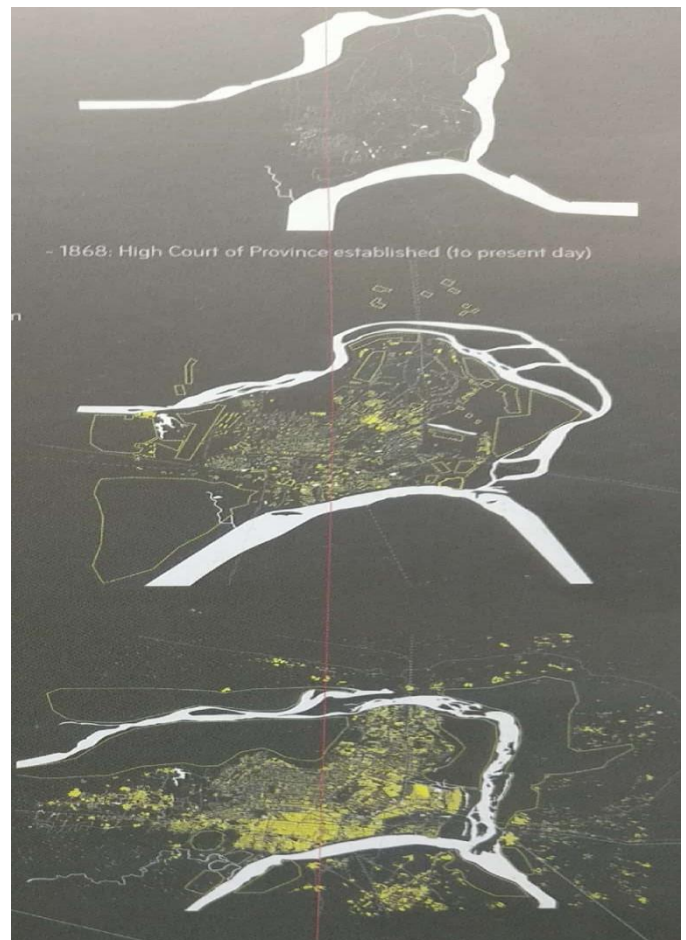


Figure 3.2. Prayagraj Over the Years

The British format of urban planning was extended to the Kumbh Mela. In their schema, grid has been the basis of town planning and infrastructural provisioning.

The spatial form is thus extended based on the availability of land and the extension of the existing physical infrastructure of Prayagraj city. The parent city of Prayagraj gives birth to Kumbh city, and the river Ganga decides the extent of the city based on the morphology of the floodplain available. The city of Kumbh is thus an urban nexus between Prayagraj, the Ganga and the people who come to stay temporarily. As stated by Mehrotra and Vera (2015), “The final form of the city is the result of a progression of uncertainties, ranging from speculation about the possible physical forms that the floodplains might take once the river recedes, to the estimation of the timespan of the monsoon and the approximation of the expected number of people that would arrive to the city on the major bathing day”. The grid serves not only administrative purposes, but also provides physical space for infrastructural networks, including circulation.

3.2. Kumbh City – Urban Symbiosis

The research team from Harvard described Kumbh ephemeral city (ibid). It is ephemeral indeed as the city vanishes once the next monsoon sets in. But how self-contained is the city? The authorities do try to create a city which is self-contained in nature. In fact, at any point, it could be hosting a permanent population of 20 lakhs during the mela, which is the size of an average city in India and comparable to Prayagraj. The town planners have to provide for all services and concerned departments. Each sector in the mela area is akin to a taluk or a district with its own administrative set-up headed by SDMs, police establishment headed by a DSP, fire services in-charge, medical officers, civil engineers and administrators from various departments like roads and bridges, power, water and sewage, food and civil supplies, municipal services, etc.

This time, the planners made elaborate provisions for other facilities like banks and ATMs, lost and found centres, vendors, and NGOs. However, it should be mentioned that it has a high dependency on the host city, Prayagraj. Nothing permanent is built on this track. The burden of receiving the flow of pilgrims and sending them back is handled by the city. In fact, even neighbouring cities take the load. The city infrastructure takes the burden of hospitality and transportation. The host city carries the load of solid waste and sewage. The city is a host city, and the Mela area is a dependent city rather than a twin city or a satellite city. The host city as well as the Mela area is planned, bearing in mind this dependency. The Kumbh city hosts permanent guests like sadhus, Akaras, Kalpavasis, workers and volunteers, but for the rest, it is a transit city.



Figure 3.3. People using the ATM at Kumbh

3.2.1. Symbiotic Relationships

Symbiosis is a mutual relationship between organisms that is generally of advantage to both. When it benefits both, it is also referred to as mutualism. When one entity benefits in a symbiosis, and the other neither benefits nor suffers harm, it is called commensalism. In the third type of symbiosis called parasitism, one organism or entity benefits (the parasite) whereas the host suffers. Kumbh city and Prayagraj exchange can be called as mutualism though the benefits may not be equally shared.

In biology, symbiosis is a key relationship between organisms that interact with one another through positive reinforcements to build a system that is mutually beneficial. Urban ecosystems can also be considered a complex system of relationships. In urban planning, symbiosis can be found in the development of satellite towns, which also incidentally help to disperse the city. This network of mutually beneficial relationships creates and regenerates urban ecosystems. The Kumbh Mela is a temporal city that is built and unbuilt. Prayagraj is the city that has given birth to several Kumbhs and temporal cities. With every Kumbh, the Prayag city is renewed with upgraded infrastructure; and with every new Kumbh, a new ecosystem is created. From the perspective of the physical and the metaphysical, the Kumbh Mela and Prayagraj contribute positively, mutually reinforcing their existence.

3.2.2. Dependencies of Kumbh City

One of the most interesting aspects of the Kumbh Mela is that the temporary city is one of the reasons for improvement of infrastructure and imageability of the parent city of Prayagraj. The exchange occurs at three levels – *economic, ecological, infrastructural*.

The economic potential of the Kumbh is huge though the gains are largely distributed among many stakeholders. The expenditure is tangible which can be computed by aggregating expenditure incurred by all the departments. However, the benefits though tangible are distributed through hundreds of vendors across districts and neighbouring states' regions including airlines, transporters, hospitality industries, etc. The waves of floating population that visits the Kumbh Mela from across India and the world contribute immensely to the local economy through exchange of goods and services. During the period preceding the Mela, and during the Mela, there is an immense exchange of economic activities and goods. It happens in terms of investments, equipment, materials, labour, etc. These exchanges have both temporary and long-lasting benefits. The economy goes through a lateral shift and certain sectors like logistics and transport, tourism and hospitality, microenterprises and handicrafts, restaurants and eateries, etc. get a boost. The economic exchange happens not just during the mela period, but at least one year before when the administration and contractors start operating from Prayagraj. On the whole, it brings in cash flow and circulation.

The ecological exchange takes place between the rivers and the city by maintaining and providing floodplains every year for the Mela to take place, key to shaping the city. In fact, during the last mela, there was heavy rain and sudden flooding from upstream, which immediately impacted the Mela area. The city geography and structure also determine the contours of the Mela. For example, the access to the city determines how the pilgrims flow into the Mela area. Primarily, all the activities happen in the Mela area facing the city side. The town plan of the Mela area is also dovetailed with the access routes from the city whether it is from the railway stations or the highways. This time, the authorities also used the area on Naini and Jhunsi side which is again determined by the floodplains left by the rivers Yamuna and Ganga. Another feature which impacts the ecology is the flow of sewage into the river. It was highly regulated this time and no untreated water was let into the river, right from Kanpur. The sewage water from the mela was also tightly controlled this time and it had minimal impact on the ecology of the river. Of course, the Mela also sends back sewage water into the city which is dealt with under the infrastructure section. In fact, there were complaints after the mela that the solid waste left behind in the landfill in the city was nightmarish.

Thirdly, there is significant infrastructure exchange that takes place between the parent city of Prayagraj and the Kumbh Mela, wherein, the city is strengthened with infrastructure to hold the Mela and temporary infrastructure is provided for the Kumbh Mela to function as a full-fledged city through its various physical and social infrastructure. The parent city of Prayagraj saw massive investments made in terms of infrastructure expansion and city sanitation which is discussed here.

3.2.3. Mutually Beneficial Infrastructure Development

At the 2019 Kumbh, the most important contribution to Prayagraj's development has been that of the physical infrastructure that could cater to the millions of incoming visitors, sadhus and pilgrims. Major upgradations and alterations were made as follows:

- 129 roads widened and strengthened
- Railway network improvement and station building
- Airport development
- Identification of movement routes and positioning of parking lots
- Pontoons and bridges
- Waterways

There are seven major access roads to the Kumbh:

- 1) Road that connects Jaunpur to North Jhusi
- 2) Road from Varanasi that enters South Jhusi
- 3) Road from Sonbhadra-Mirzapur that enters Arail
- 4) Road from Chitrakot-Banda that enters Arail
- 5) Road from Kanpur-Fatehpur that enters Prayagraj City
- 6) Road from Lucknow-Raibarily that enters the city
- 7) Road from Sultanpur-Pratapghadh that meets the bypass to enter the city through North Jhusi

All these major roads were widened and maintained. Along with the roads, eight road over bridges were completed along with six road under bridges, five foot over bridges, and widening of existing foot over bridges from 6m to 12m. Access from railway stations like Allahabad main station, Prayag and Naini was also improved.

Parking was an important part of planning for this Kumbh and they have paid elaborate attention to it. Massive arrangements were made for vehicle parking. Parking lots were located on the highways and approach roads in the outer city. Sprawling parking lots were created with capacity for parking 500,000 cars. These parking zones had separate places for government and private buses, and private cars and vehicles. Some parking lots were created in the city area. In this endeavour, the main thrust was on safety and security, and avoiding traffic jams. Many of the parking lots developed were for future use as well. Convenience was taken care through liberal deployment of public buses.

All the railway stations bore a new look and their capacity was expanded to handle mass gatherings. The railway network was improved to enhance passenger movement and huge holding areas were set up at major and minor stations at Allahabad, Naini, Allahabad-Chheong, Daraganj, Jhansi and Prayag Ghat, Phaphamau, etc. Subedarganj and Allahabad Chheoki stations were newly constructed while Prayag Ghat terminal was developed as a new station. Additional platforms were also constructed in three stations. At Allahabad junction, infrastructure was greatly improved. Apart from these infrastructural

developments, additional rakes and an increased number of personnel were deployed. The newly constructed Bamrauli Airport was completed in 11 months with the ability to handle large flights and with a centrally air-conditioned area of 6,700 sq. m. It was inaugurated in December 2018.

There was a proposal to provide transportation through waterways from Varanasi; however, it could not be completed for this Kumbh. Railway underpasses in the city were widened. The underground storm water drains were laid and street lighting including high mast lamps were installed on the main access roads. The main access roads were even painted under the Paint My City programme. Overall, the focus was also on strengthening permanent infrastructure under the smart city plan.

These infrastructure developments in the city strengthened not only the movement and traffic during the Kumbh but reinforced the city and its growth in the days that succeeded Kumbh. Thus, the city of Prayagraj and the temporal city of Kumbh are interdependent and share a relationship that benefits mutually.

3.2.4. Kumbh 2013 Layout Planning

In the 2013 Kumbh which was a Maha Kumbh, the authorities had planned for 1,937 ha area but finally settled for 1,537 ha as defined by the flow of river. In 2007, it was around 1,500 ha. As is customary, they followed the grid pattern of planning. The area was divided into fourteen sectors. According to Chaturvedi, of the total land, "...about 1,040 hectares were utilised for purpose of camping of parking and government organisations, 244 hectares for parking of vehicles and about 453 hectares were used for roads, circulating area and the bathing areas". The authorities had to allocate land to 4,632 institutions.. The organisation-wise allotment can be seen in Table 3.1:

Sl. No.	Name	No. of Institutions	Land allotted (hectare)
1	Akhadas	13	18.95
2	Mahamandleshwars	333	20.77
3	Khaalsas	596	53.85
4	Khak Chowk	237	28.52
5	Dandi Baada	153	17.11
6	Acharya Baada	142	29.67
7	Prayagwal	936	206.75
8	Other Private Institutes	1860	266.08
9	Individual Kalpvasis	362	4.11
10	Bharatiya Kisan Union		14.83
11	Government Offices		114.10
12	Rain Basera/Jan Suvidha		119.80
13	Free Space		136.92
14	Paramilitary Forces		9.13
Total		4632	1040.59

Source: Mela Administration, Allahabad

Table 3.1. Details of allotments in camping area

In planning the layout for the mela, town planning is less of a challenge than the allocation of sites to various religious institutions. The main stakeholders for land are the religious institutions, administrative departments, and camps. It is not so difficult to manage allotment for service providers and camps. Chaturvedi (2006) discusses extensively the problem of allotment of lands to the religious institutions. Firstly, there is an agreed-upon hierarchy and priority among the major religious institutions. Despite this, issues arise in relation to land allotment and proximity to the important bathing points. Besides, new institutions come up with requests for lands. Therefore, the authorities need to follow certain principles for including new institutions and their eligibility. Summarising their experience, Chaturvedi says, “One must be very cautious in matters where there is likelihood of conflict between two or more groups or factions in land allotment. Bruised ego or shaken self-respect may lead to hardening of stand and heightened tensions. Therefore, the issues have to be approached with humility and flexibility. Delays in land allotment process have to be prevented at any cost. ... The administration must strictly adhere to a policy once decided upon and not succumb to any pressure or deviate from it, particularly if it foresees a conflict” (Chaturvedi, 2006, p54).

3.3. Kumbh 2019 Town Planning

3.3.1. Planning Principles

A town planner hardly gets to plan a town ad nova. Under the smart cities programme, several initiatives are being taken, but they mainly involve retrofitting a city. Occasionally, a capital city may get built the way Chandigarh and Gandhinagar were built. Otherwise, town planning is mainly about redesigning and upgrading. One rarely gets to start on a clean slate. Planning for Kumbh City gives one such opportunity and challenge. Cities do undertake town planning probably once in two decades and it goes through a laborious and time-consuming technical process, and a massive consultation process.

Town planning for Kumbh City is primarily seen as a technical process, and consultations are mostly with other related departments. The actual institutional users and beneficiaries come into the picture only later when the allotment process starts. Everybody realises that it is a temporary city and it is for a common purpose, that is, for the conduct of the Kumbh. So, everybody works with a common goal of making it a successful event. The process is not complex, given that the city comes up on a floodplain and land acquisition issues are fewer, and also because it is taken up for a temporary purpose. This is unlike town planning for an existing city like Prayagraj, which has already defined boundaries and structures.

The team that undertakes the town planning first gets a briefing from the administration on the expected scale of the mela and also from various departments on their plans. Based on this and on the expected availability of land, they start preparing a tentative plan. It is tentative because until the river course is known, it is difficult to finalise the plan. The town planners from the department are guided by their experience in planning for the previous

Melas and they give a start to the plan. As with earlier Melas, the authorities worked with the following principles:

- Safety and security should be given utmost importance.
- Movement should be seamless and unhindered for vehicles as well as pilgrims. If possible, movement should be one-way so that the flow does not come face to face. Access roads should be wide so that there is no paucity of space anywhere.
- Movement should include provision for unhindered movement of police, disaster relief resources, and service delivery. Green corridors need to be designated through the Mela area. Dedicated corridors should be planned to the airport and the main city hospital in case of emergency.
- Space and routes should be planned for alternative movement schemes for emergencies.
- The plan should provide religious institutions and Kalpavasis good access to Sangam nose and the pilgrims who would like to visit their ashrams.
- Each sector should be self-contained to the extent required and possible. Each sector needs to be modelled like an independent administrative unit. The sectors must accommodate essential services like administration, police, health, fire, food, etc.
- Separate locations must be provided for religious ashrams, Kalpavasis, tourists and VIPs, and pilgrims.
- Camps must be provided for cultural events at many locations.
- Space must be allocated for workers providing essential services at the Mela.
- Provision must be made for modular plans which can be altered depending on the receding water from the floodplains.

3.3.2. Mela Area

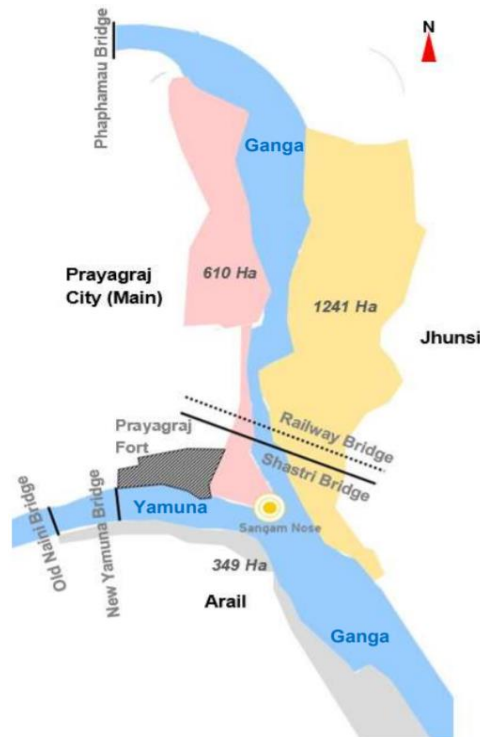


Figure 3.4. Mela Area

This time, the river was generous with the floodplains. The authorities finally decided on an area of 3,200 ha (equivalent to 32 sq. km). This was more than double the area in the previous Mela (15.37 sq. km). This area of floodplains remained intact till the end of the mela. They got land on both sides of the river and on the banks of both Yamuna and Ganga. They went ahead with setting up 20 sectors.

There is always a debate on how much land is adequate and necessary. The extent of the land also determines the expenditure and all public services have to be extended to all the sectors. This helped them to plan separately for different segments like Akharas, Kalpavasis, tourists, the general public, and various services. This helped them to plan for smooth movement of religious heads and the general public, emergency services like police and ambulance, public services like solid waste management and sewage, and VIPs and tourists. The land area, while adequate on normal days, was stretched to its limits on Mouni Amavasya day. To give an idea of the land extent involved, and the challenge before the authorities in conducting town planning, here is a comparison with a few cities. It comes closest to New Delhi in area.

Kumbh Mela area: 32 sq. km

Allahabad: 70.5 sq. km

Agra: 87 sq. km

South Mumbai: 67.7 sq. km

Chandigarh: 114 sq. km

New Delhi: 42.7 sq. km

Manhattan: 59.1 sq. km

3.3.3. Initiation

The Kumbh Mela takes more than a year to plan, design, redesign, and implement. Dismantling a city without leaving a trace is also a major operation in itself. More than 30 to 50 lakh people come together even on non-bathing days for religious congregation, generating a temporal city of massive scale. The city's life can be understood in five different stages: "1. planning 2. construction 3. assembly 4. operation and disassembly, and 5. deconstruction" (Mehrotra). The planning begins almost a year before the mela and goes on until the Ganga recedes in October. The authorities prepare a template and modify it suitably depending on the final contours of the floodplains. In the course of a few weeks stretching from November to mid-January, the plan is executed. It is in this period that the religious institutions also build their camps and make it operational. The Mela goes on until the first week of March, followed by the disassembly and deconstruction of the structures. The plains are once again reduced to ground and the stage is set for Ganga to run through in the next monsoon.

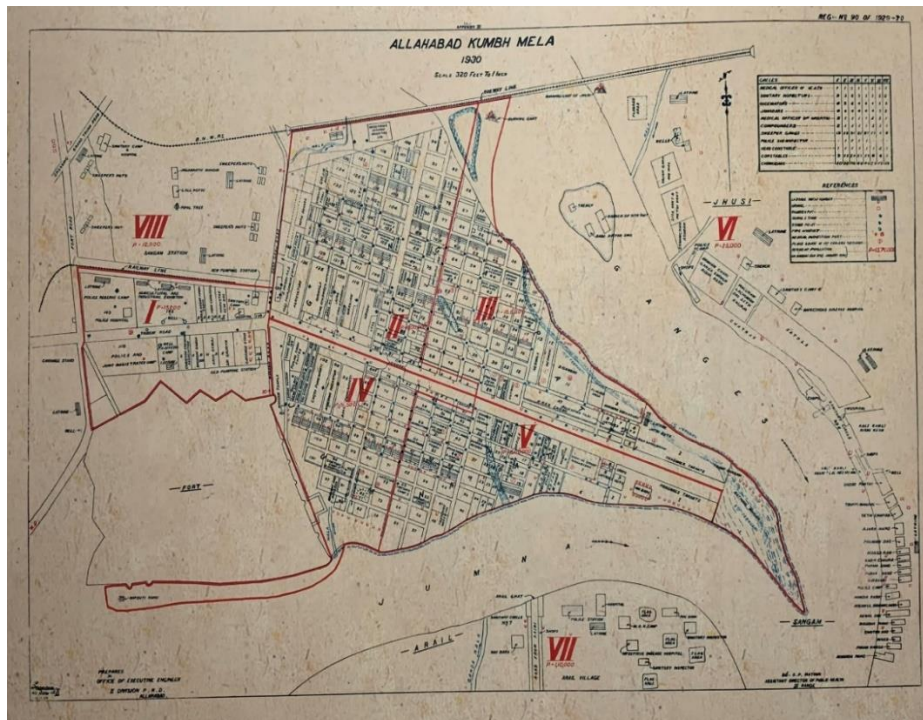
As discussed in the previous chapters, the urban planning of the Kumbh is dependent on two key aspects: 1. Availability of land from the receding rivers and 2. Existing infrastructure of Prayagraj city. The physical planning of the temporal city is important given that it has to

accommodate more than 6,500 religious institutions which have a traditional placement in the Kumbh Mela, and more than 20 crores of domestic and international visitors. It also involves coordination of more than twenty state and central government departments. Site planning in such a case is key as it has to accommodate multiple entities and amenities required for habitation.

3.3.4. Town Planning Methodology and Steps

The planning for the Mela started with the meeting of the Committee headed by the Commissioner which set out the overall guidelines for the town planning. The DM headed the Committee which oversaw the town planning and execution of the town plan. The Committee included members from all concerned departments such as Police, Town planning, Health, Roads and Bridges, Power, Water, Food, and all related services.

As a second step, on-ground verification was conducted by the planners. They were assisted in this by the plan of the previous mela. This was followed by finalisation of records and handing over of the documents to NIC for mapping of the layout. The layout plan was developed based on multiple conceptual design principles which took into consideration the estimated number of pilgrims visiting the Kumbh and their planned dispersal. Historically, planning for the Kumbh has been undertaken in a gridiron pattern by drawing extensions from the current infrastructure provided by the parent city of Allahabad. The British-designed gridiron pattern of the Civil Lines was referred to and continues to be a reference for the Kumbh. One of the earliest map available is reproduced in Fig 3.5.



Source: National Archives of India

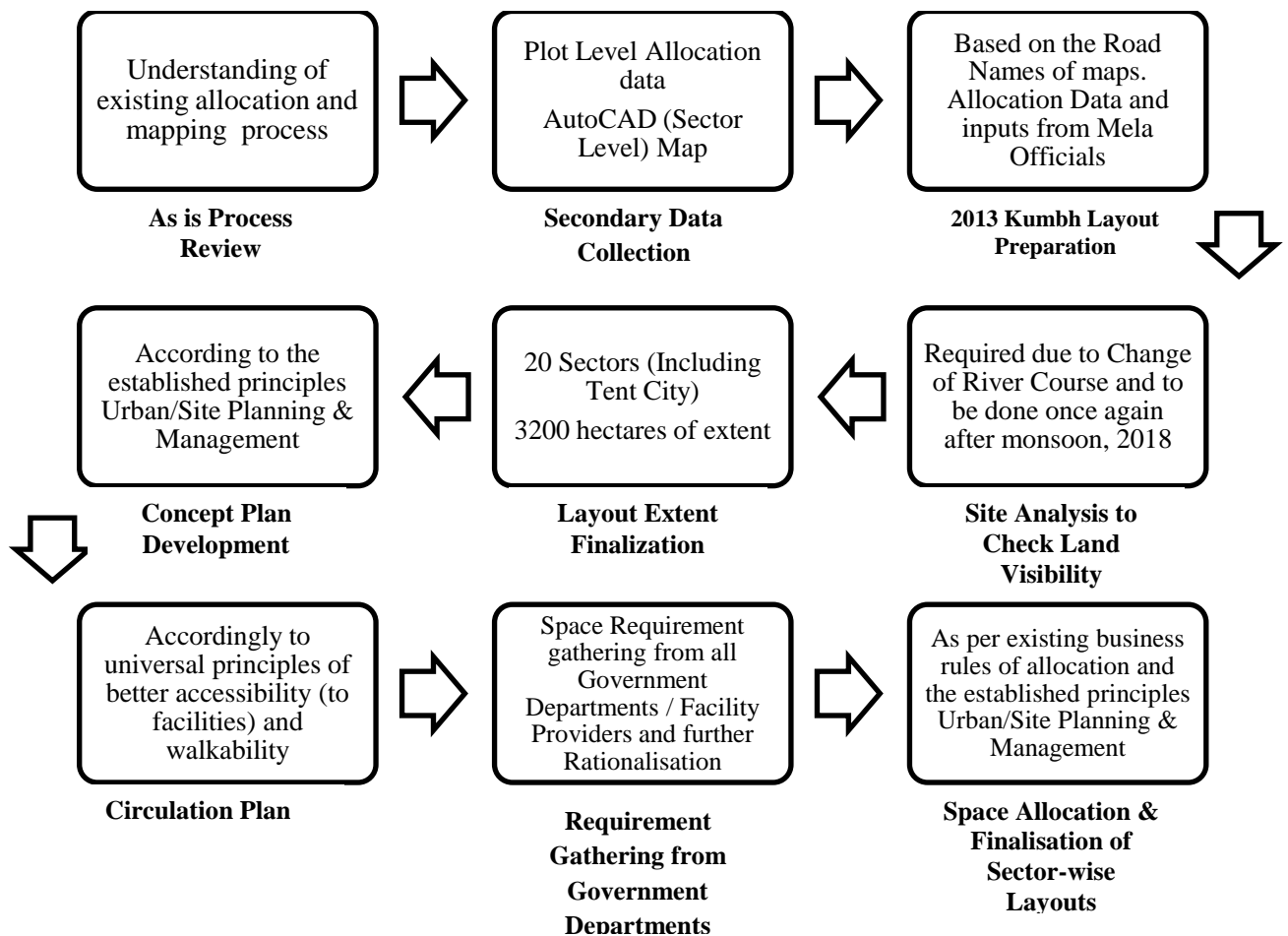
Figure 3.5. Site Map from Allahabad Kumbh Mela, 1930

Since the time of the British, Kumbh planning has been done based on strict grid rules as mentioned before. The entire planning site is divided into sectors with access roads defining the edges. Each site is further divided based on the minor movement tracks. From a mere 4 sectors in the early 1900s, today the Kumbh has expanded to form 20 sectors covering 3,200 ha of land.

The methodology adopted for layout planning included the following steps:

1. Existing requirements were studied, space allocation made, and processes mapped.
2. Requirements for space were gathered from different government departments and facility providers.
3. Through a secondary data collection process, a sector-level map preparation and plot-level allocation was carried out.
4. A preliminary site analysis was carried out to check land availability. As the river changes course during the monsoon, all plans were considered tentative, to be finalised after the monsoon in late 2018.
5. The extent of layout and its finalisation was done midway during the monsoon. Approximately 3,200 ha of land was divided into 20 sectors, including the tent city. After the monsoon, some extra space became available which eased some constraints.
6. Concept plans were developed with different core principles.
7. A circulation plan was worked out. This plan was put in place through the help of different sectors using universal design principles of accessibility and walkability.
8. Space allocation and finalisation of sector layout was done.

The manner in which planning was done in 2019 is depicted in Fig. 3.6 (the material for this section has been taken from various presentations of EY). This time, they mapped the plan to an AutoCAD system. They took into consideration data points from the 2013 mela from the town planners. They also make a tentative plan of requirements for various departments after ascertaining needs from respective departments.



Source: EY Presentation

Figure 3.6. Methodology Adopted for Layout Planning

According to a report prepared by the consultant team from EY, four major planning principles, as outlined below, were used to develop the layout for Kumbh 2019. The following descriptions are based on presentations made by the Consultants E & Y for the mela.

Principle 1:

Grid Patterned Layout Plan – The site for Kumbh 2019 was linear in nature, with a north to south expanse of 15 km and east to west of 5 km. Given that linear cities are best served by following a grid patterned model, the same was adopted for the Kumbh Mela layout. It was understood that this would give users, mainly pedestrians, better access to all facilities and uniform reachability.

Principle 2:

External determinants were taken into account in designing the layout. These included key access points to the Mela area, location of parking areas, location of sewage treatment plant and pumping stations, and solid wasting dumping and processing sites. It was understood

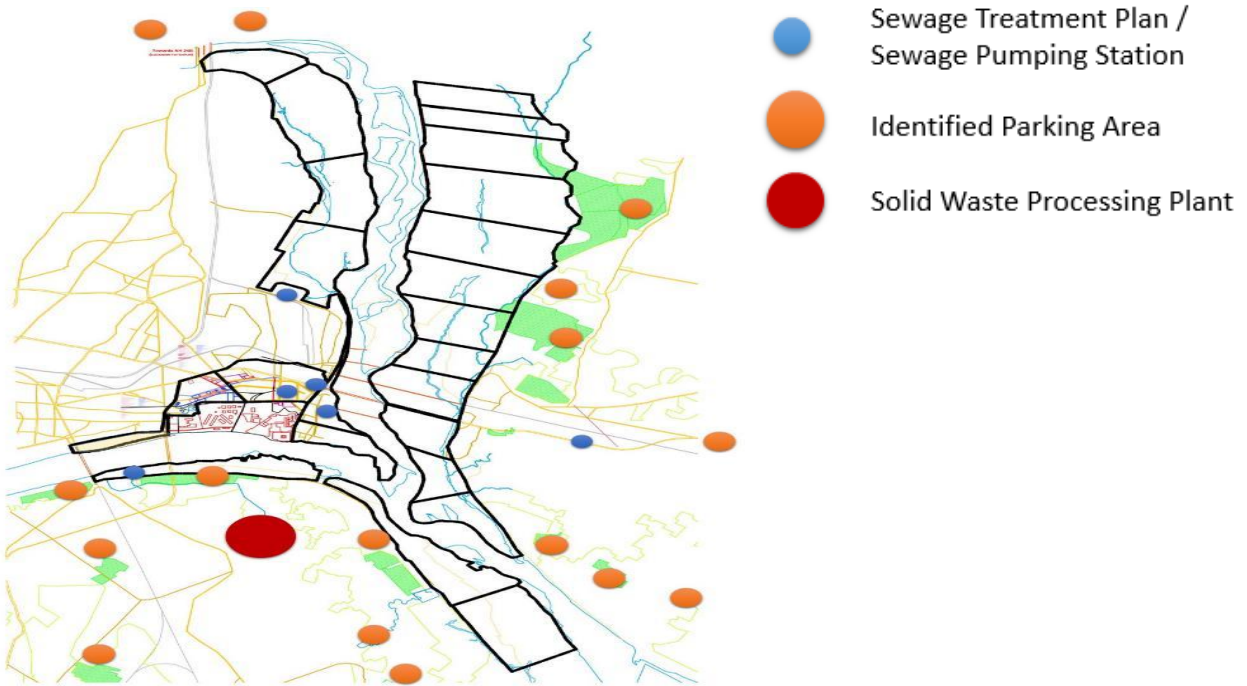
that these determinants, though external, would influence the number of trips to be undertaken by service vehicles, fuel usage, the length and alignment of lines like drainage, sewerage, electricity, etc.

Principle 3:

Walkability and placement of common facilities at intersections – As the layout was planned to be a vehicle-free zone (with the exception of emergency vehicles), walkability was given prime importance. Grid intersections were planned within a distance of 200 to 300 metres, and all common facilities were located at the intersections.

Principle 4:

Service loop – This was done in order to ensure minimum movement of service vehicles and maximum reach to service areas.



Note:

Inflow (Entry) Points are Based on Position of Parking areas and Traditional Approach Roads

Outflow Point is based on STP (Need for Accessibility to STP)

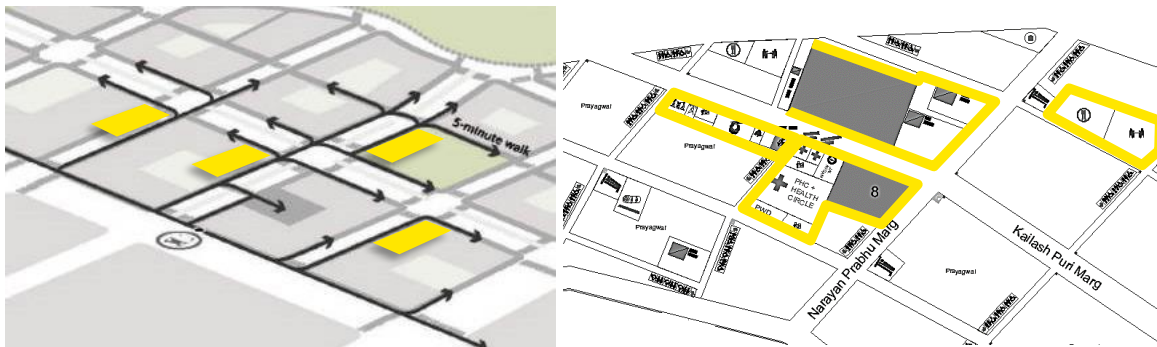


Source: EY PPT, Layout and Planning Process Kumbh, Slide 10

Figure 3.7. Sewage Treatment Planning Process at Kumbh



Figure 3.8. 2019 Layout Grid Pattern

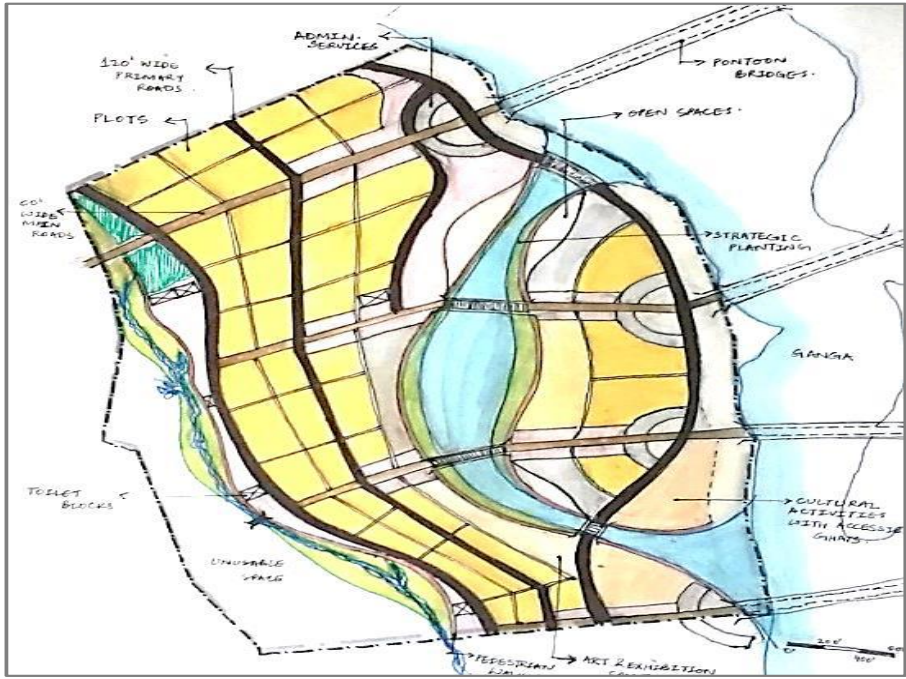


Source: EY PPT, Layout and Planning Process Kumbh, Slide 13 & 12

Figure 3.9. Common Facility Placement Concept and Proposed 2019 Layout

3.3.5. Design Options

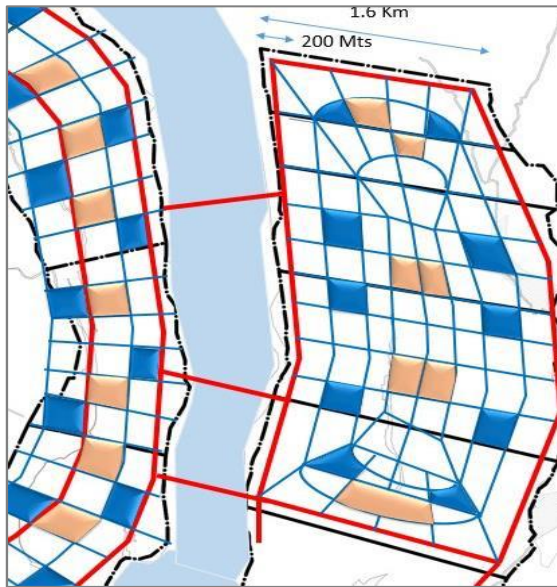
Five design options were considered while deriving the layout plan for the 3,200 ha of land. Each design option was based on one key element such as the natural setting, active nuclei model of development, multiple core development, organic arrangement of roads, and gridiron pattern of development. These design options were worked out keeping in mind the morphology of the floodplain which was unknown during the exercise. It was ensured that much of the design had to be based on a certain level of structural stability and ability to adapt to uncertain contexts. The design principles were thus developed to maximise the probability of replicating the proposed structure after the monsoon period. While developing the final layout, learnings from each of the design options were considered for workability and implementation. Thus, the following workability parameters were considered in finalising the layout: Adaptive grid pattern, channelized flow of traffic, sectoral zoning, public cores and integration of services and infrastructure.



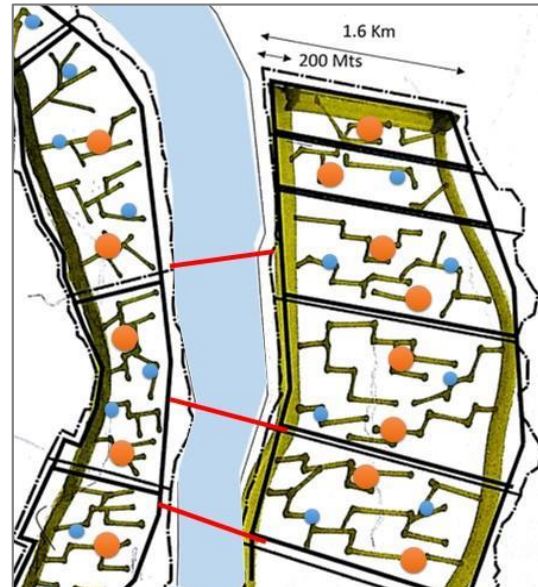
Design Option 1: Natural topography provides the physical setting of ephemeral city



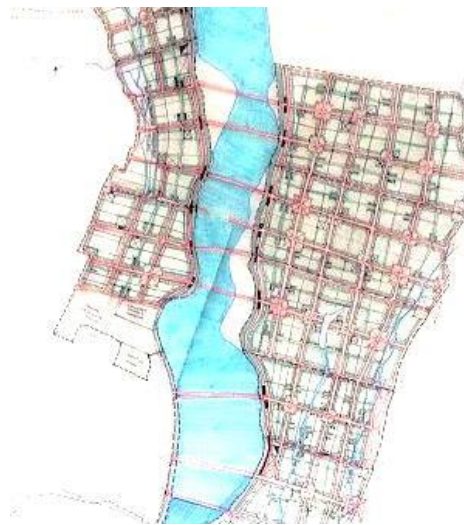
Design Option 2: Introduction of active nuclei at the centre of each structure



Design Option 3: Multiple cores strung together by a peripheral trunk



Design Option 4: Organic arrangement of roads leading to public and administrative zones



Design Option 5: Grid pattern

Figure 3.10. Design Options Proposed

Source: EY PPT

According to Mehrotra and Vera, “The grid as an abstract construct is widely utilized in cities as a neutralizing mechanism that supports diversity within regular patterns, becoming the only constant in the evolution of cities” (2006, p.72). They state that “Unlike other temporary cities where the grids are repetitions in a way that erases originality and identity, the basic idea of Kumbh Mela provides for unique, open areas with camps that are constructed without preconceived internal regulation over religious communities. This gives each community the organizational authority over their own space in a way that enables the

expression of their internal structure and identity by advocating for spatial singularity” (Mehrotra and Vera).

3.3.6. Urban Form of Kumbh Mela 2019

The urban form of Kumbh Mela is strictly based on the existing connectivity between cities, movement pattern of vehicles, goods and people, Kumbh traditions and security. The overall structure of the temporal city is a gridiron pattern divided into sectors, and each sector is a self-sufficient one with public amenities, sanitation facilities, security systems, tents for accommodation, public gathering space, etc. The form also takes into consideration the ease to install and to dismantle after the Mela.

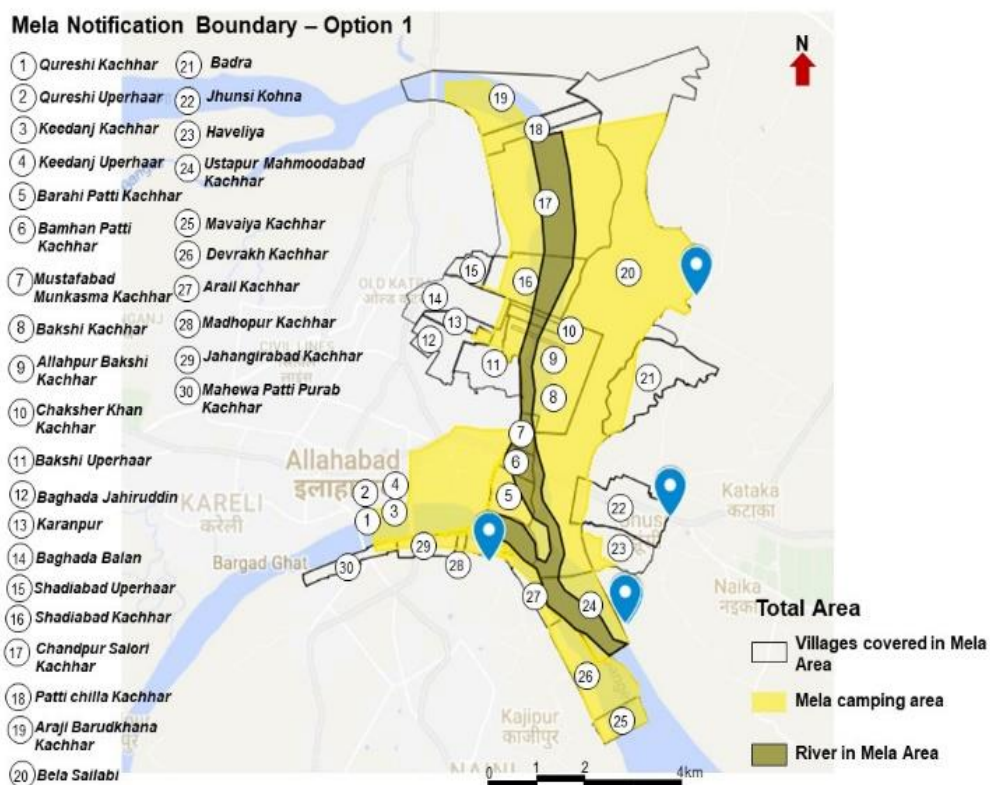


Figure 3.11. Mela Notification Area

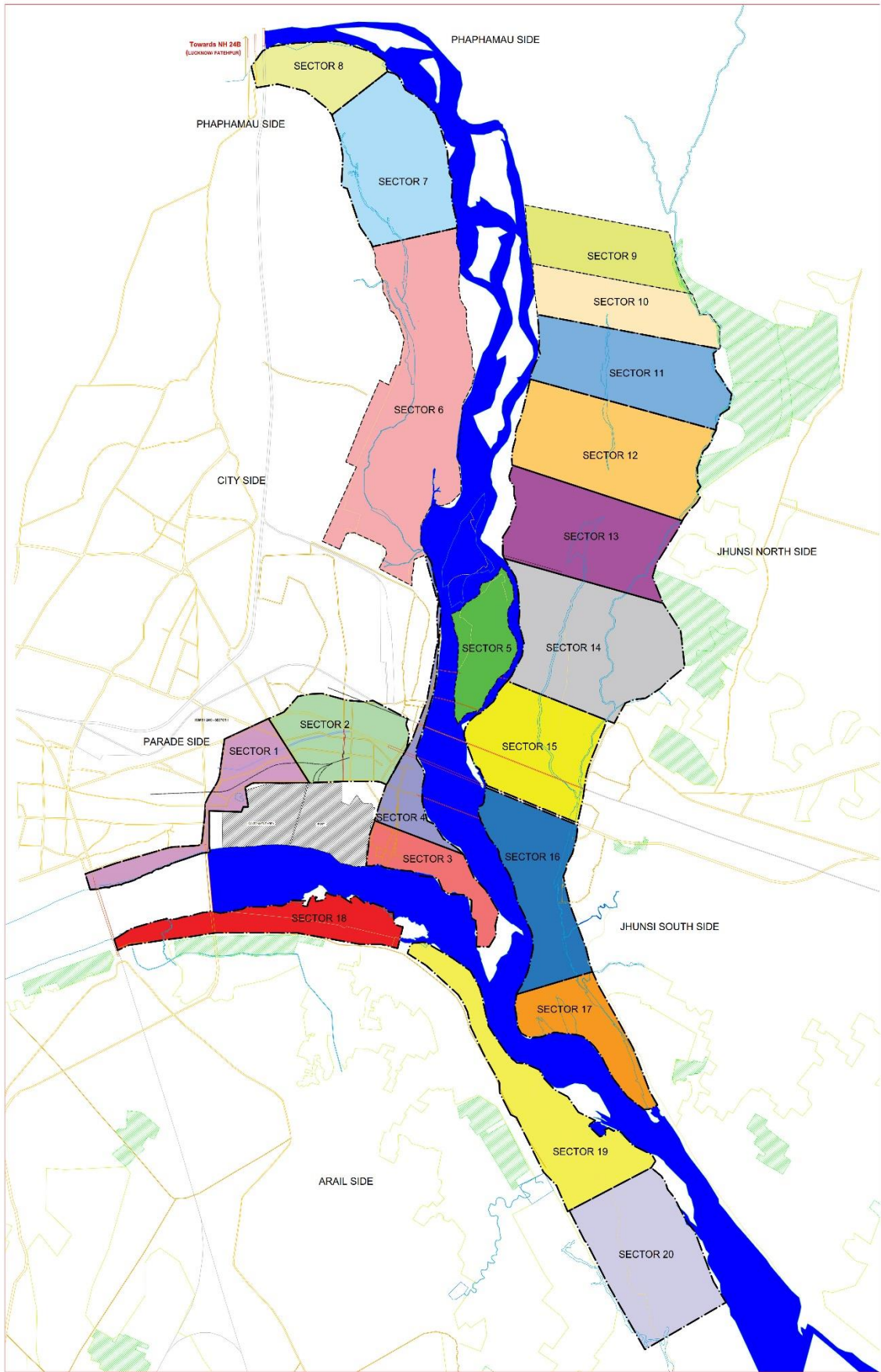


Figure 3.12. Mela Sector-wise Layout

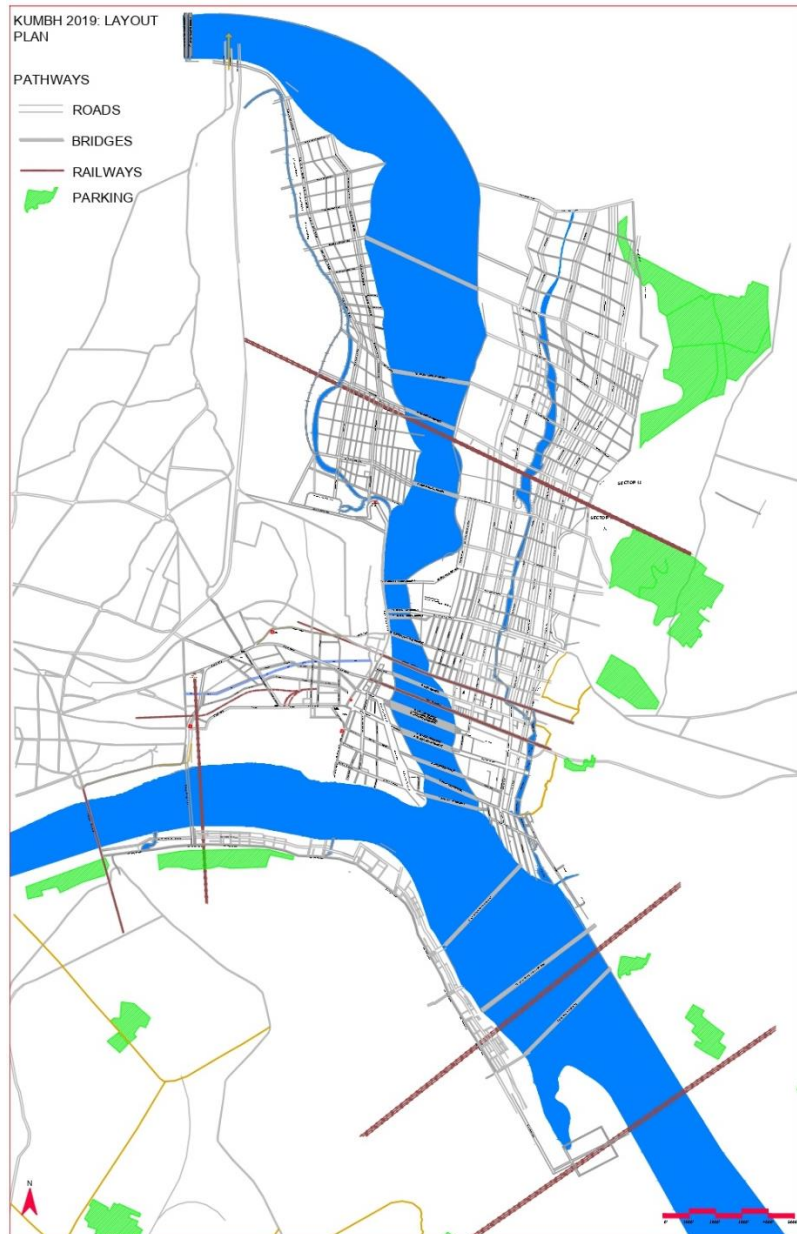


Figure 3.13. Kumbh 2019 Layout Plan (Pathways)

3.3.7. Movement Pattern

The movement pattern of people and vehicles is carried out in two specific loops – one towards Sangam and another from Sangam – that do not intersect. These loops are designed keeping in mind the major transit points formed by railway stations and parking lots. As discussed in the previous section, the movement is also determined by the alterations made to the existing infrastructure. The 20 sectors are divided into 9 zones, 40 thane and 58 chokis. The longitudinal access roads are drawn parallel to the Ganga with the transverse access roads parallel to the bridge across the river. These include parts of the main city close to the Sangam, parts of Arail, Jhusi and Phaphamau. Different plans are developed for different sectors including Akharas. Also, movement pattern for main bathing days and

movement pattern during emergency were worked out and implemented. All plans ensured that there was no clash between the ‘onward’ and ‘return’ movements.

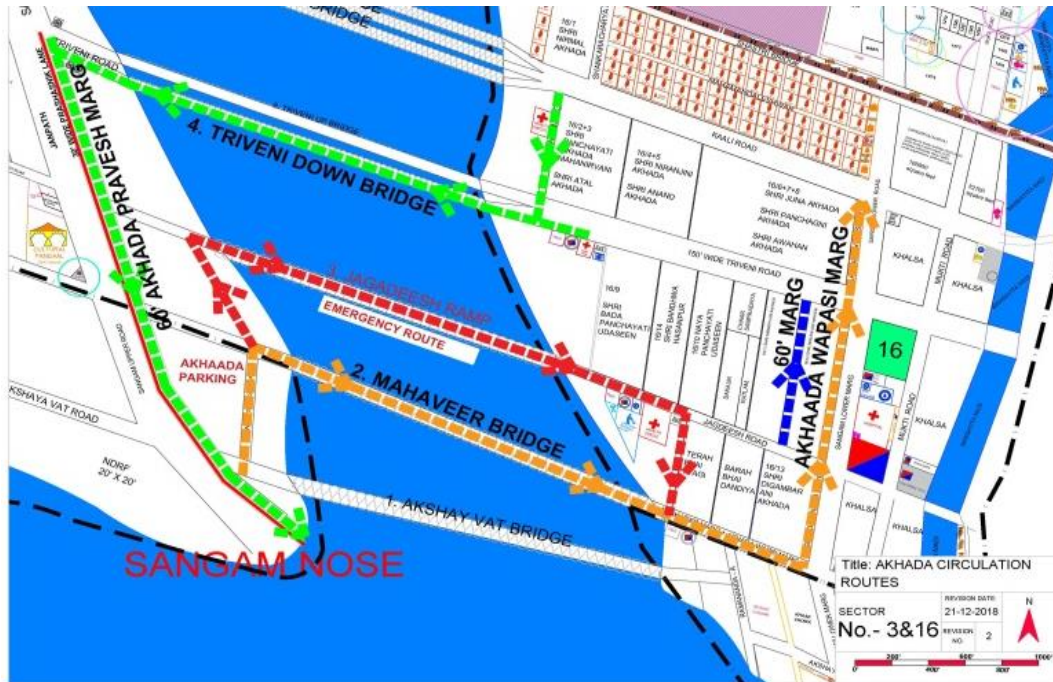
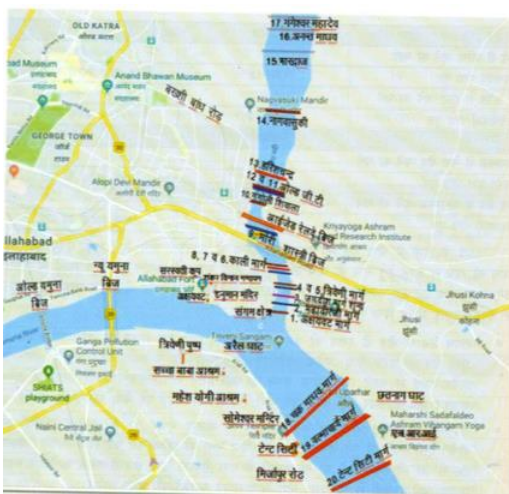


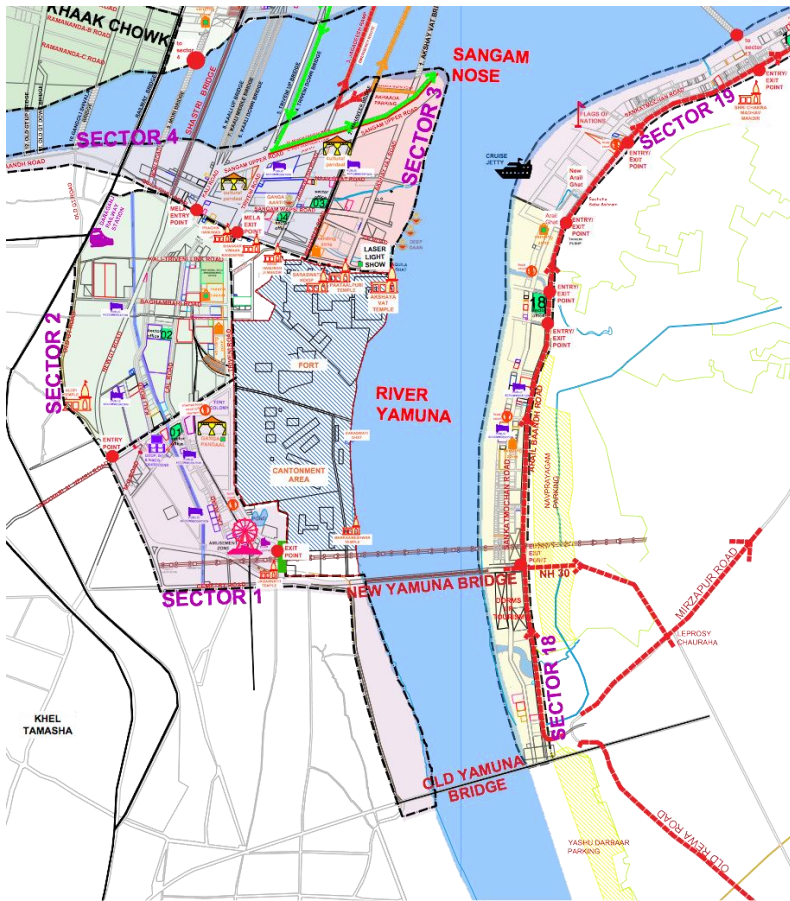
Figure 3.14. Akhada Circulation Routes

The movement was also made comfortable by the different bridges (permanent and temporary) that are constructed across the Ganga. There are four main bridges including a railway bridge. There are 20 pontoon bridges which can be used to cross over from Jhusi area to the Sangam Point. There were holding points to control the incoming crowd. Diversion plans were also drawn to re-route traffic without touching Prayagraj.



Computerised simulation of crowd movements was done by EY team in order to design management strategies and access pathways. A movement plan was developed and jointly signed by the civil authorities with the following unique features:

- Uni-directional flow was ensured at all the stations.
- Direction-wise segregation of passengers was done at entry gate and they were taken to the correct enclosures.
- Colour-coded enclosures were built for easy identification by the users.

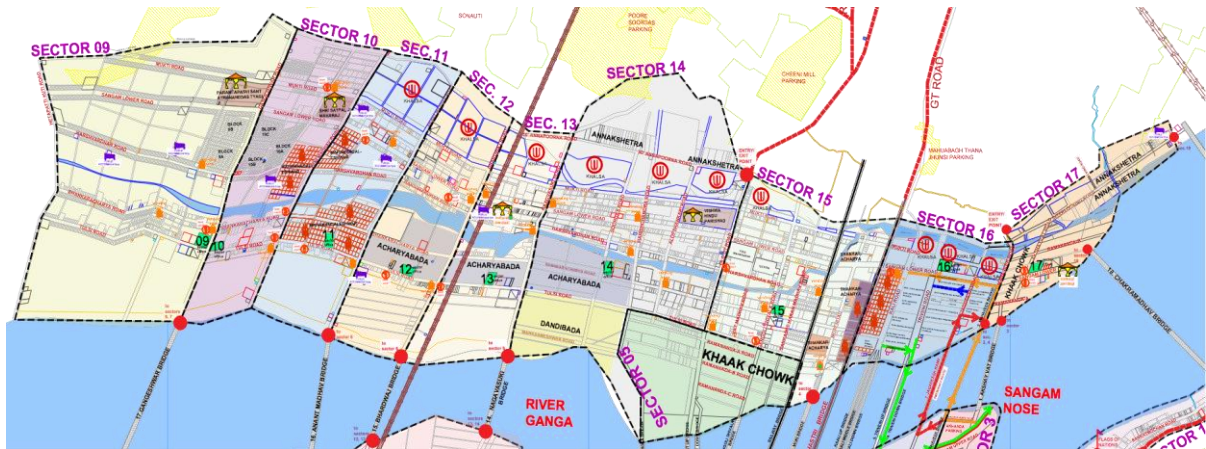


“The grid as a structuring and mediating device that is superimposed over the merging landscape, is introduced both as a conceptual and physical tool.” (Mehrotra and Vera, 2015, p.93). The grid ensures multi-scaled infrastructural network to function smoothly while creating sectors that are self-sufficient. The grid acts therefore as an extension of pre-existing infrastructure and the new infrastructure developed for Kumbh. It is the basic framework for spatial organization. The framework varies every year based on the morphology of the river. The administrative structure of the settlement is a sector; in the

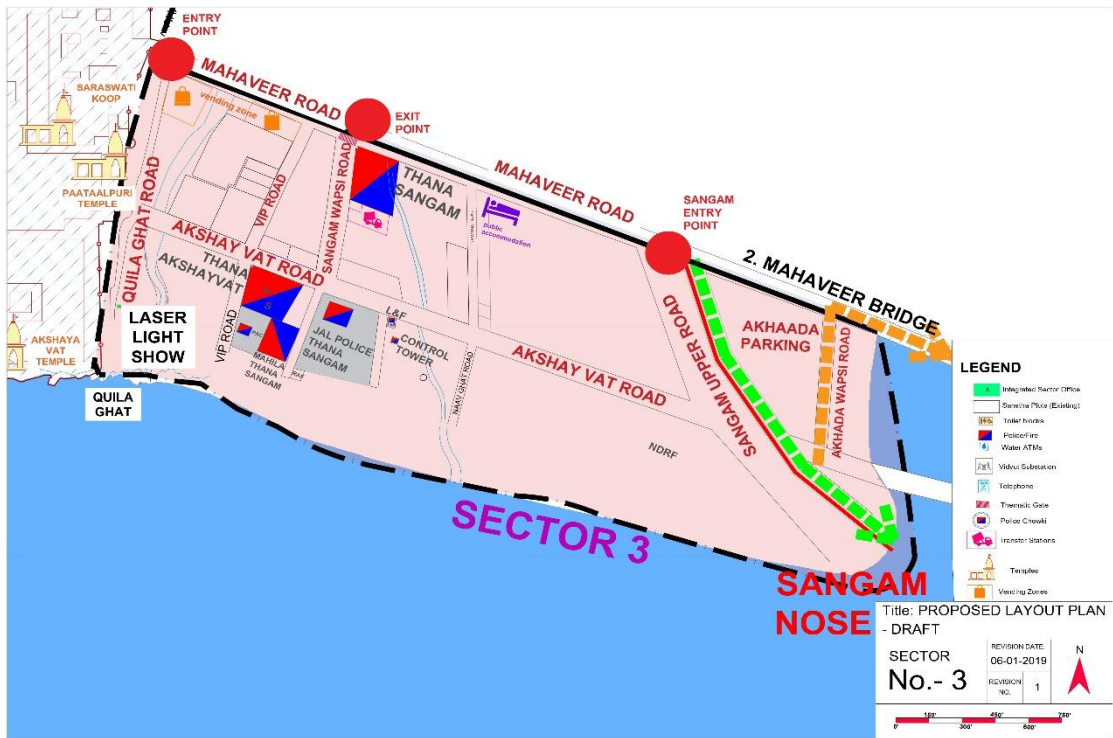
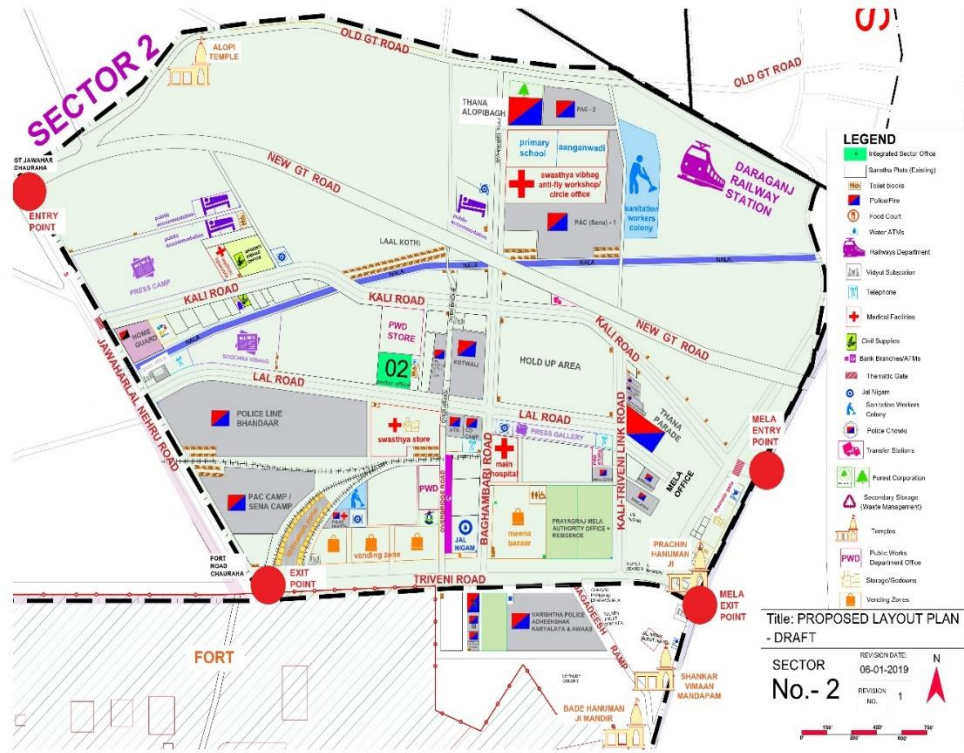
case of Kumbh 2019, there were 20 sectors. The spatial parcels of sectors are self-sufficient with each of them allotted for specific functions. For example, in Kumbh 2019, sector 1 and sector 2 encompassed all civic activities. These comprised Prayagraj Mela Pradhikaran office, Mela Office, bazaar, vending zone, banks, tourism-based activities, etc. that supported the social infrastructure of the zone. Sectors 1,2, 3 and 4 surrounded the cantonment area, and sector 3 housed the Sangam nose which is the main spot for the holy dip. The entry and exit points to the mela at the Prayagraj side were from sector 2 through sector 4.

Sectors in the Jhunsi area included sectors 10 to 17 which were allotted to Akharas and spiritual groups. The camps allotted for the Akharas were left to the religious groups to organise, giving them authority to express the individual designs and authorities (Mehrotra and Vera, 2015). Each of these sectors had a sector office, Khalsa for the sadhus, a congregation space, space for accommodation, dining area, cultural pandals, other basic services like water, food, ATM, vending services, etc. Akharas had access to the Sangam through specific paths on holy days. There were Akhara Pravesh Marg and Akhara Wapsi Marg. The incoming street started in Sector 16, passing through Triveni down the bridge to

the Sangam point, while the return was from sector 3 through Jagdeesh Ramp and Mahaveer bridge. All other sectors from the city side and Phaphamau side were connected to the Jhusi side Akharas through pontoons/ bridges.



In the Arail area, the sectors were distributed along the edges of Sankatmochan road, which headed to the tent city in Sector 20. These sectors mainly comprised public accommodation, VIP accommodation, arts and culture centres, flag of nations, cruise jetty, Arail ghat, etc. Movement between the Arail area and Sangam nose was served by boats, cruise boats and pontoon bridges. The New Jamuna Bridge connected Sector 1 to 18, 19 and 20. Arail was also connected to Jhusi through 3 pontoons. The entry points to the Kumbh were distributed across the sectors. On the city side, the entries were from Sectors 1, 6 and 7. On the Jhusi side, the entry and exit were from Sectors 17 and 15 connecting major roads to other neighbouring cities. Also, parking lots were provided around the Kumbh site to restrict private vehicles and buses entering the site. Special buses were also provided for people to visit the Kumbh Mela.



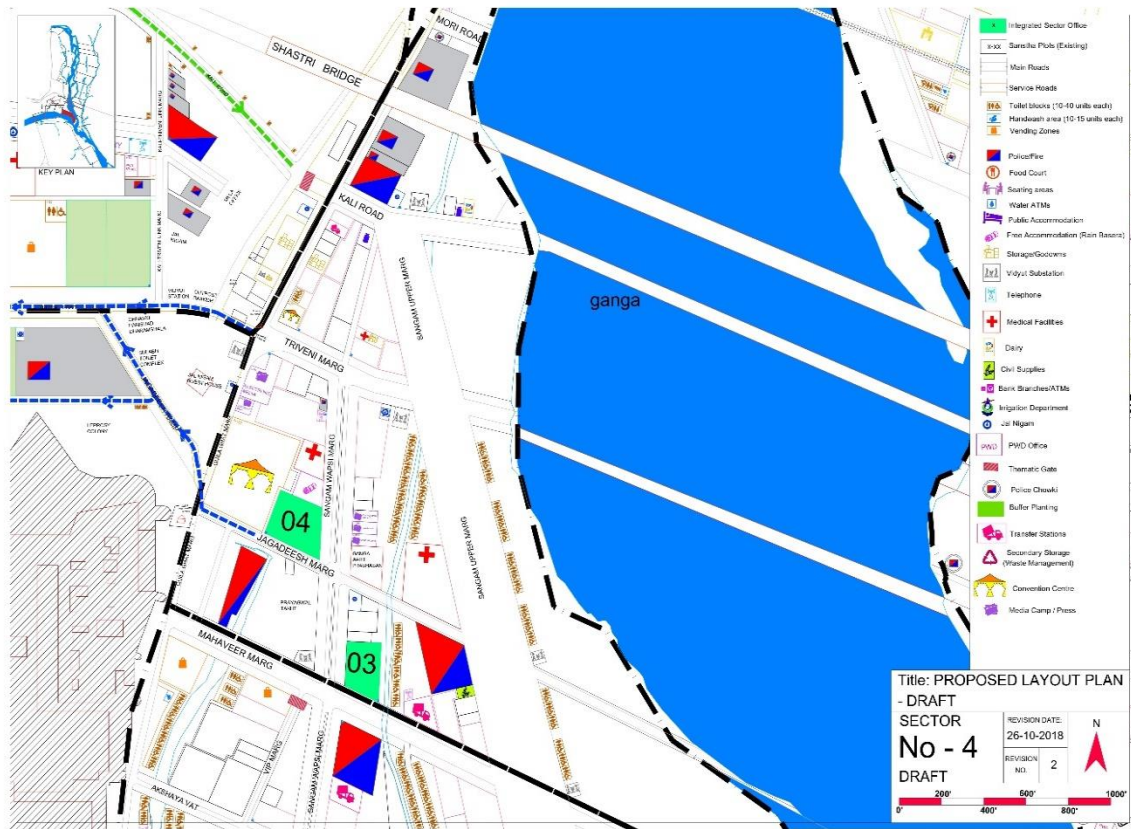


Figure 3.15. Proposed Sector Layout for Sectors 2, 3 and 4

3.3.8. Service Infrastructure

Each sector was an independent administrative unit. Each sector had a sector in-charge, the SDM, who was responsible for executing the operations of the sector. Each sector also had its own police in-charge and emergency services. The sectors also had their own social infrastructure such as temporary hospitals, ambulance, transfer stations for solid waste and sewage and socio-cultural centres. These centres made the sectors look multi-faceted and gave the city a cultural and tourist look rather than that of just a pilgrimage centre. The spatial integration was facilitated by three agencies that worked in tandem: the people who temporally inhabited the space, by the parent city and its physical and social infrastructure support, and the river morphology. In Kumbh Mela 2019, tradition and spirituality worked in rhythm with safety and security. As the planning proceeded, they also increased the scope and added embellishments to add to the convenience and attractions. There was daily Aarti. There were cultural programmes at some place or the other. They had a schedule of cultural programmes. The tourist city sector received a good facelift. There were laser shows. That is why this time they could target the *Guinness Book of Records*. This showed the confidence of the Mela authorities who went beyond safety, security and a minimalist approach.

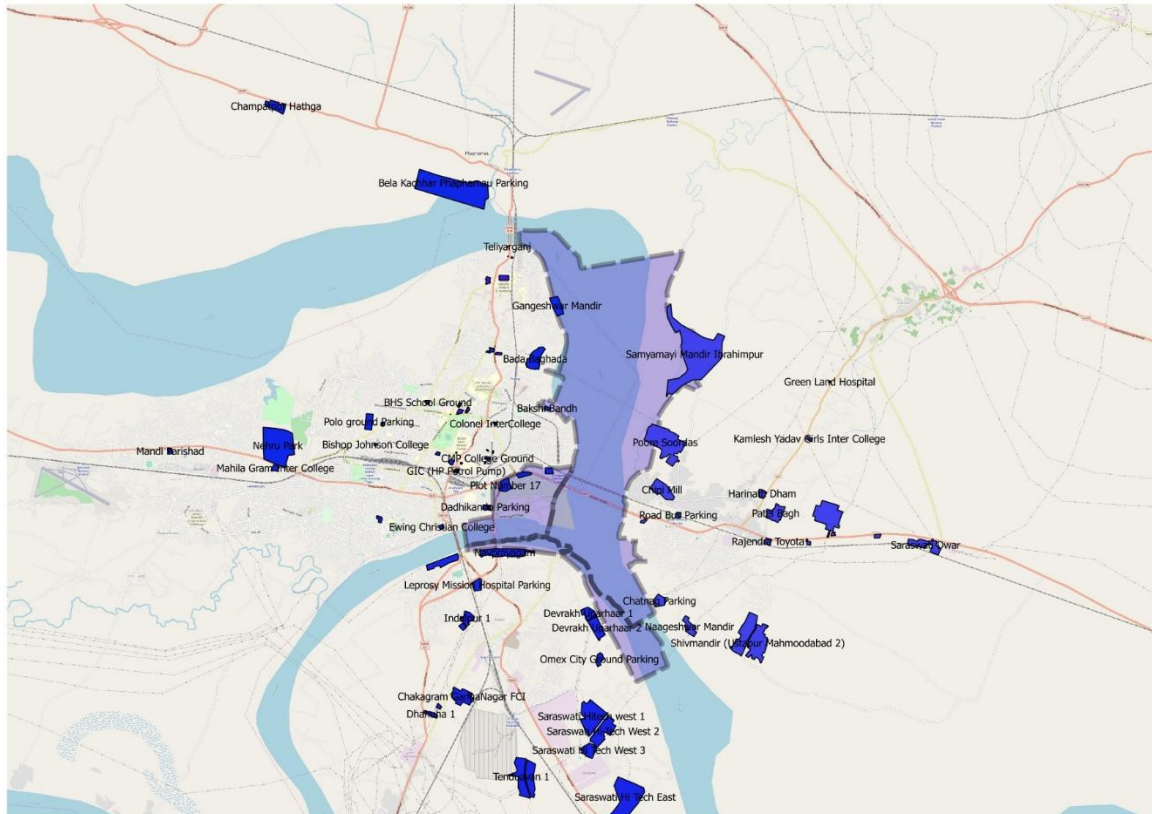


Figure 3.16. Overall Map

The grid structure is useful in defining the catchment areas, jurisdictions, and area of influence. Various departments like police, health, sanitation, etc., had their areas clearly earmarked for their officers. It also helped defining flow of traffic and movement of passengers. It helped in defining the procession routes, green corridors, etc.

3.3.9. Allocation Process

A major challenging task before the authorities is the actual process of allocation of sites to the religious institutions and various other stakeholders (including vendors setting up the tourist camps). Even though the order of allotment to religious institutions is a well-accepted principle based on past Kumbh melas, there are still issues about location and extent of space allocated. It was evident that as plans progressed, negotiations continue right until the beginning of construction of tents in November. A lot of tact goes into the allocation and the negotiations were conducted very patiently. The allotment to religious institutions is critical as only after this is done, the authorities can proceed with the allotment to other stakeholders. The protracted nature of the negotiations leaves very little time for the authorities, religious institutions and contractors to construct the camps. The camps have to be readied before the arrival of the religious heads and one could see in this instance that the camps were getting ready even as the religious groups kept arriving. This is discussed in the section on accommodation.

3.3.10. Deconstruction and Dismantling

When a mammoth Mela like the Kumbh is celebrated, it invariably leaves behind tonnes of debris. It is usual for contractors to remove only what is of value and leave the rest behind. In this Mela, it was made part of the contract that they would clear all the debris before leaving the Mela, and the last payment was linked to the performance on this. Even the religious institutions were diligent in adhering to this condition. While the city of Kumbh is made with much planning, it is also deconstructed in a synchronised way. The construction itself is such that it can be dismantled easily. Most of the materials were reusable.

Deconstruction started with the Akharas leaving the camp after 10 February 2019. With the departure of the Akharas, the number of pilgrims staying permanently comes down drastically. Then, it is only the Kalpavasis who are left. The sets are slowly removed with Akharas leaving the camp one by one. For a large period during the second half of Kumbh, most of the visitors are tourists rather than devotees. Mehrotra and Vera, writing on Kumbh 2013 (2015, p.404) note, “After the festival ends, the city is dismantled, and its components are quickly and effectively recycled or repurposed with metal and plastic items finding their way to either storage or to other festivals and construction projects. Biodegradable materials such as thatch and bamboo are left to reintegrate with the site, which is nurtured by the flood waters, and serves as valuable agricultural land for the eleven monsoon cycles between the festivals.” In this Kumbh, virtually nothing was left behind, and in our visits, we observed that the Mela area was back to its original state.

The dismantling is enabled by several factors. The planners ensure that most of the materials or all the materials are dismantlable and transportable. Most of the materials like plates, posts, toilets, pipes, lights, bins, etc. are reusables. They contracts had factored in the residual value. The contracts also stipulated that they should completely remove the materials after the Mela. This was also supervised and certified, and then only payments were made. The planning provided for no permanent structures as it was after all planned on the river bed.



Figure 3.17. Dismantling Structures



Figure 3.18. Pontoons after the Mela



Figure 3.19. Mela Area after the Mela

3.3.11. Signages

One of the biggest lacunae of the Mela is the singular lack of signages at the Mela site. Of course, the general public simply followed the directions and crowd to reach the bathing ghats and move around. There were hardly any signs informing the public about toilets, water, food, etc. and one could see people asking the police or volunteers for directions. In many places, we could observe that workers or volunteers were themselves clueless as they are all from other places. The Lost and Found Centre was quite prominent because they had put up a balloon. One factor that helped is that people always come with someone who has visited the Kumbh in the past. Such persons were often seen leading the group or family. We came to understand that the vendor could not meet his commitment in the last stages.

3.4. Observations

Kumbh city has been variously defined as a temporary city, pop-up city, ephemeral city, etc. It springs up every time during the Kumbh Mela. In the normal course of events, a government and administration should have been satisfied with building a safe and secure city. This time, they went beyond building a *minimalistic city*. They had the overall vision that the mela had to be Divya and Bhavya. Of course, they could not make a temporary city a *maximalist city*. They designed it as a *functional and fulfilling city*. They first targeted a functional city and on that they built further edifices. The city assured comfort to the pilgrims, with safety and security in mind. They ensured that the pilgrims had full comfort in terms of a holy dip, movement, food, and an eco-friendly Mela. They then went about building further edifices of a tourist city and cottages, cultural activities, laser shows, and even a selfie point. Finally, it did attain the excellence of a Divya city.

The transformation of the Mela from November to April is mindboggling. We marked certain places and observed how the place transformed as the Mela progressed. It was just a bed of river sand and open space. Then, the pontoons came, steel plates formed roads, simultaneously lamp posts were installed and there were different departments working. Then, the sectors started taking shape and the tents started to come up once the allotments were done. Suddenly, there was feverish activity in December. The materials were just waiting to be put together. The city started taking shape. It was all ready by 10 January as the first bathing day was 15 January. During this period, the weather was also very cooperative and pleasant.

It looked like the administration had a mental model of the city and they were just waiting for the monsoon to come to a close. After that, a good amount of time was spent on allotment of sites to key religious institutions. Between the end of monsoon and allotment, infrastructure like roads, bridges and pipelines were getting laid. Once the allotment was done, the construction of camps came into picture. Until then, it was still open land. We observed that the administration was always confident of delivering the infrastructure before the first bathing day. The contractors had past experience and they had accumulated adequate materials in the city to move in the moment they received the go-ahead. In the

end, all parts fell into place and a whole new city sprang up from the sands of the floodplains. They had a mental model, but we also observed that the consultants EY had made a plan of all the structures and they knew these had to be just rolled out. For the ordinary observers and the uninitiated, it was simply a miracle.

Kumbh city (2019) can be characterised as a functional smart city as it had all the features of a smart city. The city was very economical in opting for architecture and technology which was minimal, sustainable, and dismantlable. It was designed to minimise ecological disturbance. Technology was used for not just crowd control and safety but also for managing toilets, solid waste, sewage, lost and found, etc. An exclusive ICCC was set up and was fully functional serving the needs of both policing and delivering public services. The coordination was often seamless. Whether it was crowd movement or movement of emergency services or even provision of utility services, the interfaces were coordinated. There were clear lines of accountability and SOPs for all critical services. The Kumbh city was inclusive; all arrangements – medical, food, transport, or even having a holy dip – covered pilgrims from all strata. There were beds at Rs.10,000 per night and at Rs.200 per night.

Kumbh city has to be seen in conjunction with the city of Prayagraj. The relationship between Prayagraj city and Kumbh city is symbiotic. A three-fold exchange happens between these cities in terms of economics, ecological, and infrastructural factors. The city also renews itself every six years that the Kumbh happens and gets upgraded for the mela.

The town planning and subsequent township that crops up for Kumbh Mela is a brilliant example of a synergy between private and public agencies, between institutional and self-organised groups to build and dismantle a city for millions of temporary inhabitants. It is one of the smartest cities with physical and social infrastructure in place guiding visitors and proving for the faithful, both elements of security and spirituality. The strategies used for building Kumbh can be a good learning while designing and developing temporary shelters due to displacement caused by natural or human-made calamities.

The city was built for the peak bathing days. So, on other days, some facilities looked redundant. It was observed that after 10 February, the crowd composition shifted towards a higher number of tourists. The people were also concentrated in smaller areas. It was higher in the areas nearer to the Sangam, sectors 1, 2, tourist city, etc. The town planning and allotment could have been done in such a way that the Kumbh area could keep shrinking as and when the main Akharas kept moving out.

Some of the key learnings and potential contributions of the Kumbh are as follows:

1. It is a town plan architecture that can be repeated where a temporary establishment has to be raised in times of disasters or any major event.
2. It is an administrative architecture that can easily be replicated during a crisis to form temporary settlements.

3. It is a city in which agility applied across different stages of construction: raising, scaling, innovation, movement, widening of pathways, etc. This creates opportunities for building sustainable cities of temporal nature in the light of large migrant and displaced populations in the world.
4. Simplicity of the urban form also renders flexibility and good governance. The sectors are self-sufficient districts which are serviced through the grids. The core planning principles make them easily adaptable to any situation on the ground.
5. Smart technology was applied be it for crowd management, railway ticketing, booking for tourists and pilgrims, signages, or security systems, thus making the urban planning cater to the ease of function, security and mobility.
6. One of the core concerns about such settlements is the aspect of sanitation. Although the Kumbh site had sufficient access to toilets with more than 150 toilet units in a sector (separate for women and differently abled) and efficient removal of waste, the STPs were over loaded.
7. It is important to note here that every building material used in the construction of Kumbh city, be it the steel plates used on the pathways, tents, bamboo, thatch, or cloth are dismantlable and reusable. This makes it one of the most sustainable and environment-friendly cities in the world.
8. Kumbh Mela is a classic case of a symbiotic relationship between the host city of Prayagraj and Kumbh Mela. They benefit mutually through positive reinforcements. This acts as a good reference to the future cities of tomorrow.
9. One of the most difficult areas with respect to temporary settlements is governance. Here, the entire governance/institutional structure acts as a selection pool of existing institutions, which come together to form a plug-in government. This government is then dismantled and dissolved as and when the city is dissolved and dismantled.
10. Kumbh Mela is an example of a reversible city that can be built, deconstructed and built again from time to time.
11. Kumbh Mela is a classic coming together of planning, construction, engineering ready to be built and dismantled.

The authors Mehrotra and Vera write on the town planning of 2013 and its lessons for regular urban centres, “How can we more flexibly accommodate things while providing the space for more rapid transitions, frugality, and the increasing fluidity that cities require? How can we move toward a more adjustable urbanism that is capable of anticipating and hosting the impermanent? (2006, p. 85). They write, “As a fecund example in elastic urban planning, it has much to teach us about planning and design, flow management, elements that support the accelerated urban metabolism, and deployment of infrastructure. It also offers insights about cultural identity, adjustment, and elasticity in temporary urban conditions” (2015, p.85).

The Kumbh town planning can be useful in creating temporary settlements and in times of emergencies like cyclones, earthquakes, and other natural calamities. It has necessary templates for creating a self-contained city in a short time which can cater to lakhs of people.

Chapter 4

Infrastructural Development Works and Kumbh Mela

4.1. Prayagraj: Smart City in the Making

The city of Prayagraj is a major pilgrimage and heritage site of historic significance that hosts tens of millions of floating populations during the Kumbh Mela. Spread over an area of 70.5 square Km, it revolves around the confluence of the Ganga, Yamuna and the mythological river Saraswathi. It is well-connected with Rail and Roadways and is the administrative and educational headquarter of the Allahabad district. It houses prominent institutions like the 'High Court of Uttar Pradesh, Principal Controller of Defense Accounts, Allahabad University, Police Headquarters, MNNIT, IIT, UP Madhyamik Shiksha Parishad, etc. It is one of the major commercial centers in Uttar Pradesh with the second highest per-capita income and is the third greatest GDP generating city in the state. It is also an industrial center and major trading center for agriculture.

The city development plan was prepared for the first time in 2006 by the Allahabad Municipal Council with the support of Capacity Building for Urban Development Project, a joint-partnership project between the MoUD and the World Bank. The plan was developed with a vision of developing a Hi-tech city and simultaneously continuing with cultural and religious traditions by promoting religious tourism. The plan also aimed at giving a thrust to traditional education system in order to make Allahabad a knowledge hub. The City Development Plan was revised in 2015 as per the CBUD guidelines and objectives to overcome the constraints of urban development with a focus on enhanced capacity building for successful management of Urban Affairs. The development goal included sectors like water supply, sewerage, sanitation, solid waste management, storm water drainage, traffic and transportation, addressing urban poverty, slum improvement, local economic development, environmental and infrastructural rehabilitation, promoting tourism and heritage management to realize the vision by meeting the sector specific service level benchmarks and indicators. (Ref: <http://allahabadmc.gov.in/cdp.html>). The city development is administered by the Prayagraj Development Authority (PDA) as shown below in Fig. 4.1. The Regional Office of the Chief Engineer, the Office of the Superintendent Engineer Prayagraj along with a team of 5 Executive Engineers, 15 Assistant Engineers and 67 Junior Engineers were appointed for attending to the Mela infrastructural and maintenance works.

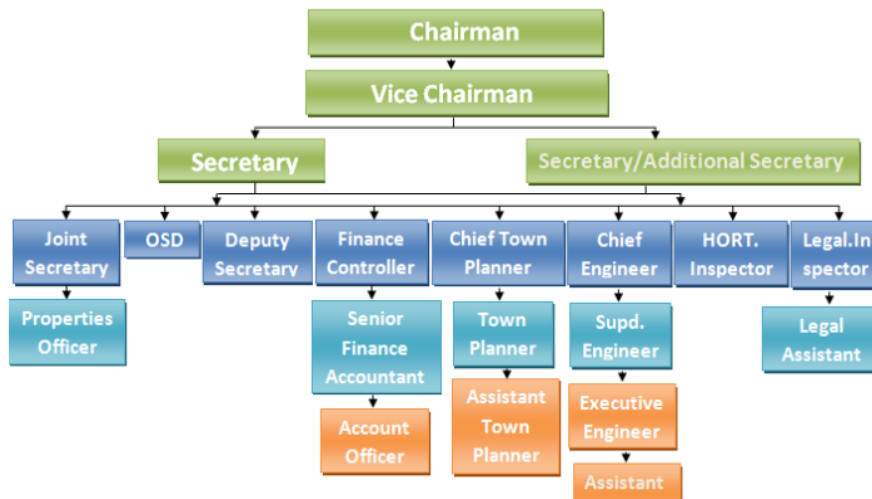


Figure 4.1. Prayagraj Development Authority

Prayagraj, with an anticipated population of 2 million by 2031, was one of the 13 smart cities proposed by the Uttar Pradesh. It was proposed for the Smart City project in 2016 and was selected for the smart city program in 2017 after winning in the third round of the Smart City challenge. The selection of Prayagraj as smart city came at the right moment. The Prayagraj Smart City project was registered as an unlisted Public Company in Aug 2017 as Prayagraj Smart City Limited Company with 11 directors. <http://mohua.gov.in/cms/smart-cities.php> and a CEO.

Prayagraj Smart City is an inclusive development project that leverages technology for harnessing smart solutions for an overall economic growth to provide a decent quality of life. It ushers in good governance to its citizens, ensuring their safety, security and facilitating seamless administrative management with infrastructural reforms in a transparent way by engaging and consulting its citizens and stakeholders in its developmental proposals to provide a comfortable, clean and environmentally sustainable living. The core infrastructural elements in a smart city are multi-dimensional. These included an array of infrastructure and services like:

- Adequate and equitable water supply and distribution, monitoring of unauthorized connections.
- Assured electricity supply, improved street lighting, less power outages, establishment of smart grids.
- Smart and scientific Sanitation and Solid Waste Management
- Efficient urban mobility and public transport
- Affordable Housing and housing for all
- Robust IT connectivity and Digitalization
- Good governance, e-governance and citizen participation
- Sustainable environment – conserving lakes, rivers, open spaces, recycling of water, reducing air and water pollution and resource depletion.

- Safety and security of citizens, especially women, elderly and children
- Public Health, Hygiene and Education
- Improved disaster management and efficient response system
- Transport, mobility and connectivity with better transport and parking facilities, encroachment free pathways, wide and clean roads with road safety
- Provision for other infrastructures for parks, skill development centers, slum rehabilitation/upgradation, sports and games, Wi Fi connectivity.

The plan for smart city also met the requirements of the Kumbh. So, it was decided to dovetail the planning to the extent possible to meet the Kumbh requirements but also the permanent requirement of the city also. The city of Prayagraj has a total of 2146 kms of Pucca roads, 131 kms of Semi Pucca roads and 77kms of Kacchha roads (Ref: Allahabad Nagar Nigam report), and in this backdrop the construction of 646kms jointly by the PDA, PNN and PWD in a short span of time is a commendable achievement. It is also reflective of the political will and administrative efficiency that the Kumbh Mela demands. The adaptation of technology together with the Smart City parameters further complement the augmentation of the city's infrastructural works for the Kumbh Mela.

4.2. Infrastructure transformation of the city

Prayagraj being the host city of Kumbh it was decided to upgrade it to a city which can handle huge inflow of tourists which is expected during magh mela every year. Prayagraj was declared as smart city and the administration decided to use the opportunity to map the plan for smart city with the requirements of Kumbh mela. As a priority, it was decided to widen the routes through which crowd and vehicles would move, and make the movement hinderances free. It involved widening the road, relaying the power lines and drainage, building underpasses, etc. All these had to be done before the start of the mela. Securing the land for road widening works and removing encroachments was a major challenge as it involved dealing with religious institutions and private individuals and hundreds of encroachments were removed on 65 roads in different parts of Prayagraj city.

Land encroachment was a major menace in the city of Prayagraj where public roads or Government land was illegally occupied by shopkeepers, businessmen, cattle owners to mall owners, tea sellers to powerful hoteliers, religious establishments, hospitals and private individuals thereby reducing the road capacity and obstructing traffic movement completely. There have been several court orders to clear illegal occupations but the Allahabad prime court premises itself was encroached. In recent times the Allahabad HC has issued strict orders to the UP government that no religious structure in any form shall be allowed to be raised in any public road that belongs to the state and observed that any official who does not implement the court directions and is found in deviation or disobedience to the courts' direction, will be held responsible and will be liable for criminal contempt of court. The authorities were able to successfully remove all unauthorized encroachments that falls within the Right of Way (ROW) by enforcing the original (master) plan and restoring the

width of the roads as per the land records. The public was inspired to cooperate with the authorities and action was taken against recalcitrant persons to remove the encroachments thereby widening the roads.

4.3. Dovetailing Smart City with Kumbh Focused Development

Once Prayagraj city was identified for development under the Smart City Project by the Government of India, the municipal corporation, with the guidance and advice of the Smart City consultants decided to implement Pan Area Development and Area Based Development with a proposal of developing roads based on the Cross-Section Model. Hence all roads constructed by the PDA for the Kumbh Mela is in accordance with the Smart City parameters of standard cross-section model roads with construction of standard intersections, road dividers, pavements, green belt, drains and electrification ducts. This created more space for widening of roads and visibly eased the traffic and transportation.

Most of the developmental works envisaged for the Kumbh Mela were meshed with the Smart City works for creating legacy infrastructure for Prayagraj. Major works of Kumbh Mela 2019 were implemented through e-tendering and under external monitoring in the form of a Third-Party Inspection Agency. The road construction work was given to the PDA under the provisions of the MahaYojana and deadlines were fixed for widening of the roads. Innovative elements like Rotaries were added at the junctions for smooth operation of traffic and Table -Tops were constructed in every road for pedestrian convenience. It was observed by the Commissioner that some of the works were completed just 15 days before the commencement of the Kumbh, hence a recommendation was made that future Kumbhs should ensure that no pending work remains in the final moment and that all envisaged work should be completed before hand at least a one and half before the start of the Mela. A list of Government funded schemes for implementing Civil Works was prepared and initiated.

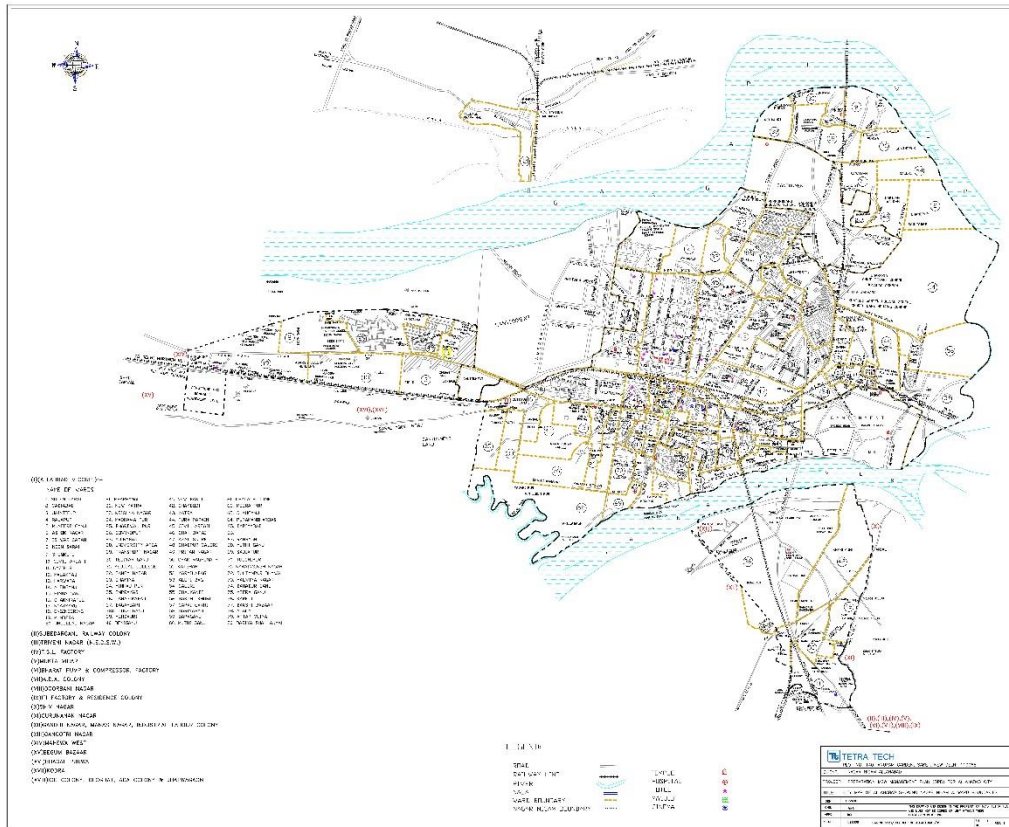
4.3.1 Permanent and Temporary Infrastructure Development Works

The infrastructure development works done by the Public Works Department under the Prayagraj Development Authority for the Kumbh Mela can be categorized under two groups. One set are the permanent legacy works like upgradations of roads and road safety by strengthening and widening of roads, upgradation of traffic signals, building of parking lots. Many drains, footpaths and road dividers were upgraded or built, and many streets were illuminated with streetlights and areas electrified. A total of 147 road projects were undertaken and a length of 646.03kms of roads were built and refurbished for the Kumbh Mela within an approved budget of 1578.88 lakh.

In order to facilitate the Kumbh pilgrims, major approach roads to Prayagraj were renovated, the Railway stations in the city were upgraded and the construction of helipads and an airport terminal were also undertaken and completed in time. The permanent development works undertaken for the Kumbh were ensured within the stipulated time

period under strict quality monitoring mechanisms. Some of the permanent infrastructural works and beautification of the city are given in the Annexure (Annexure 4.1).

The developmental works undertaken during the Kumbh Mela were meshed with the developmental works proposed in Smart City project by dividing the focus and coverage of the Smart City initiatives into pan city area and specific to the Kumbh area.



Source: <http://allahabadmc.gov.in/documentslist/MAP80WARDALLAHABAD.jpg>

Fig.4.2. Allahabad City Map

4.4. City Infrastructure Development Works

The Prayagraj Nagar Nigam took up many new initiatives like getting the major roads of the city cleaned by Robots alongside the deployment of tractors, trucks, handcarts and JCBs for solid waste management. There were new proposals of deploying 10 road sweeping machines over a stretch of 320kms that were incorporated and tested for road cleaning works, door to door collection of garbage and cleaning of city, roads and drains were taken on priority. The Nagar Nigam was also responsible for aiding the development of other infrastructural works like:

1. Construction of drains lines along the roads
2. Compliance to Rainwater Harvesting methods
3. Building Railway underpasses
4. Laying of drinking water pipelines as per the PayJal project

5. Construction of new Borewells and renewing the existing ones borewells
6. Augmentation of the city's water supply system
7. Providing streets with lights for all roads
8. Building Akhara camps
9. Facilitated transport management by making arrangements for parking spaces and signage fixing
10. Road widening works and electrical reconnections.
11. Nagar Nigam also helped in building of Rain Baseras for the pilgrims
12. Compliance with Swacch Bharath initiatives
13. Beautification of parks and building of temporary parking lots

The Prayagraj Development Authority got upgraded all major intersections. 64 traffic posts were given a facelift, some of which are major intersections falling on the main Kumbh route. These helped considerably the flow of traffic and crowd movement, movement of emergency services and VIPs. These also connected all the main arterial routes from the bus stands, railway stations, highways, etc. All major intersections beautified and upgraded with Traffic signal post installations (Annexure 4.2)

Prayagraj Smart City is one of the fastest to implement to implement smart city projects thanks to impending Kumbh. It is equipped with fully operational Data Center and Two Command Centers, a fully operationalized 24/7 Emergency and Civic City Contact Center with fully functional dashboards and analytics. It has fully commissioned secondary command center and fully commissioned CCTV, SWM, ANPR, RLVD, E-Challan and VMD. The project will be extended to the rest of the city and integrated to the ICCC in subsequent phases covering IOT, sensors, traffic, e-challan, smart parking, CCTV with 23 AI based special video analytics and other applications.

4.5. Kumbh Mela Infrastructure Plans

The second type of infrastructural works are of temporary nature specific to the Mela in the Kumbh Nagari where an entire area of 3200 hectares is laid out for temporary infrastructural build up. The PWD constructed 22 Pontoon Bridges using 2437 pontoons. Each pontoon and the bridge were assigned unique numbers which facilitated the maintenance and repair works. A total of 444.08 kms of checkered plate routes were constructed with 170109 checkered plates out of which 112194 checkered plates were supplied by the Steel Authority of India. The approach road to the bridge and the checker plates had to be aligned properly all the time and the Engineer's team had to constantly monitor for any erosion of sand vigilantly and remedy it swiftly. Separate Akhara routes were built, intersections were identified and signages were fixed. Additional Ghats were built, and existing ones strengthened.

With the expectation of significant increase in footfall and the changing course of the Ganga, the land area coverage of the 2019 Kumbh Mela was increased to 3200 hectares from the previous 1936 hectares of the 2013 Kumbh. With almost a 65% increase in the

proposed land area for the Mela, the scope of the required infrastructural works and its budget allocations also had to be increased accordingly. It should be in fact mentioned here that the expenditure grows proportionately in relation to the area of the mela as more sectors get opened up. The planners ensured that all infrastructural bottlenecks enroute from entry points to the Sangam area, bus stands, parking areas, railway stations, etc are cleared and upgraded as mentioned earlier. These were undertaken at breakneck speed and they worked backward from the Kumbh deadline to ensure that these are completed on time for the Kumbh.

The transient town came up based on the extensive exercise taken under town planning. An important factor of the township is the floating pontoon bridges on the river which have to be formed in alignment, and its maintenance on the Ganga is a major challenge in the everchanging currents of the river. The changing course and rapid currents of the river necessitated changing the plans for pontoon bridges. For example, instead of the estimated 80 pontoons, some bridges required 200 pontoons which had to be arranged in short time. The authorities decided to go with *Bundling* on the whole pontoon bridge to keep the riverbank safe.



Figure 4.3. Pontoon Bridge

The roads were formed on the checkered plates and in order to keep bound to the sandy roads, the general practice is to spray water so that the metal plates stay in place but the spraying of water by Jal Nigam pipelines led to washing off of the sand under the checkered plates. This time these were linked with bolts so that these remain intact. However, laborers were engaged for the maintenance of these motorable or checkered plate roads that prevented any inconvenience to the visitors. At some times, there was an increased flow of vehicle traffic on the checkered plate route hence these vehicles were directed towards non motorable / Gatamarg and some of these non-motorable routes were converted into checkered plate roads to accommodate the heavy vehicles entering it. It can be suggested that mechanisms adopted in the construction of checkered plate roads and pontoons which

are temporary in nature may need to be looked at and may be newer methods could be explored in their construction methods.

In each of the sectors, infrastructural provisioning for self-contained units of administrations had to be provided for. Each sector had provision for administration, police and fire station, health center, electricity and water departments, etc. The major infrastructural projects are relating to electricity and water. This time the administration also planned comprehensively digital technology and usage of automated control center.

4.6. Water Supply and Sewerage Works

The Jal Nigam department of the Uttar Pradesh Government was responsible for ensuring provisioning of water supply system and improving of Drainage and Sewerage System for the Kumbh Area and the city.

The work plan of Jal Nigam for the Kumbh Mela 2019 began with the meeting organized under the chairmanship of Chief Secretary, Uttar Pradesh Government, Lucknow, along with the works of other departments, the department's primary focus was to stop water pollution, smooth flow of drainage system, control of pollution of rivers and to ensure continuous water supply and channelize the drains scientifically. Instructions were given to complete all tasks in a timebound manner and at the same time ensuring quality work.

- Five new water supply schemes with a budget of Rs.2120.29 Lakhs was launched for the Water Supply and Drainage works in surrounding areas like Dittapatti, Suresadas, Madpar, Arail and Pandey, around the Mela region.
- An amount of 275.50 Lakh was allotted for providing drinking water at the parking areas and main roads connecting to Allahabad.
- An amount of Rs.160.54 Lakh was provisioned for the repair of underground reservoirs in Jhusi Mela area of Chatnam and Badra Sunouti. 14.5 km pipeline were established. 10 new tube wells were built, and 17 tube wells were revived.
- For establishing drinking water supply, 11 km of permanent pipeline were laid in Parade area.
- 279 kms of D.I pipes, 65 kms of G.I. pipes, 45 kms of HDPE pipes and 4 kms of RCC pipes were purchased and 650 kms of pipeline and 50 kms of drainage pipes were laid.
- 650000 meters of raw gutter, 40 fire tanks, 67 Tube wells, 300 India mark-2 hand pumps, 20 mini tube wells, 2 under repairing the inferior reservoir and 14.50 kms of pipeline was laid.
- 11-km permanent pipeline and 5.7 km drainage line were laid in the parade area, 10 New tube wells, 17 rehab tube wells were made.
- In order to lay 5 km drainage pipe, an amount of Rs.1858.37 Lakh was sanctioned by Allahabad Mahanagar

- Rs. 1169.09 Lakh was marked for repair and rehabilitation works in the water supply scheme.
- An amount of Rs.5285.70Lakhs was allotted for procurement of D.I, J.I and HDPE pipes for water supply and drainage pipeline laying in the fair area
- For the purpose of drainage work, maintenance of road washing, dewatering, diesel arrangement, an amount of Rs.2142.04 Lakh was approved by Mela Officer

An estimated 95 million liters of pure water with chlorine was provisioned to be pumped through 67 tube wells in the Mela area daily, and on the shahi snaan day around 105 million liters of daily supply of pure drinking water was supplied.

Continuous drinking water was supplied in the entire fair area through 100 2-kms distribution channels and about 70863 connecting water pillars. A total of 3055 fire hydrants were fitted and an uninterrupted 24hour water supply with continuous water pressure in pipelines was ensured for contingency readiness. Sand was laid around water columns and platforms to prevent mixing of soil. Approximately 187 km RCC / PVC / HDPE pipe was laid for the drainage works. Water extraction was arranged through the raw drain/water storage and pumping sets. For comparison to understand the additional work in this mela and scale of work the following Table 4.1 is included.

Sl.No	Description	Kumbh Mela 1989	Ardh Kumbh Mela 1995	Kumbh Mela 2001	Ardh kumbh 2007	Kumbh Mela 2013	Kumbh Mela 2019
1	Population in Lakhs	150	175	200	250	350	500
2	BoreWell Numbers	23	22	28	38	46	67
3	Pipeline (kms)	242	216	340	458	690	1001.99 km
4	Fire Hydrant	821	649	1100	1454	2637	3055
5	WaterPole	9237	9302	15430	18523	32570	70863
6	Fire tank	20	8	28	29	40	47
7	Sewer Pipe km	Dec-50	Sep-85	16-50	22	60	187031
8	Row Drain	40	62	150	240	40	113443 Meter Square
9	Hand Pump		37	17	2	61	166 Nos

Table 4.1 Some past data from Jal Nigam for Kumbh Mela water supply and drainage works

The Allahabad Jal Nigam implementing the Ganga Pollution Control Scheme ensured maintenance of the cleanliness levels of the Ganga river by adding various water infrastructural elements. The scheme benefits the citizens of Prayagraj in various ways and is a step towards compliance to the Smart City parameters laid down for the city of Prayagraj. These schemes were implemented to keep the Ganga clean and potable water available under Namami Gange Scheme are (Table 4.2).

Zone	Benefits of the Scheme to the people of Prayagraj
Sewerage Non-Sewerage	Undertaking of sewerage and non-sewerage works under the scheme by addition of 4 STPs with 105 MLD capacity and 7 Sewerage Pumping Stations that stopped the letting of 105 MLD (million liters per day) of untreated Sewage water into the rivers.
Sewerage District - E(ALD)	111kms of sewer lines were laid and 2 sewage pumping stations were set up for domestic sewage management.
14MLD STP	Building of 14 MLD STPs that stopped the letting of untreated sewage water into the river.
Sewerage District - C(ALD)	132kms of sewer lines were laid, composition of 17059 domestic sewage lines and 2 sewage pumping stations have been commissioned.
Sewerage District -I (ALD)	203kms of sewer lines were laid, composition of 12994 domestic sewer lines and 2 sewage pumping stations have been commissioned
Sewerage District B(ALD)	186kms of sewer lines have been laid, composition of 25000 domestic sewer lines has been completed and 5636 housing schemes have been completed and 1 sewage pumping station has been commissioned.
Sewerage District E(part2)	44.06kms of sewer lines were laid in Meerapatti Sulemsarayam and other Mohallas for connecting them with Sewer lines

Table 4.2. Works undertaken

A total of 150 kms of High Density Poly Ethelene pipeline were laid, 850 kms of Drains were constructed, 100 Diesel/Trolley mounted pumps used, Bio-remedial and Ponding sites were built around the Mela area, permanent sewer lines were built in few sectors to ensure efficient sewage transportation from Mela area to treatment plants. The Irrigation department pitched in for River Training where Bamboo piling works was created, and Bamboo cranes were constructed to stop overflow of the riverbanks.

To keep the waters and the city clean, a polythene ban was imposed and implemented strictly. A total of 4120 Kg of polythene was picked and a total fine of Rs.964420 was collected. Special boats were arranged in the river to comb the waters clean from any puja items or plastic accumulation. Ghat cleaners were employed and cloth bags were distributed freely to curb the menace of plastic.

The responsibility of ensuring an uninterrupted water supply during the Kumbh Mela, lies with the Jal Nigam. The 2019 Kumbh Mela furthered the scope of the Jal Nigam to cater to

the added and extended requirements for the Mela. With the Ganga river changing its course, the land area of the Mela was extended to 3200 hectares that was divided into 20 sectors in 2019 Kumbh,

1. On account of the extended area allotted for the Kumbh Mela, the grid of pipelines too had to be extended, keeping up with the demand for water supply.
2. Uninterrupted water supply was to be ensured during any fire emergencies and arrangements were made by the Jal Nigam accordingly
3. 800kms of Pipelines for water supply was laid
4. 24/7 Drinking water supply was ensured during Mela period to all camps
5. 200 Water ATMs were set up
6. Continuous Water Testing was ensured to check the water quality
7. 5000 Stand Posts were set up
8. 150 Water Tankers were deployed
9. 100 Hand pumps were arranged
10. 67 Tube wells were renewed or built
11. 30 Generators were readied
12. 5040 sluice valves were fitted
13. 4130 Fire Hydrants were proposed to be installed
14. Water Storage Tanks with a capacity of 16000KL each were installed at 40 critical locations
15. As a health and emergency plan Bio remedial ponding sites were identified.
16. 200 Diesel based pumps and 20 Trolley Mounted pumps were made available for dewatering purposes
17. Procurement and Installation of 500-600mm Dia pipelines for bailing out storm water to river

4.7. Electrical Works

Electricity was another important contributory factor to the smooth functioning of the mela. The mela area was well lit all the time and this is very important for the proper management of crowd, safety and security. Well-lit atmosphere is an assurance of safety to people especially to the old and women. Throughout the mela the area was kept well lit. In fact one could see that even after the akaras had left the sectors were kept well-lit to avoid any untoward incidents. The smart city planning was done such that the laying of electrical cables, water pipes, etc. were all well aligned to the roads and crowd movement so that there will not be any need for again digging the roads. The electricity department undertook massive works to make the power distribution in the city fully provided and smart. They also had contingency plans for disruption due to rains, water logging, and power outages. The projects related to provisioning of power for the city and mela area can be seen in Annexure. (Annexure 4.3 and 4.4)



Figure 4.4. Kumbh Mela Well-Lit at Night

4.8. Health Infrastructure in the Mela Area

The Health and Family Welfare department had provided for comprehensive effective infrastructural and professional provisioning for health management of the mela. This is discussed in the Chapter on Health management. In gist, the department had provided for a 100 bedded Central Hospital was established in Sector 2, equipped with all important facilities like X Ray, Ultrasound, Pathology, ICU indoor and outdoor with specialist doctors apart from a ten 20 bedded Hospitals to cater to Infectious Diseases were set up in various Sectors. It had set up 25 First Aid Points (FAP) and 10 Health Out Posts in coordination with Traffic Police. Four 30 bedded Additional Hospitals were established in Arail, Kotwa at Bani, Sahson and Daraganj. It set up zonewise ambulance holding area.

The making of the Kumbh Mela and the subsequent setting up of the Kumbh city and bringing it alive can be characterized as Smart City by itself. It also portrays the humongous infrastructure development tasks that can be accomplished with political and administrative grit, efficiency and honesty. The infrastructural transformation and modernized development of Prayagraj and growth in civic amenities in a span of 1 plus year and the building of the temporal city in a matter of 2 months is an impeccable task to achieve that needs to be sustained and maintained on a continuous model in the city.

Annexures

Annexure 4.1. Civil Works completed as a part of Kumbh Mela and Prayaraj works

Landscaping, Drain Work and Footpath Work done from Maharana Pratap Cross to Naya Parava on Stanley Road.
Construction of Epoch Road on Allahabad-Lucknow Highway for Parking at Phaphamau Shantipuram for Kumbh Mela 2019.
Construction of Service Road and Wood Mix Flooring on Stanley Road from Maharana Pratap Cross to Nayapurva.
Construction of MS Railings on Stanley Road from Maharana Pratap Cross to Nayapurva.
Road Widening, Drain Covering, and General Maintenance from Lohiya Cross (MG Road) to Maharana Pratap Cross
Development of Electrical Work, Drain Maintenance, Road Widening from Yamuna Pul insti to Trivenidarshan.
Road Widening, Drain Coverage and Maintenance from Water Tank to Fire Station on Nawab Yusuf Road.
Development of Region from Leprosy Cross to Pahunch Marg for Kumbh Mela 2019 Parking.
Construction of connecting road for parking lot in Naini for Kumbh Mela - 2019 from leprosy chaoraha to Arail Road.
Railings on Drain and Road Widening from Balasan Cross to GT Crossing.
Road Widening, Maintenance, and Drain development from Rajarupapur Police Station to Alawa Circle.
Development of Circle, and establishment of Divider on the Rajarupapur Police Station Circle.
Road Widening, Drain and Footpath Development from Tulsi Cross to CMP Dot Pul.
Construction of Service Road from Medical Cross to CMP Degree College.
Road Widening from Trivenipuram to Andhawa Cross.
Maintenance and Road Widening from Shastri Pul to Trivenipuram.
Maintenance and Road Widening from Shastri Pul to Trivenipuram. (Special)
Maintenance Work from Rambhag Cross to Bairahana Cross.
Road Widening and Drain Maintenance from Jonsanganj to Tulsi Cross and Lohiya Cross to Civil Line.
Road Widening work from Chauphatka to Rajarupapur Cross.
Road Widening work from Chauphatka to Khuldabad Police Station.
Construction of Divider and Parking Spot from Chauphatka to Khuldabad Cross.
Road and Drain maintenance from Jonsanganj Cross to Rambag Cross.
Road Widening and Maintenance from Leader Road to GT Road.
Road Widening and Drain Maintenance from CMP Dot Pul to Bairahana Cross.
Road and Drain Maintenance from Khursobad to Jonsanganj Cross.
Road and Drain Maintenance from Khursobad to Jonsanganj Cross. (Special)
Modernization, Maintenance and Beautification of Khusrobhag, Allahabad.
Beautification and Maintenance of Trivenipushp area.
Road Widening and Drain Maintenance from CMP Dot Pul Harshavardhan Cross.
Drain Maintenance and Road Widening from Bairahana Cross to Harshavardhan Cross.
Road Widening and Maintenance from Daragunj Dot Pul to Sangam Bandh Road.
Road and Drain maintenance along with Road Widening from Kharubag Cross to Lukergunj Cross (Old GT Road).
Path from Prayag Cross to Prayag Station and Drain maintenance.
Road Diversion at Khushrubag (Under the ROB).

Road and Drain maintenance from Maharana Pratap Cross to Dhobhighat Cross.
Road Widening, Drainage and Divider work from Old GT Road to Ansi Railway Station.
Road Widening and Maintenance from Varanasi Road to Kanihar.
Road Widening, Drainage and Railway Maintenance from Alopibag to Daragunj Dot pul.
33/11 KW Line shifting work till Andhawa Cross.
LED Lighting work till Andhawa Cross.
Fixing railings to facilitate better transport and safety for the Kumbh Mela
Fixing railings on both sides of Yamuna for better safety for Kumbh Mela
Fixing Railings on both sides of road leading to Shastri Pind for Kumbh Mela
Fixing Railings on both sides of road leading to Chandrashekhar Pond for Kumbh Mela
Development and Beautification of the space under the Flyover near Rambag Station.
Development and Beautification of the space under the Flyover near Cariappa Entrance.
Beautification under the Flyover at 35B Crossing near Nani Railway Station.
Beautification under the flyover at MNNIT in Govindpuram.
Beautification under the flyover at GT Road near Khusharubag.
Beautification and fencing of the area under two lane Flyover near Airport Crossing 3 A Begum Bazaar.
Establishing a Statue of Maharishi Bharadwaj and a pedestal in front of Bharadwaj Ashram near Balasan Cross.
Work at Sangam in Allahabad related to water sports.
Land Digging Diversion under the ROB near Khusharubag.
Beautification of the area under Sodabatiyabag Flyover
Road Maintenance of the area near Shastri Pond till Andhava Cross.
Constructing Public Toilets
RCC Drains and Culverts at different places in Kataka Majara.
Construction of steps from Hanuman Mandir to Gangoli Shivala.
Electrification and LED Lighting across the city.
Tikona Park developed between old Yamuna Bridge to Leprosy Crossroad and Arail Road, Rewa road.
Railing work from Chaufatka to Begum Bazaar
Beautification of pavements in Vivekanand Marg(Johnsonganj Chauraha to South Malaca.
RCC wall constructed on Police line situated at Stanley Road
Construction of RCC divider from water tank to fire station
Martyr Lal Padmdhar children's park renovated
Water Pipelines and Submersible motor fitted for Industrial irrigation works from Tulsidas statue crossing to CMP Degree College Dot Bridge road
Renovation of Hemvati Nandan Bahuguna Park
Gazebo and parking formation work done in Bakshi Bandh
5HP submersible pump has been fitted at rose nursery
Pipe fitting work completed for filling of tankers under different residential schemes
Temporary Police Booths established
Reinforcement work done under Naini residential plan on access land near HD-74 park
Renovation of park facing Mehndauri Police Station
1 Lakh saplings planted in financial year 2018-2019
Filling of soil in Central Burge of different roads
5000, eleven feet high bamboo sticks installed for supporting the plants

Completed 5000 grouting works of iron tree guard with fixed design and size
Adding green patches and flowering plants at different roads and road dividers.
Renovation of 70 crossings
Planting selected plants on Rotaries on Balson crossings
Non usable pontoons were used as base plinths for Art works set up from Tulsidas crossroads to Medical college intersection up to CMP Degree College crossin
Road Work and Drain Work from Nurulla Road to Khuldabad Station.
Widening of road from Sector A of Shantipuram to Kachar Kshetra for parking purpose.
Constructing a Ramp, Toll Booth and Pipe Culvert to connect Phaphamau Allahabad to Kachar.
Shifting the Wall from the Police Line on Stanley Road and building a retaining wall in its place.
Beautifying the Jonsanganj Circle.
Building a Drain and Parking space on both sides of PD Tandon park in Tulsi Circle, Work on footpath from Fire Station to Niranjn Dot pul, and divider work from Jansengunj cross to Lohiya Cross
Road work and Drain Work from Dhobi Ghat to Eklavya Cross on GT Road.
Drain, Drain Cover and footpath from Eklavya Cross to Children's Park.
Road work and Drain Work from Dhobi Ghat to Eklavya Cross on GT Road.
Building a Guardhouse and Toilet in the Women Development Board building on Nurulla Road.
Footpath and Drain Cover on Nawab Yusuf Road from Water Tank to Fire Station.
Building a Divider on Nawab Yusuf Road from Water tank to Fire Station
Building RCC from Gobar lane to CMP.
Building a Police Station.
Building Police Station at Dhobighat.
Building Rajarupapur Police Station on Kaushambi Road
Building Police Station on GT Road near Machli Bazaar Circle.
Beautification of Vivekanand Road.
Building rainwater harvesting facility, green steps, boundary wall at the Trivenipushp monument.
Covering the drains and building footpaths from Chauphatka to Jhalwa Circle on Kaushambi Road.
Footpath, Drain and Parking space from Lookergunj to Jansengunj.
Road Widening, Drain and footpath from Baba Circle to Sadar Bazaar.
Cleaning Shaheed Lal Padmadhar Kids Park.

Annexure 4.2. Major Intersections

- Fire Brigade intersection
- Tulsidas Statue intersection
- CMP Dot Bridge intersection
- Dhobighat Crossroads
- GT Jawahar Square
- Andhawa intersection
- Pandit Madan Mohan Malviya Statue Square

- Balson Square
- Manmohan Square
- Behrana intersection
- Medical Crossroads
- Bhaangad intersection
- Leprosy Crossing Naini
- Maharishi Valmiki intersection
- Rambhag Dot Bridge
- MNNIT trijunction
- Teliarganj intersection
- Phaphamau Tiraha
- Lakshmi Talkies Crossroads
- Maharana Pratap Statue intersection
- Baba intersection
- Stanley Road intersection
- Salikram Jaiswal Statue intersection
- Police Chowki Crossroads
- Sahoso Crossroads
- Jagadtaaran Chauraha
- Rambhag intersection
- Bai Ki Bhaag intersection
- Chandralok Talkies Crossroads

Annexure 4.3. Electricity Projects in Kumbh Mela Area

1. With increase in the proposed Mela area the expected load of Kumbh Mela 2018-2019 was increased to 35MVA with a proposed installation of 77.6MVA.
2. There were 4 transmission s/s directly feeding the Kumbh area and 14 numbers of 33/11KV independent feeders s/s around the Mela area with a total capacity of 260MVA installed.
3. The source of power supply was from 2 sources with different primary sources.
4. 64 generators were installed in case of any emergency breakdowns in all sources.
5. 47021 LED streetlights were installed
6. MCBs were installed in all camps to avoid any short circuit or fire hazards.
7. Provision was made for insulated flex in poles near bathing areas
8. Painting poles in silver paint
9. Every streetlight pole was marked with unique codes indicating sector number, street name and the pole number to facilitate locating the faulty poles for repair works.
10. Establishment of 30mt high mast on all main roads of the city
11. Underground cabling, line-shifting and lighting work was carried out across various streets
12. Areas where electrical works were undertaken are:
 - Dhobi Ghat to Ekalavya intersection.

- Lohia marg intersection civil lines (MGG) to Maharana Pratap chauraha.
 - External electrification and installation of lighting system in Nagar Panchayat Jhushi.
 - LED lighting work in Nagar Panchayat Jhushi.
 - Electrification work from the Maharana Pratap intersection to the Dhobi Ghat intersection.
 - Electrification work from CMP Dot bridge to Bairahana chauraha
 - Electrification from Rambagh intersection to Bairhana Chauraha (Rambagh station).
 - Electrification work from Alopiabag to Daranganj Dot bridge.
 - Electrification work from water tank to Fire station.
 - Works related to electrification from Johnstonganj Dot Bridge to Tulsi chauraha civil lines.
 - Electrification from Tulsi crossroads to medical crossroads.
 - Electricity work from Prayag chauraha to Prayag station
 - Electricity work from Barahana intersection to Harshavardhan intersection.
 - Electric line shifting and lite arrangement for connecting lane to Jhushi railway station.
 - Road widening and construction from Varanasi road to Kanihar Lake
 - Electrification work between new bridge and old bridge (triveni darshan) toward the viewpoint
 - The work of electrification from Khusro Bagh to Johnsenganj intersection.
 - Balson Square to Jyoti Jawahar Crossroad (Jawaharlal Nehru Road) the work of 33/11 lt line shifting function.
 - Better lighting system on Leprosy intersection for parking space in Naini.
 - Lighting arrangement on Four Lane Approach Road for parking space in Phaphamau near Shantipuram Allahabad Lucknow road.
 - From Jhushi road Shastri bridge to the Andava intersection 33/11 KV electricity work of line shifting.
 - From Jhushi road Shastri bridge to the Andava intersection electricity work of LED lights.
 - LED lighting from Chaufatka to Khuldabad chaoraha was completed.
 - Electrification from Khusrubaagh chauraha to Lookarganj old GT Road was completed.
 - Electrification from Rajrooppur Police chauki (Kaushambi Road) to Jhalwa trijunction was completed.
 - Electrification from Chaufataka bridge GT road to Rajrooppur Police chowki (Kaushambi Road).
 - Electrification from leader road (Water authority boundary) to GT Road completed.
18. From Harshavardhana intersection to CMP dotbridge work of lighting and 33/11 / LT line shifting has completed.
19. Electrification under ROB near Khushrobagh.

Annexure 4. 4. Kumbh Mela Electrification

Details of Executed Work				
Sr.No.	Description	Unit	DPR Quantity	Executed Quantity
1	Installation of 2x400 KVA LT Sub Station	No.	54	70
2	Installation of 1x250 KVA LT Sub Station	No.	10	10
3	Installation of 1x100 KVA LT Sub Station	No.	89	111
4	Provision Of 400 KVA Trolley T/F	No.	20	20
5	Provision Of DG Set	No.	64	64
6	Erection Of Over Head/Underground 11 KV Lines	Km.	135	154
7	Erection Of Single Phase And Three Phase LT Lines	Km.	1030	1283
8	Erection Of High Mast	No.	100	175
9	Provision of Street Light Fittings(LED)	No.	40200	47021
10	Provision of Camp Connections	No.	280000	350000

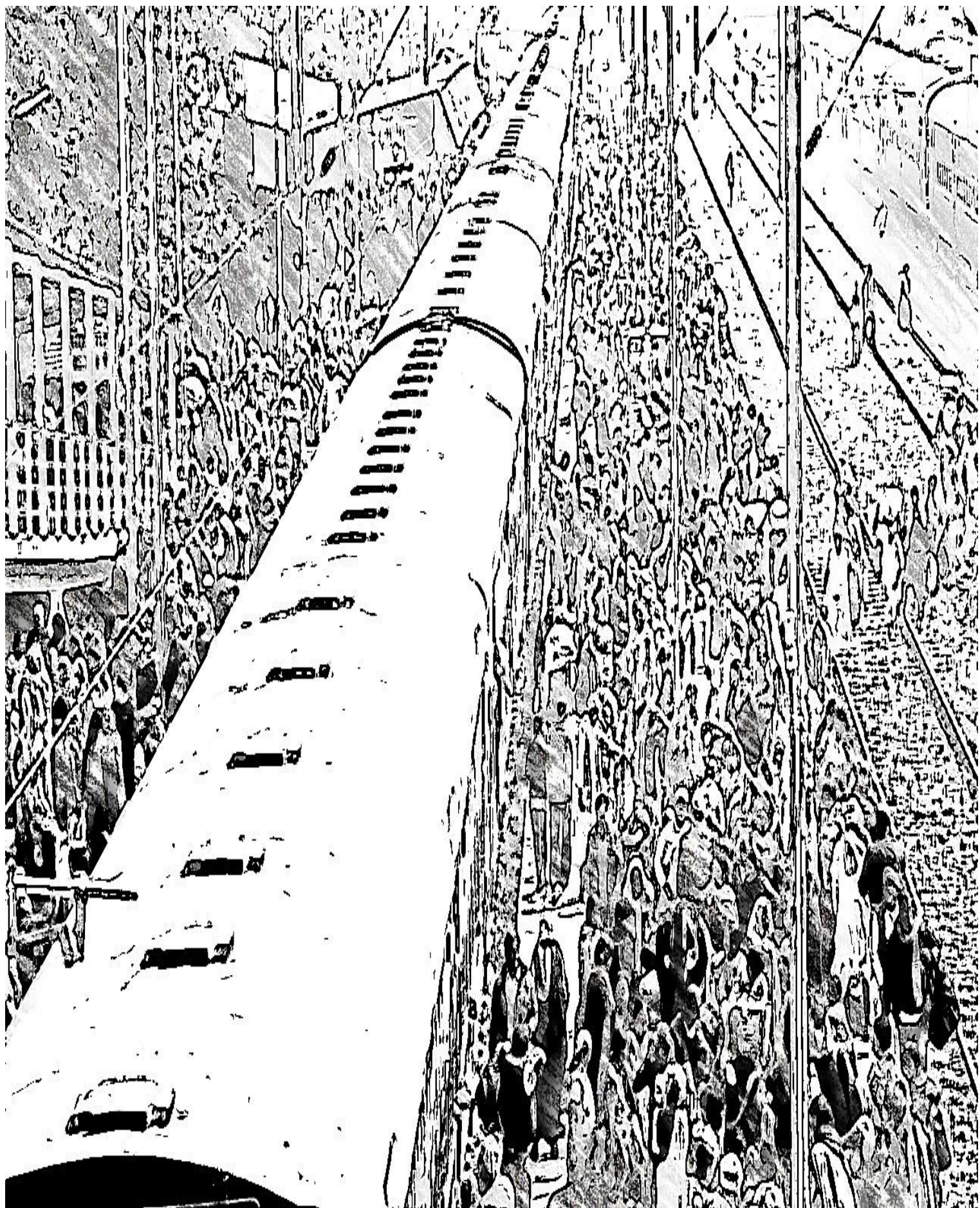
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Annexure 4.5: Infrastructure Highlights

1. The UP-State Bridge Corporation commissioned the construction of 9 Over Bridges for the purpose of the Mela in Prayagraj district.
2. Construction of 9 Over Bridges (ROBs) and widening of 6 underpasses for the purpose of the Mela by Railways in Prayagraj district.
3. A total of **247 roads** over 646.03kms have been strengthened and widened. Of these, 34 roads are under the Prayagraj Development Authority, 73 roads under the City (Nigam) and 140 roads under the Public Works Department.
4. Ghat Development and River Front Protection work has been undertaken in 7 Ghats in Mela area
5. Upgradation and beautification of 64 transit crossroads in the city alongside large-scale reinforcing and widening of all roads connecting to the Mela area.
6. All bus depots and passenger waiting rooms were refurbished and developed for the Kumbh Mela.
7. Power settings and electrical lines have been elevated.
8. Augmentation of Water Supply System
9. Improvement of Drainage and Sewerage System
10. Renovation and modernization of Hospitals, development of new wards and Upgradation of Medical Equipment
11. Construction, development and renovation of Police Stations and hostels

12. Upgradation of Tourist department infrastructure and improvement of key tourist sites
13. Electrification of Mela area with 40700 LED lights with 1030 LT line, 105km HT Line, 175 Highmasts, 54 Temporary Sub stations and 280000 camp connections with MCBs installed.
14. Electrification of Pontoon Bridges, Parking areas and Heritage routes like Panchkoshi Parikrama Marg and Dwadasha Marg
15. 125000 checkered plates used in construction of 141 km of Mela roads
16. 106kms of service roads built in Mela area
17. 22 pontoons bridges built with 1795 Pontoons.
18. 150kms of HDPE pipeline were laid, 850kms of Drains were constructed, 100 Diesel/Trolley mounted pumps used
19. Ponding sites and Bio-medical treatment sites were built around the Mela area
20. Permanent Sewer Lines were built in few sectors to ensure efficient sewage transportation from Mela area to treatment plants
21. 800kms of drinking water pipelines were laid, 5000 water posts were arranged, 200 water kiosks were set up and 100 hand pumps were built
22. A total of 1,22,500 toilets were built which is almost 4 times the previous Mela(2013) numbers.
23. 20,000 dustbins, 120 tippers and 40 compactors were provided for solid waste management. The above work plans are funded by the State Government and under the Namami Gange Scheme of the Government of India. More than twice the number of cleanliness workers have been deployed this time as compared to last Kumbh Mela of 2013.
24. 10,000 capacity Ganga Pandal built, one Pravachan Pandal hall, 4 Cultural Pandals and accommodation for 20,000 pilgrims was arranged.
25. 94 parking spots across 1253 hectares was developed. Of these, 18 were developed as satellite towns. All basic amenities were provided at these parking spots.
26. More than 1500 signage boards were installed.
27. A new airport terminal has been constructed at Bamrauli Airport in Prayagraj by the Airport authority.
28. Jetties were constructed at 5 spots by the Inland Water Authority and ferries carried the pilgrims point-to-point.
29. Façade lighting of bridges and important structures, food courts, tourist walk paths were built.
30. Tourist spots in Prayagraj district have been refurbished.
31. 'Paint My City' campaign was launched in the entire city and the Mela area. As part of this, for the first time, government offices, flyovers, water tanks, boats etc. were painted with pictures depicting the Kumbh and other spiritual and cultural aspects.
32. Under the Smart City Program, Kumbh Command and Control Centre was set up with a control room. More than 1135 cameras across 268 locations were fitted, smart traffic junctions were built, and video analytics of crowd was used.
33. 2 Command and Control Centers and 4 viewing Centers and 30 video wall cubes were set up for 24/7 surveillance

34. Digitized Lost and Found Centers were set up
35. 34 Mobile Towers and 40 ATMs were set up in the Mela area
36. Setting up of exhibition areas of Sanskriti gram and Kalaa gram
37. A tent city comprising more than 2000 tents was developed for comfortable accommodation of domestic and foreign tourists visiting the Kumbh Mela.
38. 20 Sectors with 160 Ration Shops, 250 Milk Booths, 5 Go-downs, 20 Sector Offices were built



Chapter 5

Accommodation, Tents and Religious Institutions at the Kumbh Mela 2019

5.1. Overview

We have mentioned at several paces how Kumbh Mela 2019 was the largest human gatherings in history, with an astonishing 24 crore visitors, with around 5 crore visitors on the “peak” day of Mauni Amavasya on 4rd February 2019. We are repeating this to stress the scale and to provide the context understand the arrangements. One of the biggest administrative challenges is one of providing accommodation in a temporary city for such a large gathering of people. This chapter documents how this complex administrative challenge was managed. In planning for accommodation, several stakeholders from various religious institutions to kalpavasais to private tent providers were actively involved. Kumbh typically host a large fraction of Kumbh visitors who transit temporarily through mela area. It also hosts akaras and kalpavasis who stay there for a longer duration. At any point there will be around 2 million pilgrims, comparable to many large cities in India and more than the host city Prayagraj.

The Mela authorities made elaborate plans and arrangements for providing public accommodation and civic amenities by provisioning for setting up of makeshift tents, pandals and convention halls. The journey of a pilgrim involves reaching kumbh city and from the entry point to the Ghat area, and finally take a the holy snaan in the river and return. Kumbh Mela is a space where even the uninitiated become pilgrims and general pilgrims willingly endure austerities. The provisioning of civic facilities and accommodation to is make the spiritual journey comfortable and free it from any inconveniences.



Figure 5.1. Makeshift Accommodation

Considering the multitude of devotees estimated to participate in the 2019 Kumbh, the Mela administration, as has been the traditional practice, made accommodation arrangements for hosting these pilgrim guests in the Kumbh Nagari by setting up Tents, Pandals, camps and

temporary structures to facilitate the pilgrims' stay as there were not enough hotels in the Prayagraj city to hold the massive flow of pilgrims.

During Kumbh, tents act as temporary homes to a vast number of pilgrims, and every Kumbh has witnessed setting up of uncountable number of tents for pilgrim habitation. Different types of tents with different designs were made available in the Mela to cater to the different budgets and needs of people. The tent units came with various facility options such as tents with kitchen, tents with bathroom and separate toilet, tent sheds made of tin or canvas. These tents were erected by both the administration as well as by private tent providers.

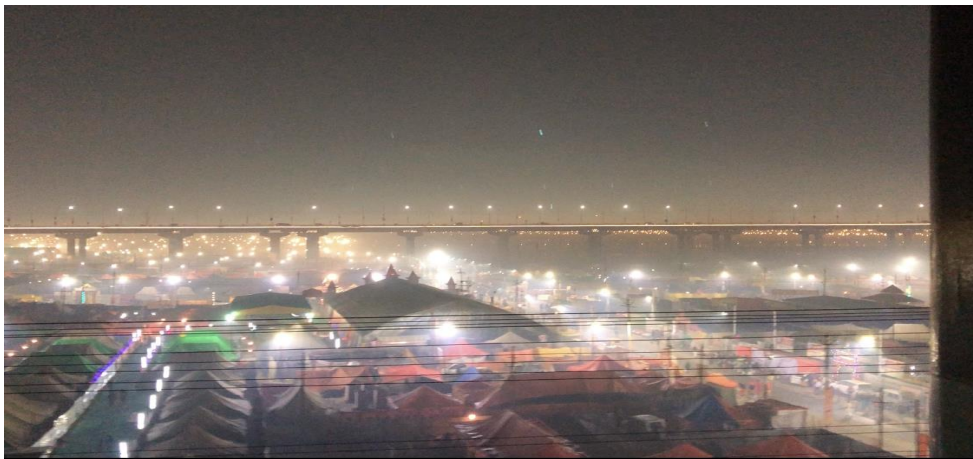


Figure 5.2. Kumbh Nagari at Night Time from the Varanasi- Prayagraj Rail Route

5.2. Accommodation Execution

5.2.1. Ground Preparation Works

The preparation for tents and camps was done along with other town planning activities. The Consultants had made digital images and rendering of tents to be made with space allocations. Ground preparation involved readying the sandy beds by levelling the grounds for installation of the civic infrastructure proposed and sanctioned by the Mela administration. It also involves building of temporary ghats across the 15 kms stretch of Sangam where crores of devotees would take the holy snaan. Similarly, a complete procurement plan for BOQ was kept ready. That is how even though the land allotment was delayed till the end, the tents could be readied on time for the opening snan.

5.2.2. Land and Accommodation Allotment

As we mentioned Kumbh attracts lakhs of pilgrims, tourists, and workers of vendors who had to be provided accommodation. Several workers, vendors, facilitators and the floating populace stay at the Mela, acting as temporary citizens of this temporary town. Land allotment is a highly sensitive and critical issue as it involves akaras and other religious institutions who visit every kumbh and there is an order of priority among them. Still, every

time it is a fresh process as it happens only once in six years and the contours of the mela area keeps changing. However, there are precedents and protocols which have to be maintained as per past traditional practices. Land allotment to religious organizations during the Kumbh Melas have proven to be a challenge for the authorities as organizations that participate in the Ardh Kumbh expect similar conventional allotments during other Kumbh Melas leading to contentious claims. Most of the religious camps participating in the Kumbh expect conventional land allotment practices that have been continuing and any change even due to river realignment leads to complex situations. This time the land allotment was completely digital and automated to make the system transparent.

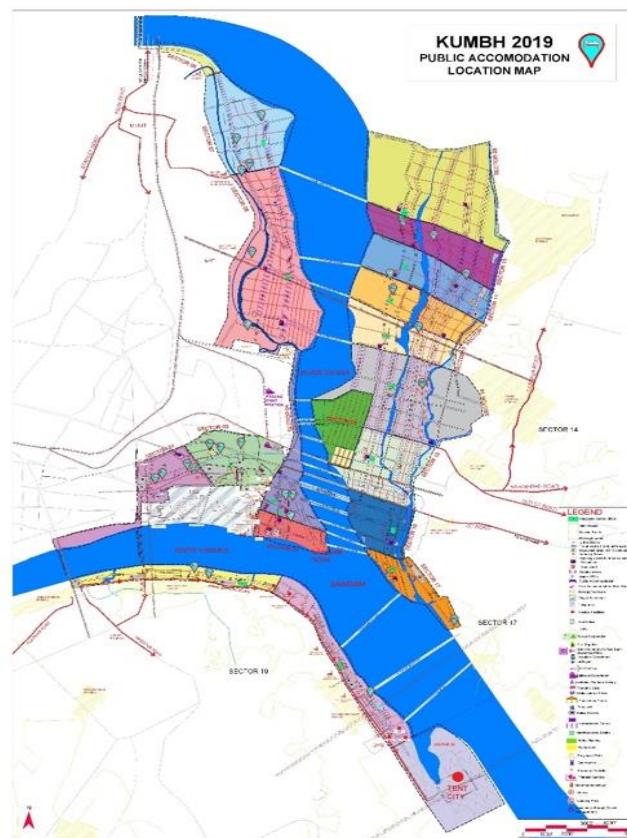


Figure 5.3. Kumbh Public Accommodation Map

Planning was made for around 6500 religious and social institutions in all. The Mela Administration released the notice for land allotment on 2nd November 2018 beginning with the allotments to the 13 Akharas, kalpavasis, prayagwals, and finally ending on 28th December 2018 with allotment to all other claimants including government departments and associations. Applications of all Akharas, Dandi Baada, Acharya Baada, Shastri Gata, Kabir Nagar and Prayagwals, etc. were submitted in the Mela administration Office, applications of other institutions were received at the temporary Mela Administration Office. Allotment forms were uploaded on the Kumbh Mela website and were also made available at the counters. Camp allotments were made in compliance to the crowd management plan for the Sangam area.

NAME OF INSTITUTIONS	NUMBER OF INSTITUTIONS
Akharas	13
Mahamandeleshawars	333
Khalsaas	596
Khak Chowk	237
Dandi Baada	153
Acharya Baada	142
Prayagwal	936
Other Private Institutions	1860
Individual Kalpvasis	362

Table 5.1. Land Allotment

It should be mentioned here that once the land is allotted the akaras make their own design, build on their, and maintain it. Each one is an independent mini colony. They also take care of all the internal management of the camp once it is allotted. A typical complex for akaras would include central place for the head of the akaras, place for sadhus, meeting place, prayer hall, kitchen and dining hall, etc. The administration provided the water and sanitation facilities. The akaras vied with each other in designing and decorating their complex.

The Mela administration is responsible for provisioning accommodation arrangements for all the pilgrims participating in the Kumbh Mela, since the Kalpavaasis form an important category of the devotees of the Kumbh Mela after the Akharas, who stay here for an entire month in the cold winters. The Mela authorities allot space to these Kalpavaasis and makes arrangement for their stay and householders who undertake the austere pilgrimage and are not part of any organization. The 2 million Kalpavaasis were allocated separate area in Sector 6 and 7 but temporary structures were provisioned for the Kalpavaasis across all sectors of the Mela.



Figure 5.4. Kalpavaasis

5.3. Budget Provisions

The budget estimated for the general tent, furniture, tin structures, barricading and hutment material from the Magh Mela experience is tabulated below, which formed the basis for the this accommodation structures in the Kumbh Mela of 2019 as well.

Item Name	Cost in Magh Mela (2018) (Rs. in Cr.)	Estimated Cost in Kumbh (2019) (Rs. in Cr.)	Sanctioned Amount for Kumbh (2019) (Rs. in Cr.)
General Tentage	9.18	43.14	36.00
Furniture	2.10	10.00	8.00
Tin structures, barricading and hutting	5.97	25.00	20.00

Table 5.2. Budget Estimated and Sanctioned

The following budgets were proposed in the EFC Note dated 16th of July 2018:

Item Name	Sanctioned Budget (Rs. In Cr.)
Public Accomodation	20.00
Ganga Pandal	8.00
Convention Halls	2.50
Pravachan Pandal	0.80
General Tentage	36.00
Furniture	8.00
Tin Structures	20.00
Barricading	
Hutting Materials	
Ground Preperation Work	8.00
Loudspeakers	1.70

Table 5.3. Budget Proposed

5.4. Accommodation Infrastructure

Provisioning of Accommodation at this scale require a dedicated professional team with expertise in large scale project management and execution. It needs monitoring and tracking various physical infrastructural and financial progress of all planned works and services that required tremendous coordination and communication across departments in case of any immediate or remedial actions. Technical proposals and financial bids were invited by the Mela Administration for building of Tents and Temporary structures in the Kumbh city. The vendors were required to design, develop, install and were also responsible for the upkeep of the structures till the end of the Mela period and subsequently ensure proper uninstallation post the Mela.

Plan for four Conventional Halls and one large Pravachan Pandal were also provided for. Vendors were invited to set it up and operate fire resistant and waterproof/leakage-free

structures that were firm, non-allergic, odorless, nontoxic, VOC free, non-carcinogenic with superior quality materials that would not sink into the ground. The Convention Hall and Pandals were equipped with high quality acoustics with 3 LED screens with live shoot feed, PA and sound systems, DVD players comfortable furniture and chairs with ample seating capacity, lighting and fan fixtures, information counters, thematic facades, exhibition stalls. The vendors were instructed to use environment friendly cleaning materials, deploy dustbins and comply with the safety and sanitation standards of the Mela and employ skilled manpower for providing a superior quality design, workmanship and services at par with international standards and facilitate the success of the Mela.

Once the ground was ready and most of the infrastructural provisions were in place at the Mela, the tent camp enclosure establishment works and construction of convention halls and Pandals began. Most of the temporal accommodational infrastructure built at the Kumbh Mela was based on enclosure system with basic reusable and recyclable elements like bamboo sticks, canvas material or corrugated metal sheets, ropes, nails that are used for constructing of tents and convention halls. The light-weight nature of the materials used enabled greater flexibility in design components allowing successive Melas to come up with newer models and greater functionalities.

5.5. Public Accommodation with Enclosure System Constructions

5.5.1. Convention Halls, Pandals, Tents

A total of 5000 camps were set up in the Kumbh Nagari for ensuring a comfortable and dignified stay for the pilgrims. Public accommodation with capacity of 20000 beds was built for pilgrims with facilities for staying during night, these camps were provisioned with basic amenities and security arrangements. Approximately 100 public accommodation structures with a capacity of 200-250 each was set up across the 18 sectors. Importantly, the provisioning of the public accommodation was a countervailing check on the price tariffs offered by private operators in and around the Mela area for overnight stay.



Figure 5.5. Women carrying their limited luggage across the Mela

A Ganga Pandal with a capacity to hold 10000 people was built for cultural and spiritual programs with state of art facilities with 60m clear span German Hanger structure across 10000 sqm. In the future Kumbhs these massive Pandals could be explored for convertible night stay accommodation purposes wherein it can be used for cultural and spiritual programs during the day and can also act as a shelter for pilgrims during night times.

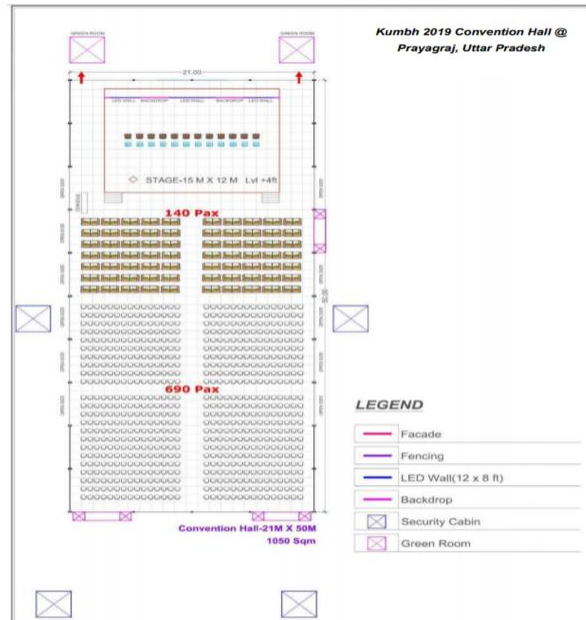


Figure 5.6. Layout of the Convention Hall at Kumbh

A Pravachan Pandal with a capacity to hold 2000 people was built for conducting religious discourses by Akharas and religious institutions. A total of 4 Modern Convention Halls with state of art facilities were built in the Mela with one hall in each of the 4 zones with a sanctioned budget of 2.5 Crores totally. Each convention hall had a capacity to hold 1000 people and each one was spread across 1000 sqm with 20m clearspan German Hangar frames. These were set up to enable smaller-scale spiritual and cultural events, and were set up in sectors 5/6, 11, 16/17 and 19. Such Pravachan Pandals and Convention halls, although did not provide for sleeping facilities, on peak days of Kumbh, these public venues would become night time congregation spots for pilgrims.



Figure 5.7. Media Centre at Kumbh

Ultramodern Media Center was built for journalists and media personnel from across the globe. A separate Media Colony was also arranged for their accommodation. Similarly, separate tents were constructed for international delegates and dignitaries. Of course, the existing hotels of Prayagraj, including those available through new technologies like Airbnb too had geared up to accommodate the influx of visitors. 902 stalls catering to the pilgrim requirements of food, grocery, clothing, utensils etc. were set up in vending zones.

5.5.2. Tent Cities



Figure 5.8. Swiss Cottages

Although setting up of tents at the Mela is a traditional practice that has been prevalent in the Kumbh Melas, the 2019 Kumbh organizers had conceived something called a ‘Tent City’ that was set up in Sector 20, by the Tourism Department to provide modern civic facilities with security arrangements. Nearly 4200 tents were built, 29 thematic gates were built in the Tent city depicting the concept of 14 gems emerging from the ocean churning. The tents were built and operated on Public Private Partnership model, and they even had different names and postal addresses.

Categories of General Tentage at Kumbh Mela were,

- EP Tent
- Family Tent
- Store Tent
- Darbari Tent
- Swiss/Deluxe Tent
- Maharaja Tent
- Choldari Tent
- German Pagoda
- German Hanger
- Pre-fabricated rooms
- Box Truss Pandals
- Kabuli Tent
- Shamiana

The tent city had a total of 1770 Swiss Cottages that was constructed by different vendor agencies (Table 5.4.).

Sl. No.	Firm/organization name	Name of tent city	Number of Swiss cottages
1	Hitakari Production and Creations	Indraprastham	1200
2	Labh Decorators and Gandhi Corporation Ahmedabad	Vedic	300
3	Kumbh Village, Prayagraj	Kumbh Village	150
4	Aagaman India, New Delhi	Aagaman	120

Table 5.4. Vendor agencies for the Tent City

Apart from the Tent City, Uttar Pradesh Tourism Development Corporation set up *Sangam Tent Colony* in the Parade Grounds located in the Kumbh Mela area. This tent colony had 50 premium tents with 20 Maharaja tents and 30 Deluxe tents with breakfast, lunch and dinner facilities.

Temporary Tourism Information and Help Desks set up in 9 major locations like railway stations and bus depots to aid pilgrims in getting information on the accommodation and other Mela itineraries.

Travel and accommodation booking details was shared on websites and user- friendly mobile apps on iOS and Android. Tourists and pilgrims could make online bookings of these tents through the Kumbh Mela web portal, that guided online visitors to booking sites of tent agencies that were approved by the Mela authority. These agencies hosted online brochures with all the information about the tariff, amenities and description of the tent with pictures, along with local tour and meal package plan available at the tent accommodation. There were a range of cottages available – from luxury and deluxe cottage tents costing as high as Rs.75,000 for 3 nights for 2 people during peak days and Rs. 30,000 for three days during non-peak days. A range of facilities like pick and drop from Airport, Railway stations, boat for snan, Yoga session, Mela tours, Ayurvedic massages and meditational healing sessions were available.

5.5.3. Glitches

In-spite of the elaborate spread of Tents and Temporary structures that was set up, like in any grand affair there are bound to be few glitches, the Tent City of the Kumbh Mela too had its share. There were many who were unhappy with the service and supplies' quality of the vendor. There were complaints that there were rented out at a high rate, there were fewer counters for issuing the supplies that resulted in delay and crowding, people had to pick up whatever was given as they were already frustrated in the inordinate waits. At times the religious institutions got the services from outside vendors as the Mela vendor's service was unreliable and unprofessional. Another complaint was that, upon returning the rented

supplies, the vendor penalized the religious institutes claiming that the goods returned were not in good condition when the quality was compromised at the time of issuance itself. However, it should be appreciated that given the scale and the crowding of the mela, and given that these are being handled by the vendors for the first time, they did a commendable job. But, the vendors should have made better assessment of potential rents and taken more marketing efforts.

5.5.4. Initiatives at the 2019 Kumbh Mela

- Dustbins were placed inside and outside the Akharas in line with the idea of Swachh Kumbh.
- Permanent buildings were built for Akharas from where the Peshwai marches begin.
- Floating Post offices were introduced on boats for Kalpavaasis.
- Akharas were more inclusive, there were about 5000 people visiting each Akhara each day, the flow in visitors to Akharas had increased compared to previous Kumbhs.
- Religious institutions served food and provided shelter to large numbers of pilgrims without any demand.
- The Ghatis or Pandas were moved far from the bathing Ghats for crowd management efforts and they were settled on temporary ghats for their traditional business.
- A Sanskriti Gram was built with exhibition stalls on various aspects of Kumbh, Indian history, various art forms of India, sculptures from various states were set up in 13 pavilions and 7 cultural areas.
- Volunteer participation for enabling and ensuring smooth coordination of the Mela works and cooperation with the pilgrims. 30 volunteers were engaged in coordinating and guiding pilgrims in the tents.

5.6. Religious institutions in Kumbh 2019

It is worthwhile remembering that traditionally the central actors of the Kumbh melas have been the Akharas and other religious institutions such as Prayagwals, who play key roles in the organization of Kumbh. In this section, we look at these religious institutions and their significance in the Kumbh Mela.



Figure 5.9. A procession of Sadhus during Kumbh Mela

5.6.1. The institution of Akhadas

The key religious institution that draw millions of devotees at Kumbh, are the Akhadas, which are historical monastic orders. There are 13 Akharas that can be divided in 3 categories based on the deities they worship. The Shaiva Akharas worship Lord Shiva in various forms, the Vaishnava Akaharas worship Lord Vishnu in various forms, and the Udaseen Akharas that offer their prayers to 'OM'. Of the 13 *akharas*, seven are Shaiva, three are Vaishnava and the other three are Udaseen. Following is the list of Akharas with categorization on deity and them headquarter.

Shaiva Akaharas

1. Shri Panchayati Akhara Mahanirvani (Prayagraj)
2. Shri Panch Atal Akhara (Varanasi)
3. Shri Panchayati Akhara Niranjani (Prayagraj)
4. Taponidhi Shri Anand Akhara Panchayati (Nasik)
5. Shri Panchdashnaam Juna Akhara (Varanasi)
6. Shri Panchdashnaam Aavahan Akhara (Varanasi)
7. Shri Panchdashnaam Panchgani Akhara (Junagadh, Gujarat)

*followers of Shaiva Akharas are called Sanyasis

Vaishnava Akharas

1. Shree Panch Digambar Ani Akhara (Haridwar)
2. Shree Panch Nirvani Ani Akhara (Haridwar)
3. Shree Panch Nirmohi Ani Akhara (Haridwar)

*Followers of Vaishnav Akhara are called Vairagis .

Udaseen Akhara

1. Shree Panchayati Bada Udaseen Akhara (Prayagraj)
2. Shree Panchayti Naya Udaseen Akhara (Prayagraj)
3. Shree Nirmal Panchayti Akhara (Haridwar).

Akharas are further divided into *davas* (divisions) and *marhis* (centers), and each *Marhi* performs its spiritual activities under a *Mahant*. The central administrative body of an Akhara is Shree Panch (the body of five), representing Brahma, Vishnu, Shiva, Shakti and Ganesha, elected by consensus from among the Mahants of *Marhis*.

The 13 Akhadas together have established The Akhil Bharatiya Akhara Parishad to promote cooperation between the *Akharas*. The Akhil Bhartiya Akahda Parishad in consultation with the Mela committee comprising of Commissioner, District Magistrate and Mela Adhikari determine the date and time along with the order of Akharas for the procession of Shahi Snaan and Peshvai. Participation of Akharas in the Kumbh Mela is associated with multiple rituals and events arranged in a pre-determined chronology. These include the land allotment followed by Bhoomi puja, Peshwayi or procession, Shahi Snaans and the dispersal.



Figure 5.10. Flag and the Inner Sanctum of a Akhadas

Along with these 13 Akharas, in the 2019 Kumbh, the Kinnar Akhara represented by the LGBTQ community also participated in Kumbh. The Kinnar Akhara requested for recognition from the Akhil Bhartiya Akahda Parishad as a 14th Akhara, but after opposition to the proposal, it merged with the Juna Akhara. The Kinnar Akhara emerged as a major attraction for pilgrims and visitors at the Kumbh.



Figure 5.11. Members of the Kinnar Akhara at Kumbh

A key administrative body of the Akharas are the *Khalsas*, that act on behalf of Akharas and get land during the Kumbh from the government to make the necessary arrangements for the pilgrims of the Akharas like accommodation, electricity, water and drainage at Kumbh. Khalsas also hold Bhandras or the mass feeding, which are supported by the Kumbh administration, that provide the grains and supplies at subsidized rates. The formation of new Khalsas within Akharas is an organic process, depending upon the internal social dynamics among the Akhara members.

5.6.2. The Institution of local Prayagwals

Another unique religious institution at Kumbh in Prayagraj are Prayagwals. The name 'Prayagwal' refers to the original citizens of Prayagraj who continue to live here from many generations. Pilgrims and devotees visiting the Kumbh Mela or Magh Mela are welcomed and settled in the Mela area by Prayagwals who perform various rituals of Kumbh for the pilgrims. Prayagwals, as religious gurus of the devotees are the only people allowed to collect donations from the pilgrims at the Triveni Sangam. Prayagwals are allotted land at the Mela site on negligible rent from the authority on which arrangement for tents are made. Devotees are invited to stay at Prayagwal arranged accommodations for the duration of the Kumbh Mela and the rent is covered by the donations offered by the pilgrims. The association of Prayagwals is known as Prayagwal Sabha. Demarcation and allotment of land to Prayagwal is done through Prayagwal Sabha, and Prayagwal display their banner on a tall bamboo pole by which pilgrims identify their specific Prayagwals.

Kumbh 2019 planned to manage a total 6500 religious institutions in the kumbh 2019, which were almost double of the last Kumbh in Prayagraj. In the 2019 Kumbh, land was allocated digitally and the 13 Akharas received the first priority in allocation of land, followed by other religious institutions and Prayagwals.

One way to view the organization of Kumbh is through the lens of religious institutions, where the Mela administration's primary role is of land allocation, and provision of basic facilities (such as roads, bridges, security, crowd management and sanitation), while the everyday affairs at Kumbh that related to the visitors were managed by the religious institutions through the various unique institutions such as the Khalsas and Prayagwals.



Figure 5.12. The flag of the Juna Akhada at the dawn of Shahi Snan of Basant Panchami (10th February 2019)



Figure 5.13. The procession of the Juna Akhada for the Shahi Snan of Basant Panchami with placards of the Akhada's Acharya Mahamandaleshwar Swami Avadheshanand Giri.



Figure 5.14. Sadhus after taking a bath at the Shahi Snan of Basant Panchami

Chapter 6

Police Administration, Crowd Management, and Disaster Prevention

6.1. Introduction

Kumbh 2019 attracted around 24 crore visitors during the entire period of 49 days. While this in itself is phenomenal, what is more astounding is that on the Mouni Amavasya Day (4 February 2019), it attracted around 5 crore pilgrims in just one day—which is more than the population of fully-functioning countries such as Spain, Argentina, Canada, Saudi Arabia, and Ukraine . Five crore people pouring in from different directions into a city with a population of just 15 lakhs is in itself a record. Within India, the visitors on peak days constitute multiples of population of such metropolitan cities as Mumbai, Delhi, Kolkata, and Bengaluru.

While the administration and the executing agencies give shape to the 3200 hectares of land that would host this populace, on the Snan days, specifically on the Mouni Amavasya day, 5 crore visitors throng to Kumbh with one mission: to take the holy dip. The Administration has to ensure that this takes place safely, peacefully, and orderly in the narrow stretch of ghats designated for the ritual. The scale, complexity, and enormity of the task involved is unimaginable. On the Mauni Amavasya day, every system gets tested, and every contingency plan gets used. At the outset, one can say, *one can never overprovide for an impending crisis*. It is in facilitating this mission that the police spring into action in full force. It should be mentioned here that on Snan days, it is primarily the responsibility of the police as security takes precedence over everything else.

6.2. Police Administration

The role of police administration becomes critical especially on Snan days and Mauni Amavasya day. Safety and security during the Snan days take precedence and determine how other services will be delivered. Safety plays a role in every movement like emergency services, bus and railway transport, crowd movement, or even movement of vehicles for garbage.

For all the planning and administrative activity, a temporary office for the DIG of the Mela area and his team is built across the road from the Mela Pradhikaran office . Other than maintaining the safety and law and order, one of their major responsibilities is preparing themselves for any potential disaster or crisis.

6.2.1. Organisational Structure of Kumbh Police

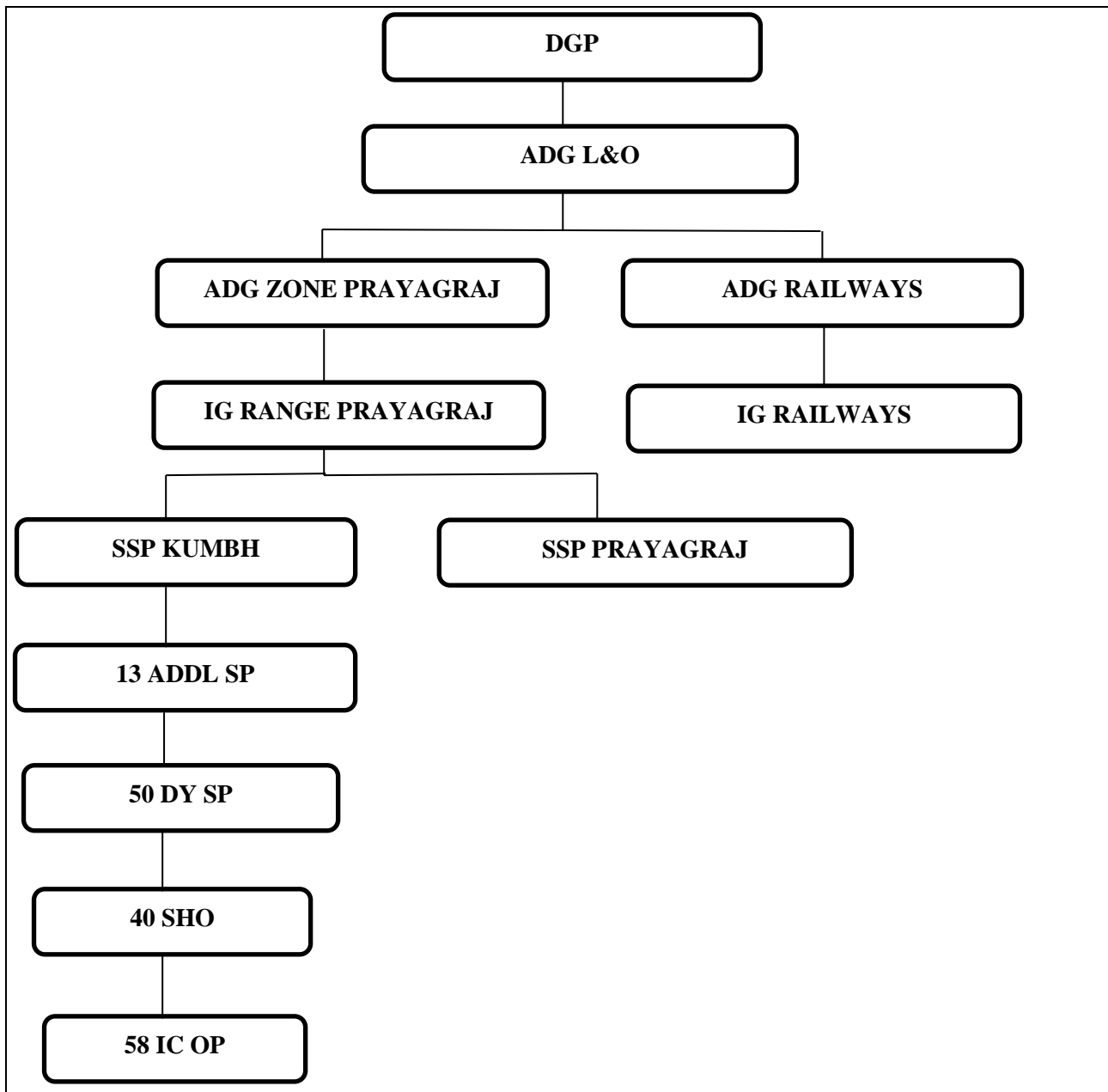


Figure 6.1. Organisational Structure of Kumbh Police

6.2.2. Infrastructure of Kumbh Mela Police

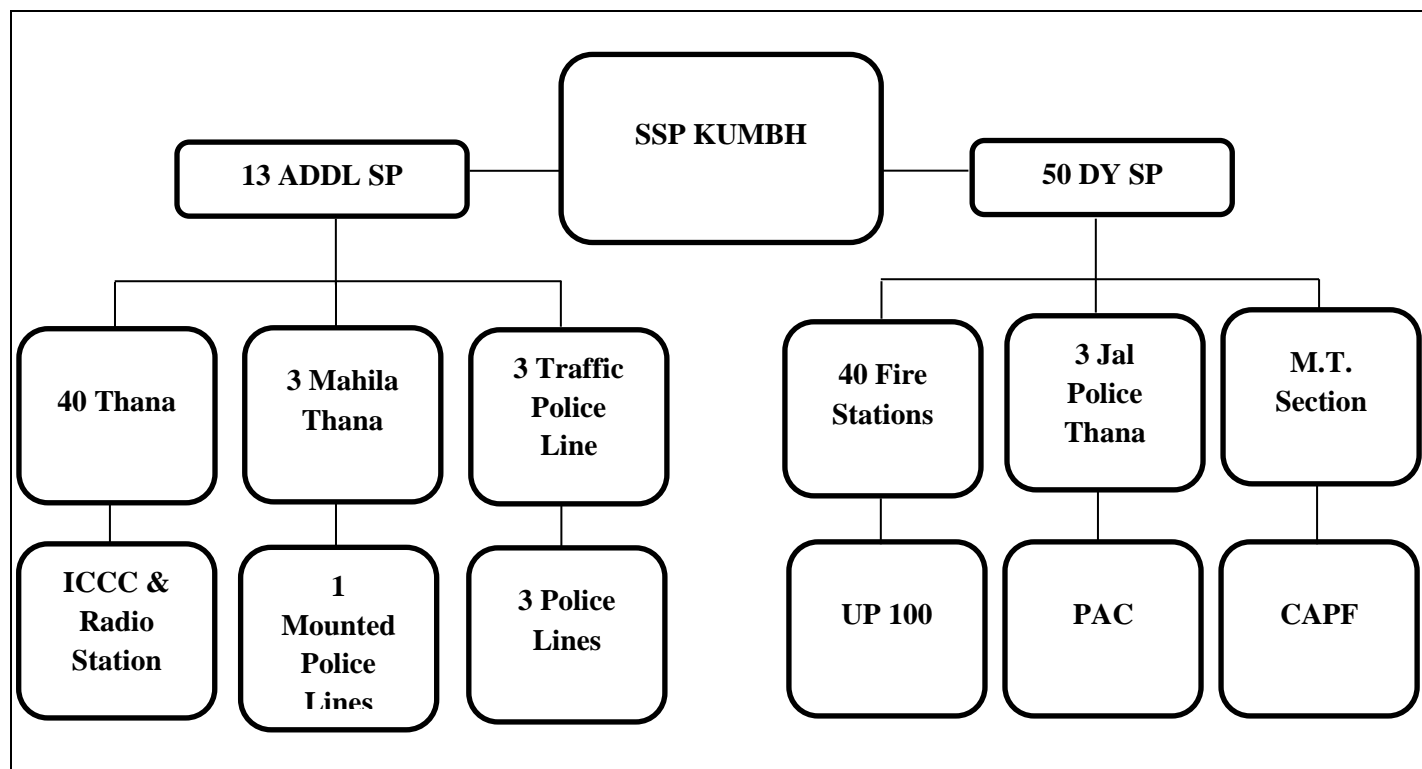


Figure 6.2. Infrastructure of Kumbh Mela Police

The Mela Police 2019 maintained SOPs on all potential exigencies and contingencies. In 2019, one mandate of the police, other than the ensuring safety and security was to portray a friendlier image without the ‘lathi’ or the baton. The police men were given training on stress management to appear calm, composed, and friendly towards the public. Special Mahila Police and Jal Police were unique to the Mela. The following table gives a snapshot of the police personnel deployed to ensure a Surakshit Kumbh.

SI. No.	Department / Personnel	Number
1	Civil Police	6522
2	Armed Police	272
3	Mahila Police	438
4	Mounted Police	190
5	Transport Department	189
6	Local Intelligencer Unit	157
7	Traffic Police	282
8	Jal Police	45
9	Home Guards	6500
10	Recruit Constables	1900
11	Prantiya Rakshak Dal	400
Total		16895

Table 6.1. Details of police force deployment at Prayagraj and Kumbh Mela

6.3. Disaster Management Scenario

In scholarly literature and mainstream discussion, disaster management and crisis management are subjects of great interest. Disasters are classified as manmade and natural, and are discussed using parameters such as sensing and anticipation, scale, technology used, preparedness, post-disaster rehabilitation, resource commitment, cost-benefit analysis, crowd management, communication, etc. The subject covers a range of contexts like earthquakes, storms and flooding, fires, bombings and shooting, building collapse, stampedes, chemical and gas leaks, epidemics, drowning, accidents, and even an incident such as a stray animal falling into an abandoned well. There are many studies on how organisations and institutions, such as the police and associated departments such as hospitals, fire departments, handle crises as distinct from handling routine tasks. It is difficult for any organisation to remain at peak alert for long durations and there are studies that show how organisations cope with continued stress and are impacted by it.

In this context of disaster management, the Kumbh Mela offers an interesting site for studying a complex event. The Kumbh is a planned event with a certain lead time for preparations; however, no amount of preparation can ensure an incident-free final outcome. In the past, despite elaborate arrangements, the Kumbh has had a history of disasters because *the event is complex: it is huge in scale, amorphous in the seamless flow of crores of pilgrims, humongous in preparation and operations, and unpredictable as it plays out on the field day to day.*

The administration makes plans that typically provide for all outliers and exigencies, and still keeps its fingers crossed. In the planning and administration of the Kumbh, disaster is something which pervades every arrangement and thought process, but hardly anyone explicitly talks about it. Rather, everybody prefixes their discussions on their department activities, and the risks that they entail, with the statement that the event will happen successfully with ‘Ganga Mai’s blessings’. It is almost as if with all the preparations, the mela will go well with the blessings of Mother Ganga. It is also a realisation of their limitations in planning and providing for exigencies, and a sense of being overwhelmed by the humungous nature of the task.

6.4. Disaster Management Framework

A key aspect of the Kumbh can be seen as a case of preventing impending disasters or as that of crisis management. As mentioned earlier, the Kumbh is one of the most complex events to manage and has always been incident prone. A key component of disaster management is crowd management, referred to as ‘management of mass gatherings’ in studies. This section will focus on these aspects.

Disaster management or crisis management are used interchangeably. The Disaster Management Act, 2005, defines disaster as “a catastrophe, mishap, calamity or grave occurrence in any area arising from natural or manmade causes, or by accident or negligence

which results in substantial loss of life or human suffering or damage to, and destruction of property, or damage to, or degradation of, environment and is of such nature or magnitude as to be beyond the coping capacity of the community of the affected area”. It defines crisis as “...an emerging situation which can be controlled, moderated and neutralised before it goes out of control and becomes a serious embarrassment to the government or the nation”. It appears to distinguish crisis from the perspective of damage control to the government or to any organisation. It also defines emergency as “an extraordinary situation needing immediate and appropriate action and response”. This looks more like a response to an event. From these definitions, it is evident that the term disaster is all-comprehensive compared to crisis or emergency.

The Disaster Management Act, 2005, provides for effective management of disasters and for matters connected therewith or incidental thereto. The Act provides for the establishment of the National Disaster Management Agency (NDMA) at central level, headed by the Prime Minister, and the State Disaster Management Agency (SDMA) at state level, headed by the Chief Minister. They are the nodal agencies for planning, advising, and managing disasters. In the 2019 Kumbh as well, NDMA provided guidance to the Prayagraj Mela Authority (PMA) and Prayagraj Police for planning for disaster management and in designing systems for it. SDMA assisted the mela authorities in the process and brought in its expertise at the state level.

The NDMA mentions planning, organising and coordinating as aspects of disaster management. The challenge lies in the nitty gritty of the design and in this mela, the various authorities went about planning meticulously, which we will discuss in the following pages. In the context of implementation, NDMA mentions the various building blocks that go into it as:

- Preventing and preparedness
- Mitigating
- Capacity building
- Preparedness
- Response
- Evacuation
- Rescue, Relief and Rehabilitation

This list is illustrative as each aspect needs to be completely planned and provided for. While the entire thrust is on preventing and preparing for disasters, the planning needs to provide for mitigation as well as response systems. Plans need to provide for evacuation, rescue, relief and rehabilitation as well. In preparing for all these elements, planning should provide for capacity building, including mock drills. As their message says, every plan should have a contingency plan. So, with crowd management for example, there were multiple schemes like Scheme A, Scheme B, etc., for various levels of escalation of crisis.

In the context of the Kumbh, NDMA lists the following as the possible vulnerable components:

- Stampede
- Terrorist attack, sabotage, subversion
- Fire
- Flood
- Drowning
- Electrocution
- Biological threat, epidemics
- Accident – rail, road, and air
- Lost family members

This is a comprehensive list and we should mention here that NDMA has acquired expertise in providing for and managing any of these eventualities. The mela authority had the guidance of NDMA in planning its disaster management system. The threat from terrorists was looked after by the police as that is a highly specialised task. It is not covered in this report.

6.5. Disaster Management in Kumbhs: A Historical Context

The history of the Kumbh Mela is dotted with experiences of tragic incidents and loss. Stampedes have claimed lives in Allahabad in 1840, 1906, 1954, 1986 and 2013. Perhaps the most tragic incident recorded till date happened in Allahabad during the first Kumbh Mela after Independence in 1954. Over 800 pilgrims were killed and hundreds injured in the stampede when a procession of Naga sadhus went awry due to the influx of a mammoth crowd. According to a report by the Hindu, about 200 square yards of the sandy bank of the Ganga were strewn with bodies of the dead and injured. The incident forced the government to ensure better crowd management in subsequent mass gatherings. In another incident, a major stampede in Haridwar took place in 1986 when 47 people died due to inadequate arrangements and poor anticipation.

In the 2010 Kumbh Mela in Haridwar, a stampede killed seven people, including an infant, and injured 17 people when a scuffle broke out between the locals and a group of sadhus. Similarly, when Nasik hosted the Kumbh Mela in 2003 at least 39 people were killed and more than a hundred were injured. The incident was caused due to a scramble among devotees to collect silver coins thrown by the sadhus. The most recent incident of stampede occurred in Ujjain in 2016 during the Simhatha Kumbh Mela. The stampede that claimed around seven lives and injured another 90, took place when heavy rain along with thunderstorms and strong winds uprooted pandals.

Besides stampedes and fire incidents, epidemics have also marred the Kumbh Mela celebrations. The earliest documented record of an epidemic at the Kumbh Mela festival was an outbreak of cholera in 1817. Over the years, Kumbh Mela has intermittently witnessed epidemic outbreaks in 1892, 1948 and in the 1960s. Although no epidemics have

been reported since then, there have been many studies cautioning about potential epidemic outbreaks in the future given the scale of the gathering and environmental conditions.

6.5.1. Kumbh 2013

The administration had made elaborate arrangements for Kumbh 2013. The Mela authority had put in place all necessary safeguards such as delineating authority, clarifying roles and responsibilities, preparing a disaster mitigation and prevention plan, ensuring coordination among fire service, army, control room and public addressing system, ambulances, etc. However, despite these arrangements, it was marred by an incident of gas burst at the mela area and a stampede on a foot overbridge (FOB) at the railway station (Chaturvedi, 2016). It was also affected by flooding from continuous rain which disrupted power supply.

An incident of fire from a gas cylinder leak happened 10 days after the Mela started and it was immediately attended to by the fire service and ambulances. However, it resulted in injury to 19 persons of which 8 were serious. They were immediately airlifted to Delhi by 2 pm the same day. Of them, 5 succumbed to their injuries. 3 members survived despite having more than 50% burn injuries, because of the prompt attention given (Chaturvedi, 2016). The next incident which was a natural disaster occurred when there was torrential rain on 16 February, which led to flooding of the Mela area and camps, and power supply had to be switched off. The situation was handled through coordination with the power department, Jal Nigam, and Jal Sansthan, and the active cooperation of the religious groups and pilgrims.

The biggest incident took place when there was a stampede in the FOB of the Allahabad railway station on 10 February, around 7 pm. There was a sudden stampede on an FOB resulting in the death of 39 persons. This at once led to acrimonious debates and criticisms from all quarters, replacing the praise that the administration had enjoyed until then (Chaturvedi, 2016). The Comptroller and Auditor General (CAG) Report commenting on the 2013 incident, mentioned the lack of proper coordination and disaster management plan on the part of the Railways as the cause for the stampede. Chaturvedi points out that they ultimately tided over it with swift action, better communication with the general public and media, and the best possible efforts by the medical team. He mentions that the morale of the administration received a boost when the Chief Minister stood by the administration and also spoke to the media. These incidents do act as a dampener and mar all the positive efforts of an administration.

Some key learnings mentioned by Chaturvedi (2016) are accessible administration, prompt response of senior officers, quick mobilisation of resources, visible senior leadership during crisis and quick coordination with various agencies.

We can observe from these incidents that disasters can occur from several sources – panic, fire, tent collapse, flooding, drowning, epidemics, etc. It can also be said that the trigger could be just a false alarm, or small factors like malfunctioning of cylinders, a scuffle, poor

arrangements such as improperly fitted tents, etc. It can also occur from natural causes like torrential rain, flooding, lightning, etc. As disasters have occurred in many past melas, it can be assumed that the authorities now make the best possible arrangements and in all the venues of the Kumbh Mela, namely Allahabad, Haridwar, Nashik, and Ujjain. The fact that the challenge arises from a multitude of manmade and natural sources drives the authorities to take no chances and provide for all contingencies.

6.6. Kumbh 2019: Surakshit Kumbh

In planning for the 2019 Kumbh, concern about stampedes attracted maximum attention given that large crowds were expected. There was a stampede at the previous mela, and stampedes have occurred in other melas before in India. It is a situation where any small event can trigger panic and create a stampede. Preparing for this was especially important as all pilgrims finally converge at the Sangam Ghat and other ghats. This throws up the possibility of drowning as well, which was also an area of concern.

6.6.1. Principles

In preparing for disaster management, the administration was very clear from the beginning that mishaps of any nature should be avoided at all costs. They followed certain basic goals and principles which determined their plans.

- Priority to security and safety took precedence over any other consideration. For example, the police was strict with restrictions on vehicles near the Mela area, even if it inconvenienced pilgrims, as it could potentially lead to crowding and traffic jams.
- With safety of pilgrims being a primary goal, the authorities also sought to minimise inconvenience to the pilgrims, especially religious groups and the ordinary public. Whether it was in ensuring pilgrim movement, or bathing, or dealing with the lost and found, they sought to provide a smooth experience.
- They had clear plans for bathing days and normal days. This rule was strictly followed on bathing days which also included one day before and after.
- Traffic management was given as much importance as crowd management to avoid traffic jams and to keep the movement free for any evacuation.
- They tried to ensure that crowds moving in opposite directions do not come face to face.
- They took utmost care to plan and provide resources, be it manpower, equipment or materials, and to ensure that resource constraints do not come in the way of implementation.
- In planning for resources, they planned for peak bathing days which ensured that normal days were automatically provided for. It was evident on Mouni Amavasya day when every resource was stretched. As a result, other days passed peacefully.
- They had Plan A, Plan B, and so on. They followed the NDRF motto of ‘every plan

should have a contingency plan’.

- They had SOPs for all possible processes.
- They tested their plans and SOPs through mock drills.
- They focused on training and capacity building including in stress management for police and operational staff.
- The policy was to use technology extensively.
- They tried to deploy a mix of officers with prior experience and new ones which helped in providing contextual familiarity and giving exposure to a new set of officers.

The influence of these principles can be seen in their overall strategies and the design of their comprehensive plan for disaster management in every area. At the outset, they worked with the target response time of 3 to 5 minutes from the occurrence of any event at any place in the operational area.

6.6.2. Disaster Management Plan

A comprehensive Disaster Management Plan prepared for Kumbh 2019 identified the following as possible risks of disasters:

- a. Climate-related natural disasters
 - i. Floods and area inundation
 - ii. Lightning strikes
- b. Geology-related natural disasters
 - i. Earthquakes
 - ii. Ghat erosion/submergence
 - iii. Channel drifting/change in river alignment
- c. Biological
 - i. Epidemics spread through water and food
 - ii. Epidemics due to other contagious diseases (including avian flu)
 - iii. Food poisoning
 - iv. Water contamination
 - v. Snake bites/insect bites
- d. Incidents due to human errors
 - i. Stampede
 - ii. Fire
 - iii. Vehicle/helicopter/aeroplane/train accidents
 - iv. Drowning
 - v. Electrocutation
 - vi. Building/temporary structure collapse
 - vii. Electric and water supply failure
- e. Violence-related
 - i. Mob violence due to inter Akhada dispute/communal disharmony
 - ii. Sabotage and terrorism including shootouts, kidnapping, explosions, biological/chemical attacks, and sabotage through rumour-mongering

Within the context of disaster management for Kumbh 2019, crowd management occupied an important position. NDMA discusses these as important components of crowd management:

- Route in and route out
- Critical crowd densities
- Panics and crazes
- Barriers
- Crowd capacities
- Entry and exit metering
- Exits and corridors

The overall planning covered all these areas and the NDMA, SDMA, the administrative authority and police brought all their past experience to designing the plan. The execution was finally done by the police and administration. The planning zone included not just the Mela area but also Prayagraj City, railway stations, bus stands, and neighbouring districts. It also included planning for movement of VIPs.

In terms of infrastructure for managing disasters, NMDA stressed the following requisites:

- Emergency vehicles and pathways
- Public address system
- CCTV cameras
- Deployment of UAVS
- Wireless communication

Providing the above infrastructure only partially addresses the concerns. A major challenge lies in estimating the requirements, deploying resources, having SOPs for all operations, training the operating staff, etc. The soft skills required in executing disaster management ultimately decide the effectiveness of the system. It is here that the Mela management excelled in the execution of the plans.

To ensure the safety and security of the people visiting the Mela as well as of the Kalpwasis, four police lines including 40 police stations, three female police stations and 62 police outposts were constructed. Forty firefighting centres, along with 15 fire outposts and 40 watchtowers, were constructed. State-of-the-art integrated command and control centres were used for crowd management. Surveillance services with the help of over 1,200 cameras were deployed to monitor ongoing activities in the city as well as the Mela area. This was an integral part of the police plan. Experts were consulted to make the system as strong and effective as possible.

Utmost care was taken to ensure that there were no untoward instances during Kumbh 2019. According to the PMA, several special forces like the National Security Guard (NSG), Central Industrial Security Force (CISF), and the Uttar Pradesh Anti-Terrorism Squad (ATS), apart from more than 30,000 personnel of UP Police, 20 companies of Provincial Armed Constabulary (PAC), 54 companies of Central Armed Police Force (CAPF), 10

companies of National Disaster Response Force (NDRF) and one of State Disaster Response Force (SDRF), 6,000 Home Guards, 15 teams of dog squads and more than 20 companies of Bomb Detection and Disposal Squads, and Anti-Sabotage squads, worked in collaboration to mitigate and manage disasters. Three police lines, one traffic police line, three women police stations, river stations were also established.

6.6.3. Organisational and Physical Infrastructure for Disaster Management

The organisational structure for disaster management operated at multiple levels. At the apex level, there was a committee headed by the Commissioner and including the ADG of Police, IG, DIG of mela area and Prayagraj district, members from NDMA, NDRF, UPSDMA, DM of PMA, DM of Prayagraj. and all concerned departments. The entire police and disaster management function for the Prayagraj region, district, city and the Mela area was under the head of ADGP, Satyanarayan Sabat, and the Mela area which was crucial was under the DIG OP Singh. We could observe that the ADGP played a key leadership role in visioning and conceptualising the policing function for the Mela. He explained to us the meticulous planning that went into it. The idea of safety and security played an utmost role in the planning but in their conception also they were governed by the idea of Divya and Bhavya Kumbh. They also brainstormed how these can be translated in policing. The DIG of Mela area was a man of execution with relationship skills, and he both ensured operations go as per plan and kept the stress level of his officers under control.

In the discussion with the ADGP, it emerged that they had contingency plan for every plan. He mentioned that they had Plan A, B and C for traffic management and on the Mouni Amavasya day, they implemented all their backup plans which included regulated inflow from neighbouring districts. Similarly, for crowd management also, they had contingency plans for directing the crowd. He said they targeted that they never had to stop the crowd and also keep them moving which meant going through a longer route. They ensured that the crowds do not come face to face from the stations and bus stands to the bathing ghat areas. Bathing ghats areas were closely monitored.

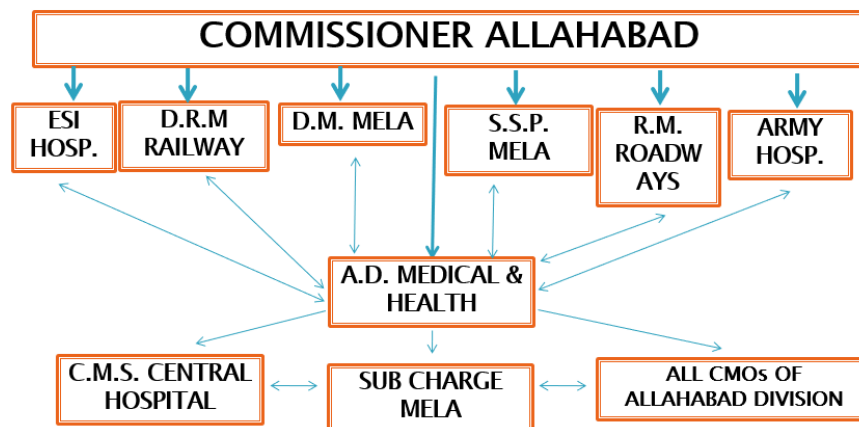


Figure 6.3. Disaster Management Chain of Command

Police Personnel	20,000
Home Guards	6,000
Police Stations	40
Outposts	58
Fire stations	40
Central forces	80 companies
PAC	20 companies

Table 6.2. Manpower for Disaster Management



Figure 6.4. River Police Station

The authorities made elaborate plans for various types of disasters and incidents, and mapped structures for each type of disaster. The structure was expected to come into play when triggered by any particular event. For example, if it was fire-related, a particular structure would come into play and respond, and if it was a road accident, a particular structure would come into play. The structure for responding to fire accidents is illustrated as follows.

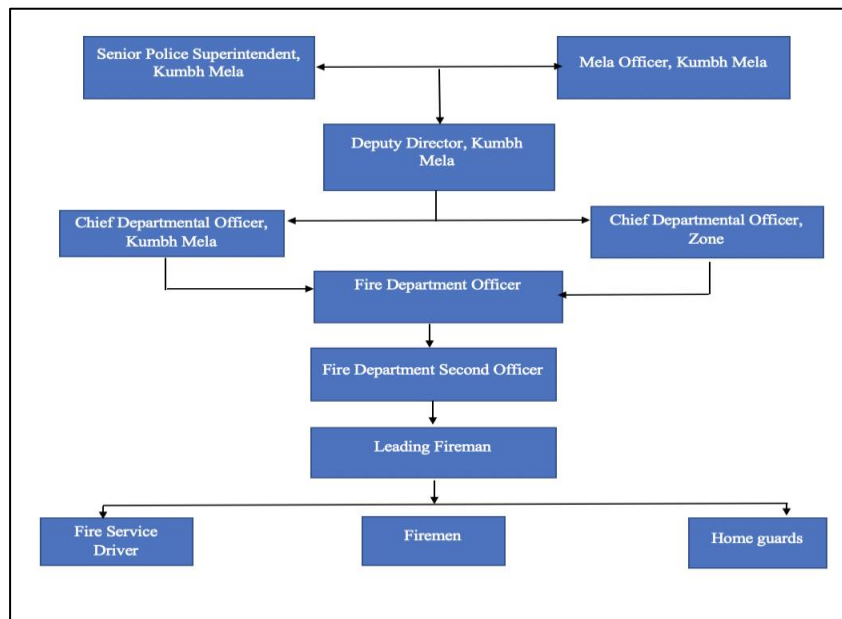


Figure 6.5. Structure for responding to fire accidents

Each activity was managed through a committee structure comprising all concerned departments. Similarly, the railways had their own structure for disaster management. Their teams consisted of internal security columns, quick reaction teams, boat assault universal type, BDS / MDT, medical support, and engineering support.

No.	Emergency Support Function	Nodal Officer	Support Agencies
1.	Search & Rescue, Fire Fighting	District Fire Services	Police Dept, CD & HG Teams & teams ex Identified Units
2.	Evacuation	DC /industrial unit/s	Police Dept, Fire Dept, CD & HG
3.	Law & Order	DGP/CP	CD & HQ
4.	Medical Response & Trauma Counselling	CMO/Civil Surgeon	Hospitals in District, Red Cross, NGOs
5.	Communication	District Telecom Officer	BSNL, Private Telecom Service Providers, Mobile Phone Operators.
6.	Relief A. Food B. Shelter	Revenue Dept.	NGOs, Corporate Sector, Community
7.	Equipment Support, Debris and Road Clearance, and Sanitation.	PWD/Army/BRO	-
8.	Water supply	Water Works Dept	NGOs
9.	Electricity	State Electricity Board	Service Providers
10.	Transport.	RTO	Municipal Corporation
11.	Help Lines.	Revenue Dept/ Public Relations Officer/industrial units	Dept. of Information & Publicity, AIR, Doordarshan, Private TV Channels, UNI, Press, PTI, PIB.

Table 6.3. Health Department Structure

6.6.4. Incident Response System (IRS)

In addition to having a clear organisational structure to oversee disaster management, the authorities used a strong framework that outlined a coordinated response system called the Incident Response System (IRS).

IRS is a mechanism which seeks to produce systematic, rather than ad hoc responses to incidents. It identifies all possible incidents and incorporates all the tasks to be performed to handle the incidents. It designates roles and identifies officers to carry out assigned tasks who are then trained for the tasks. Specific incidents invite specific responses from the right

sources rather than activate the entire system. It of course depends on the severity of the incident and the required response.

Thus, an integrated system was brought into operation to ensure a smooth, safe and peaceful conduct of activities during the 2019 Kumbh Mela. Two Incident Response Teams (IRTs), each having unified command, were set up to manage all disaster-related activities. For the city IRT, the District Commissioner, Municipal Commissioner, Police Commissioner and the ADM (Railways) were responsible for unified command. For the IRT in the mela area, the responsibility of unified command rested with the Mela Adhikari and the Superintendent of Police (Mela). Co-ordination between these various agencies was ensured through setting up of the Emergency Operation Centre (EOC). The EOC was primarily responsible for monitoring the implementation of emergency preparedness and making strategic and operational decisions. It also acted as Incident Command Post for unified command of city IRT and Kumbh Mela IRT.

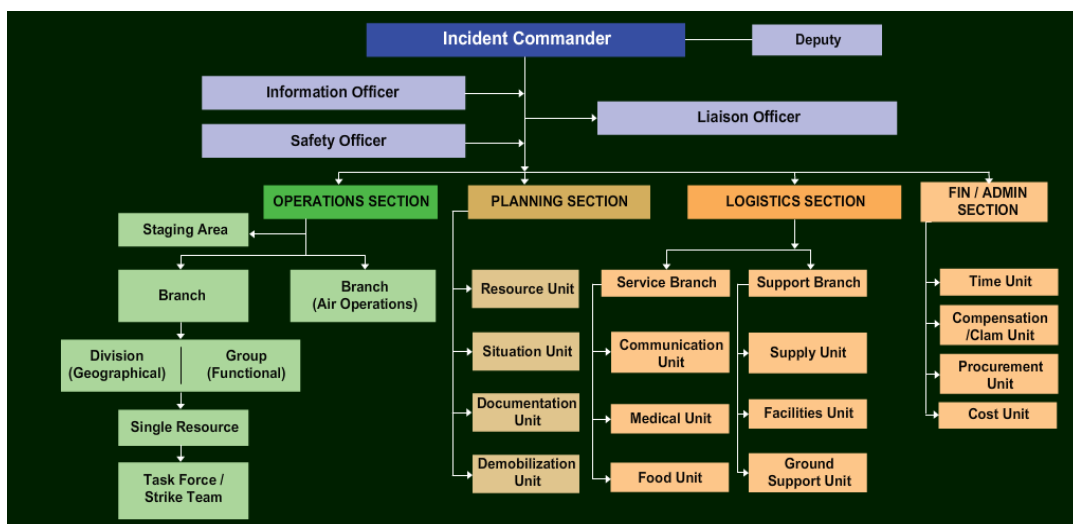


Figure 6.6. IRT

In delineating the roles and responsibilities, it is important to define the zone of influence. In planning for disasters, incident responses and risk analysis, the authorities prescribed the following areas as the zone of influence which included all important areas as mentioned below:

- Railway stations and bus stands
- Outer parking areas: Access road to outer parking (5 km short of outer parking areas) and the parking area
- Pilgrim Routes: All pilgrim routes to Kumbh Area from railway stations and bus stands (both towards and from), shelter areas and holding areas
- Inner bus stands / debussing points
- All historical and religious places of importance/interest
- Vulnerable areas and points within Prayagraj City

Another important factor is the identification of the following IRS entities:

- Emergency Operations Centre (EOC)
- Staging area
- Camp/base
- Helibase/helipads
- Incident command post
- Rallying points
- Medical aid posts
- Decontamination points
- Relief camps/shelters

6.6.5. Emergency Support functions

An Emergency Operations Centre (EOC) is a central command and control facility responsible for carrying out emergency preparedness and emergency management, or disaster management functions, at a strategic level during an emergency, and ensuring the continuity of operations.

An EOC (NDRF) was established close to the mela control room for swift flow and proper sharing of information. Sector-wise response posts were set up close to the riverbanks, and speedboats with swimmers and deep divers were deployed for water rescue operations. In case of search and rescue operations, there was 24 × 7 sharing of information with the EOC. As a preventive measure against terrorist threats, search and rescue teams, armed with modern equipment and augmented by a canine squad, were deployed at strategic locations for Collapsed Structure Search and Rescue (CSSR) and Chemical Biological Radiological and Nuclear (CBRN) emergencies. To evaluate the preparedness of the various agencies in terms of SOPs, training of personnel, resource mobilisation, familiarisation with terrain and job responsibilities, departmental and team-specific table-top exercises were organised. These exercises were followed by simulation exercises and joint mock drills with different agencies for earthquake/collapse structure, search and rescue, stampede, major fire accidents, train/road accidents, etc.

Moreover, different departments came up with contingency plans for handling different kinds of disaster events. For instance, the Railway Police had separate plans for relief, protection and exit of passengers in case of any untoward incident. In case of fire conflagration, a rapid action team would reach the site as soon as possible and start the work of recruitment, relief, protection and exit campaign. The team would be divided into two groups, with one group working towards extinguishing the fire and the other towards sieging the spot and working with the medical officers and paramedical staff. Similarly, in case of bomb explosion and its rumours, the Control Department would generate an alert for the team leaders of Railway Police Force (PRF)/ Government Railway Police Force (GPRF), fire brigade, bomb disposal squad, dog squad and the disaster management team to reach the site as soon as possible. The entire site would be cordoned off by putting nylon rope/tape and all the nearby areas would be combed by metal detectors and dog squad. The rapid action team would siege the site and help the medical team in rescue and relief.

6.7. Risk Management of Kumbh Mela Area and Mitigation Measures

Risk assessment is as important as planning, designing SOPs and IRS. It is important to have a full understanding of the enterprise and operational risks. In order to carry out a thorough risk assessment of the Kumbh Mela area and design appropriate mitigation measures, the authorities carried out the universally accepted Hazard, Vulnerability, Risk (HVR) analysis. HVR analysis involves determining the probability of an incident based on past experience, an assessment of present hazards and vulnerability, and based on this, the estimation of future incidents, including risk factors. This analysis is then used to determine what response mechanism and mitigation efforts need to be put in place.

The departments of PMP and District administration carried out location-specific risk assessment pertaining to their department roles and responsibilities. The locations covered under the analysis were:

- Diversion points
- Railway stations and bus stands
- Parking areas
- Pilgrim routes (from railway stations/bus stands to mela area)
- Holding areas (in area of influence and operational area)
- Staging areas (in area of influence and operational area)
- Entry and exit points to and from the mela area
- Camping areas
- Bathing points
- Sangam node area
- Shahi Snan routes
- Pontoon bridges
- Ferry operations
- Helipads
- Road network in Kumbh Mela locations

The risk assessment and mitigation measures for each of the above locations was outlined clearly and separately. The first two locations are shown below as examples to illustrate how the assessment was done:

Hazard	Vulnerability	Risk Anticipated	Mitigation Measures
Road Accidents	<ol style="list-style-type: none"> 1. Loss of Life 2. Damage to Vehicles on the road 3. Traffic Congestion 	<ol style="list-style-type: none"> 1. Inconvenience to pilgrims 	<ol style="list-style-type: none"> 1. Positioning Repair and Recovery Teams 2. Communication with the Mela authorities 3. Barricading 4. Day & Night Signages
Nonadherence to Diversion process	<ol style="list-style-type: none"> 1. City area may experience congestion 	<ol style="list-style-type: none"> 1. Traffic management in City Area 	<ol style="list-style-type: none"> 1. Strict adherence to diversion routes 2. Ensuring wide network of Day and Night multilingual and pictorial signages
Train	<ol style="list-style-type: none"> 1. Train Passengers 	<ol style="list-style-type: none"> 1. High disruption 2. Risk to life and 	<ol style="list-style-type: none"> 1. Train accident recovery bogie to be positioned

Accidents	2. Property	property	2. Unified command for emergency response management
Crowd Related Disasters	1. Passengers 2. Structures 3. Property 4. Limited Circulation area	1. Loss of Life and Injuries 2. Loss of facility 3. Damage to property and structures	1. Centralised announcement system and back up arrangements. 2. Planned movement of people. Restricting entry to only ticket holders for specific trains only (recommended trains leaving within one hour) 3. Adhering to announced designed train platforms 4. Creation of Yatri Ashray outside railway station 5. Training of GRP and RPF in emergency response 6. Availability adequate staff for management of crowd 7. Surveillance through CCTV network 8. Failproof communication with field forces on station 9. Establishing Railway Emergency Operation Centre
Fire	1. Passengers 2. Structures 3. Property 4. Crowd-related disasters	1. Loss of life and injuries 2. Loss of facility 3. Damage to property and structures	1. FF arrangements 2. Train coolies and vendors 3. PA system 4. EW mechanism
Epidemics	1. Public toilets 2. Platform 3. Passengers	1. Insufficient toilets 2. Availability of clean drinking water 3. Lack of waiting area for large crowd hence crowding of platform 4. Lack of circulating area, density being higher likely spread of infection 5. Insufficient hygiene and sanitation arrangements	1. Installation of mobile toilets 2. Sufficient quantity of drinking water distribution points every 100 to 200 metres 3. Certification of food vendors 4. Creation of waiting areas. Physical monitoring mechanism
Violence	1. People at the railway station 2. May result in arson/looting 3. May result in damage to property	1. Loss of life and injuries 2. Damage to property	1. Deployment of law and order elements 2. Restricted entry to ticket holders 3. Deployment of rapid action force 4. Community volunteers

Table 6.4. Railway Stations and Bus Stands Risk Assessment

6.7.1. Mock Exercises

An important observation to be made here is that they tested all the plans, SOPs, and the IRS, through table-top exercises and mock drills. These tests were conducted a few days before the start of the Mela on 15 January. Their experiences were discussed thoroughly, and their learnings incorporated. They held a coordinating conference before conducting the mock exercise to decide on the following:

- Delineating objectives of the mock exercise
- Scope of the exercise
- Selection of the sites for the mock exercise
- Date and venue for the table-top and mock exercise
- Participants
- Media coverage

They conducted a table-top exercise before conducting the mock drill. The table-top exercise was designed as follows:

- Initial scenario was painted at the concerned district level. The Collector and other stakeholders like SSP, District Health Officer, Fire Officer, Public Services Heads, SAR Team Leader, Communication, Civil Defence, Home Guard, Red Cross, RTO, NGOs, Public Relations Officer, etc. were required to respond.
- Subsequent situations were painted as realistically as possible at various levels for concerned stakeholders to respond.
- Details of coordination and safety were discussed.

The table-top exercise and mock drills were conducted to identify gaps, and remedial measures were taken based on that.

6.8. Crowd Management

In disaster management, crowd management occupies prime place as it has huge potential to be a spoiler. Crowd management, especially during the Snan days, is a challenge as waves of pilgrims keep coming. Besides tackling conventional crowd-related challenges like crowd channelling, traffic diversion, scheduling and managing bathing time slots, the authorities have to ensure safety during disasters such as fires, flash floods, accidents, etc. The authorities took no chance and made elaborate plans for every aspect of disaster management. They went through the learnings from all previous melas and events involving crowds and formulated their strategies. They were guided by experts from NDMA, thus bringing in professionalism in the exercise. The disaster management was professionally managed in all aspects such as forming the teams, designing the plan, delineating the structures, role and responsibilities, mapping all the processes and developing SOPs, adopting technology, third party monitoring and reporting, training and capacity building, mock drills, etc.

The plans for crowd management were driven by comprehensive operational strategies as outlined below:

- Identification of vulnerable areas and dividing them into geographical areas to ensure effective command and control
- Establishment of facilities for ensuring pilgrim comfort, and law and order, through various departments of the administration.
- They had made contingency plans A, B and C which would ensure the crowd keeps moving and is not stopped.

- They planned such that crowd does not come face to face.
- Decongestion of human and vehicle population both in the Kumbh Mela area and in the city area
- Stringent safety and security measures for core areas such as bathing areas along river banks with depth of 150 to 300 feet, Akhada camps and surrounding areas, all entries and exits, ferry sites, pontoon bridges and the Prayagraj Mela Pradhikaran (PMP) control rooms
- Ensuring unhindered movement on pilgrim routes from railway station and bus stands to the Kumbh Mela area and within Kumbh Mela area during the key events
- Ensuring adequate basic civic amenities for all in and out routes to the Kumbh Mela area and within the Kumbh Mela area.
- Ensuring that response time to any incident is not more than 3 to 5 minutes
- Ensuring failproof communication during events and in case of any emergency
- Ensuring reserves of essential resources (manpower, equipment, machinery and material) for contingencies.
- ICCC was put to good use. Establishing a Decision Support System based on monitoring mechanisms at the Emergency Operation Centres and Zonal Fusion Centres. They kept tracking all key junctions and bathing ghats. Artificial Intelligence (AI) was used to keep a tab on the congestion on the bathing ghats and they kept giving feedback constantly to the policemen on duty.
- Ensuring effective and efficient health, hygiene and sanitation arrangements in the entire Kumbh operational area



Figure 6.7. Rope lines being used at Kumbh to manage crowds

6.8.1. Preventing Stampedes

A key aspect of crowd management is planning for preventing stampedes and managing stampedes. The biggest threat from mass gatherings is stampede, which NDMA defines as “an act of mass impulse among a crowd of people in which the crowd collectively begins running with no clear direction or purpose”. Stampedes mostly occur during religious gatherings and professional sporting and music events which attract huge gatherings in a

confined place. These also occur in times of panic (e.g. as a result of a fire or explosion) triggering people to run helter-skelter. More common causes are when a crowd tries to get *towards* something as in an enclosed place in a temple, and puts pressure on the people in the front. Often, they are unaware of the pressure they are putting on the crowd in front. Deaths from stampedes occur primarily from compressive asphyxiation and not from trampling. This is referred to as crowd crush. The compressive force occurs from both horizontal pushing and vertical stacking.

Important aspects in preventing stampedes are planning for crowd movement at both entry and exit points, managing areas of congregation, key junctions and vulnerable spots like bathing ghats, managing time of crowd flow at bathing ghats, and finally, planning for clearing stampedes and evacuating casualties. The authorities made systematic plans for all of the above and technology was extensively used. *It should be mentioned here that often it is not 3 crores or 5 crores that lead to stampedes, but a few thousands suddenly panicking, pushing and running in a directionless manner can trigger a stampede.* When there was stampede in the FOB in the Allahabad railways station, the numbers present were not huge. Therefore, what is required is crowd management for the crores, and prevention of stampede for the thousands at critical points.

The Department of Police occupied a critical place in crowd and traffic management during Kumbh 2019. The crowd movement was planned in such a way that the incoming and outgoing crowds rarely came face to face. Often, crowds coming in surges in opposite directions become the source of a stampede. The railway authorities made elaborate plans to ensure that all entries were on one side and the exits through the opposite side. Even while moving from the entry points to the platforms or while exiting from platforms, they did not come face to face. The regular long-distance trains were set apart so that those passengers were not inconvenienced. From alighting points whether at bus stands or at railway stations, the pilgrims were led on a one-way path. Within the mela area as well, it was ensured that there were separate passages for incoming and outgoing passengers. Even the pontoons were segregated, so much so that there were separate routes even for the movement of boats. There were barricades placed on the water.



Figure 6.8. Two-way traffic at the river being managed through barricades

The police department and disaster management authorities made emergency plans to provide for excessive crowd congregation at any particular point. There were alternative emergency plans at different levels of escalation for controlled diversion of crowds. For instance, under Plan A, three pre-determined contingency plans would be implemented simultaneously to stop crowds of pilgrims from going towards Sangam area for 30-60 minutes and instead they would be diverted to other specific routes. If the crowd strength remained unabated after implementing Plan A, then the mela control room would issue instructions for delay of entry of crowds into the Mela area, which would activate Plan B. Every police officer was to be informed of the traffic plan (including diversions and holdup areas) for prevention of crowd diversion in the wrong direction. The Area-in-charge and inspectors were to take stock of barricading arrangements every two hours to ensure movement of crowds in defined directions.

To ensure safety and security of the people visiting the Kumbh Mela as well as that of the Kalpwasis, four police lines including 40 police stations, 3 female police stations and 62 police outposts were constructed. 40 firefighting centres, along with watch towers.

SOPs were included in the plans for all important operational decisions and processes. The key elements covered were as follows:

- Identification of vulnerable areas and vulnerabilities, and long-term planning for all possible scenarios
- Anticipating and estimating the quantum of crowds ahead of time, and predicting challenges
- Uniformity in dress code of crowd control personnel to ensure high visibility even in large crowds
- Strategic positioning of crowd control personnel for effective communication amongst each other, other stakeholders, and the crowd present at the event
- Construction of strategically located multiple (sufficient even when unexpected crowds are present) entrances and exits
- Construction of separate entrance and exits for administrative and other agencies related to the event
- Construction of emergency routes and emergency exit plans with provision of highlighting emergency exit route in case of a disaster
- Constant monitoring of crowds – to include perception management, social media management, providing ample weather relief material, etc.

Apart from this, comprehensive emergency plans were made for pedestrians and vehicular traffic, keeping in mind various contingencies that could arise on regular days as well as on the Shahi Snan days. For instance, in case of overcrowding at Dashashwamedha Ghat, pilgrims coming from Prayag station and Bakshi Bandh were sent to Jhoonsi Ganga Prasaar area through Nagvasuki Marg via Harish Chandra Peepli Pul.

6.8.2. Traffic Management

Traffic management is another important aspect of disaster management. Traffic management is critical as the majority of visitors travel by buses or private vehicles. It is not unusual to find a group of pilgrims from a village arrive by tractor. Traffic management is important from the point of view of keeping the city free of traffic jams and keeping the way open to evacuate victims of disasters or transport VIPs. This time, the authorities adopted a failsafe approach. They blocked the traffic well before the Mela area on bathing days even when it meant inconvenience to elderly people and women. They were very clear that they could not afford traffic jams near the Mela area. Elaborate arrangements were made to divert traffic from around the Mela area and from neighbouring districts to designated parking areas in the city.

The city had defined approach roads from Kanpur, Lucknow, Varanasi, Rewa in Madhya Pradesh, etc., and they developed plans for all these approach roads. They developed a bypass road around Prayagraj city and truck movements were diverted through these roads. They built holding areas on each approach road before entry into the city. The police made plans for continuous coordination with neighbouring districts for controlling and directing traffic. Again, they had contingency plans and it must be mentioned here that they had to use all their contingency plans on the Mouni Amavasya day. They had to hold back traffic on 4 February, the Mouni Amavasya day, as the mela area began getting choked.

They used aggressive and intense surveillance systems with cameras installed at vantage points and information technology applications using AI. The ICCC team got immensely benefited by the guidance given by Prof Mayank Pandey of MNNIT, Prayagraj. He was helpful in planning deployment of cameras and applying AI to images to draw inferences. To streamline the flow of traffic, an Intelligent Traffic Management System was set up in 19 junctions across the city, which provided a continuous feed to the administration. The traffic movements were also integrated via Google Maps for better management. More than 2,000 digital signboards were spread across the Mela area to inform people about traffic congestion, guide them through various routes and warn them of emergency situations.



Figure 6.9. Digital signboards

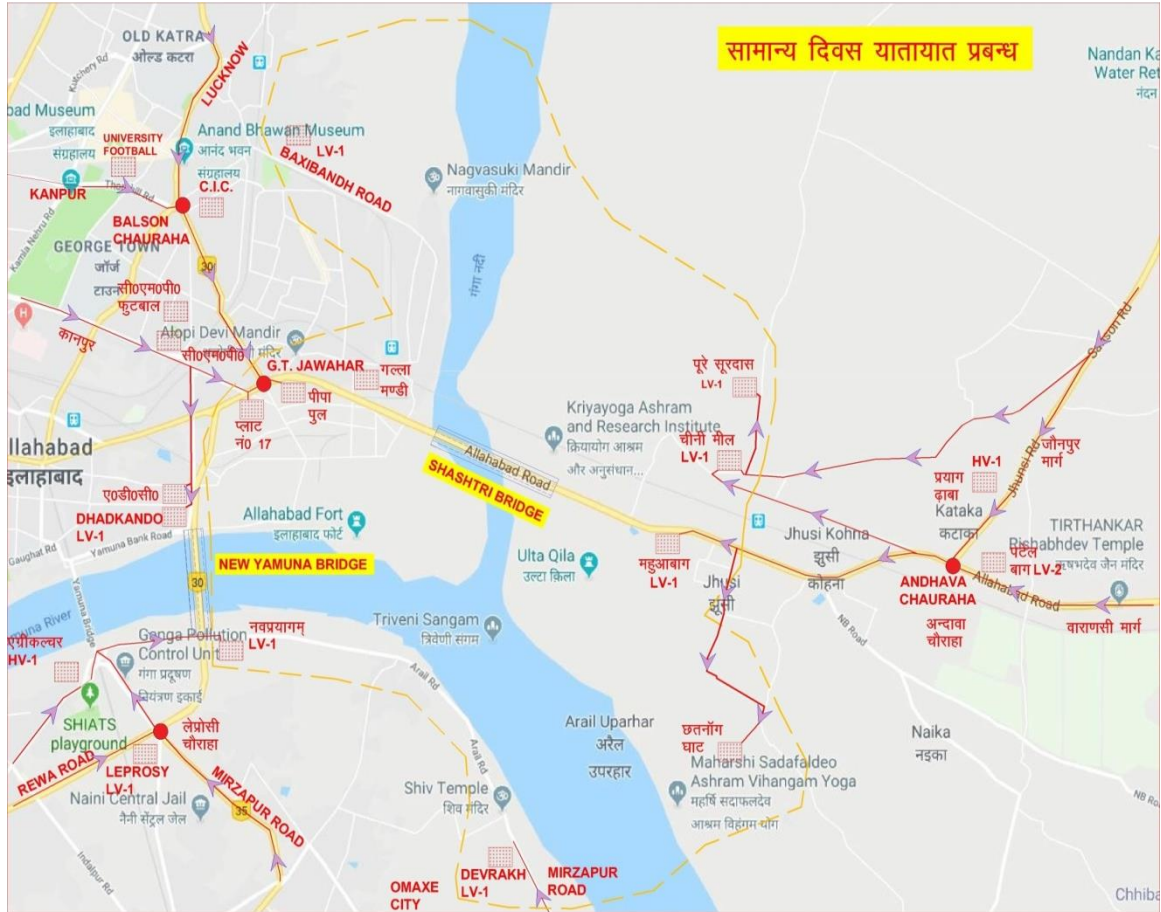


Figure 6.10. Traffic plan for regular days

Loudspeakers were used for announcements and tokens issued to parked vehicles. These tokens could also be used by the vehicles to move towards the city at regular intervals. When the parking areas got further crowded, there were plans to stop vehicles outside the city itself. Vehicles carrying devotees could be restricted outside the district boundaries in the following manner:

- Devotees coming from Fatehpur-Kashambhi to halt at the parking/holding area at Kokhraj Bypass in Kashambhi district
- Devotees coming from Lucknow-Raebareilly to halt at the parking/holding area at Nawabganj
- Devotees coming from Pratapgarh to halt at the parking/holding area at Soranj Bypass
- Devotees coming from Jaunpur-Phulpur to halt at the parking/holding area at Sahson Bypass
- Devotees coming from Varanasi-Bhadoi to halt at the parking/holding area at Handia Bypass
- Devotees coming from Mirzapur to halt at the parking/holding area near Meja
- Devotees coming from Rewa-Banda to halt at the parking/holding area near Gahonia

All vehicles were stopped outside Prayagraj city. Large vehicle parking areas with a capacity to hold 5 lakh vehicles were set up outside the city limits on all the major approach

roads. Each of the parking areas had separate parking bays for government buses, private buses and for private vehicles. The pilgrims could take a bus to the Mela area from the parking area. Buses plied frequently between the parking areas and designated bus alighting areas in the city. These areas were at quite a distance from the Mela entry itself. Therefore, the pilgrims had to walk a lot, but the movement was smooth. The authorities ran continuous shuttle services from car parking areas and pilgrims had no problem on that count. On bathing days, these services were offered free to the passengers. The police also took care to see that city dwellers do not suffer on account of traffic regulations. They maintained a free flow of traffic between the airport and city areas. This ensured that VIPs and tourists did not suffer.

They ensured that VIPs did not visit on the bathing days. VIP movements were managed separately. The VIPs were mostly encouraged to come only after 10 February by when the main Snans were over. The roads through which the traffic passed were widened before the Mela which also contributed to the smooth flow. When the police were asked why they did not allow public transport up to the entry point of Mela area, the authorities invariably mentioned that they did want to risk creating any traffic jams.

Another important aspect of traffic management was the maintenance of green corridors for moving emergency victims. They maintained dedicated routes for ambulances, fire service, and police and administrative personnel, especially during main bathing days. The vast area of Kumbh 2019 helped in dispersing congestion but it also meant management of a larger area.

6.8.3. Time Management

An important dimension of planning was time. The time aspect played a key role in planning for the routing and re-routing of crowds. The authorities worked backwards from the bathing ghats and determined the flow of crowds to be allowed. Accordingly, they controlled the movement of the crowds. Another aspect of time was the amount of time they allowed for the pilgrims to take a holy dip. Depending on the size of the crowd approaching the bathing ghats, the bathing time of pilgrims was controlled. Thirdly and most importantly for the smooth function of the bathing days was the time allotted and the sequence of bathing of religious groups. The authorities reached an agreement with the religious heads based on certain protocols and determined their bathing timings. The authorities then had to ensure that the timings were scrupulously kept.

6.8.4. Deep Water Barricading

The Ganga is deep and has a good flow. To protect the pilgrims from getting into deep water and drowning, a special barricade was erected in the river using thermoplastic floating blocks beneath which nets were placed. Special arrangements were made for policemen to stand on this barricade in the river so that they could prevent pilgrims from crossing it. There were also dedicated areas at the bathing ghats for guards and volunteers to keep a

check on the pilgrims. All these arrangements helped to make the pilgrims feel safe and one could see the elderly, women and children comfortably taking a dip without fear of being pushed or of drowning. Tight supervision was maintained at the bathing side, especially on the bathing days.



Figure 6.11. Water barricading

To safeguard against a flood situation in the Kumbh Mela area, standard operating procedures were designed and communicated across all departments. A flood response system was prepared with mitigation equipment such as lifebuoys, life jackets, jetties, sonar systems, boats, etc.



(Source: Kumbh Mela official website)

Figure 6.12. Reflective floating river line

The Sangam Nose lies at the junction of the Ganga and Yamuna and in the middle of the river. The pilgrims use boats to reach the spot. There are designated locations on the banks from where one can board the boats. The authorities made orderly arrangements for taking the boats out with different points for boarding and alighting. This helped avoid outgoing

and incoming pilgrims running into each other. In the river, to prevent the boats from colliding with each other, which could result in the overturning or capsizing of boats, reflective river lines made of thermoplastic floating blocks and using solar energy were created. This helped to prevent the boatmen from transgressing into other river lines. They were given different routes for going out and returning which again helped avoid any possibility of collision. It also helped speed up travel time. Other special arrangements to ensure safety in the water included floating jetties which were used for getting into the boats, a modern water control room for monitoring all kinds of water activities and Oscar lights to ensure uninterrupted light supply. Diving suits for more than a hundred divers and remote control lifebuoys were used by experts deployed in the river area in case of an emergency. Over 10 river ambulances were deployed for rescue and relief operations in the Sangam area.

6.8.5. Health Emergency

The Health department had its own Disaster Management Control Cell (DMCC), headed by the Nodal officer, which was established in the Central hospital. A total of 72 Quick Medical Response Teams of five members each, were deployed – two at each circle office and two at each circle hospital; 86 ambulances with wireless sets were available 24 × 7 in the Mela area to support these teams. A 100-bed central hospital was established in the Mela area equipped with important facilities like X-ray, ultrasound, pathology, ICU, along with availability of specialist doctors. Besides this, two 20-bedded infectious diseases hospitals, eight 20-bedded sector hospitals, 25 first aid points (FAPs) and 27 health outposts were established to provide services to patients. Motorised river ambulances fully equipped with advanced life support system and air ambulances on rental basis were also set up during Kumbh 2019.



Figure 6.13. Location of central hospital (in green), sector hospital (in red) and infectious disease hospital (in blue)

Steps were taken to prepare for disaster management along with general health services. A green corridor was planned for hassle-free movement of ambulances. 600 burn kits and 1,000 stampede kits were available at central hospital, sector hospitals, FAPs and selected ambulances stationed at crowded places; 100 drowning kits were also made available in river ambulances and FAPs near bathing ghats. Apart from this, a vector control unit was also formed to counter infectious diseases.

In the event of a disaster, every hospital and health post in the Mela area was to provide primary care facility assigning the degree of urgency to the treatment of patients. Around 5,000 triage bands would be made available for different degrees of injuries, ranging from minor injuries to major injuries with unstable vitals and deaths. For efficient management, in case the number of casualties was higher, cooperation from Railway Hospital, Army Hospital, Medical College Hospital and District Hospitals of adjoining Districts as well as medical colleges from adjoining areas like Kanpur, Varanasi and Lucknow would be sought.

There were 10 super-specialty departments that provided specialised treatment to serious patients in areas such as neurosurgery, neurology, nephrology, endocrinology, urology, plastic surgery, oncosurgery, CTVS, gastroenterology and cardiology. Besides this, a trauma centre was set up to deal with crises in a 40-bed trauma care facility.

6.8.6. Fire Hazard

Fire is always a lurking danger, next only to stampede. The authorities and fire department fully factored in all possibilities of fire-related accidents, and provided them with equipment, materials and men. A total of nine zones and 20 sectors were created and more than 50 fire-fighting centres and sub-centres were set up during Kumbh 2019. SOPs were put in place for better efficiency of mitigation strategies. A three-phase system was adopted for effective fire control. The first phase involved the use of primary equipment in pandals and camps along with motorcycles equipped with fire extinguishing tools. The motorcycles were put on shift duty so that prompt action could be taken in case of any emergency. The second phase was characterised by the usage of water mist jeep and fire hydrants – more than 4,000 fire hydrants were arranged in proximity of 60-90 metres of the fairground, and water storage tanks were built in almost 50 places to ensure adequate water supply. The third phase made use of motor fire engines and advance rescue tenders. Around 1,500 primary fire extinguishing machines were set up in government offices and important tents. Moreover, the tents meant for foreign dignitaries and NRIs were treated with fire resistant chemicals and equipped with complete fire safety arrangements.



Figure 6.14. Motorcycle with fire hydrant

For the prevention of fire-related accidents, a well-planned training scheme was prepared. Any officer/worker who was posted inside the mela area was trained for at least three days for the purpose of rescue and safety. A team was also formed for spreading awareness among the public regarding fire safety measures. Towards this end, 'nukkad natak' (street shows) were performed and pamphlets with dos and don'ts were distributed among the pilgrims.



Figure 6.15. Delivery man carrying out leak inspection

The Fire Department also worked in coordination with the Food and Civil Supplies Department, as well as with the oil marketing companies to reduce the risk of fire-related disasters. The Meladhikari gave NOCs to gas godowns only after the recommendation of the Chief Fire Office and each godown had four fire extinguishers to handle emergency situations. There was a fatal accident due to LPG leakage in the previous mela in 2013; to avoid similar incidents, cylinder deliveries were made by mobile vehicles and each deliveryman was required to carry leak detector equipment to ensure proper inspection. Moreover, all the delivery vehicles were to have two fire extinguishers to handle emergency situations.

However, one fire accident did occur on the very first day on 15 January 2019, and it was attended to immediately. There were some casualties but no deaths. Our team was present nearby on a pontoon bridge and we immediately reached the spot. We observed that ambulances and doctors reached the location quickly and the casualties were given treatment immediately. Fire engines also reached the spot at once and the fire was put out before it could spread.

6.9. New Technology Initiatives at Kumbh 2019

6.9.1. Technology-powered Control

Kumbh 2019 witnessed the use of artificial intelligence (AI) for the first time to manage crowd and traffic movements. As many as 1,100 CCTV cameras were installed at over 260 vantage points across the city to monitor the crowds. Equipped with sensors, these cameras would raise a soft alert when the crowd density exceeded three people per square metre, and a stronger alert on recording five people or more.

Totally, 127 strategic locations across Kumbh Mela Area were monitored using cameras, details regarding the same have been produced in the table below,

1	Temporary Infrastructure	
(a)	Mela Area	92 Locations
(b)	Parking Area	13 Locations
(c)	Railway Station	Areas: 22 Locations
2	431 CCTV Cameras (PTZ: 177, Fixed: 246, ANPR: 8) across Kumbh Mela Area	
(a)	Mela Area	364 Cameras (PTZ: 152, Fixed: 212)
(b)	Parking Area	21 Cameras (PTZ: 13, ANPR: 8)
(c)	Railway Station	Areas 46 Cameras (PTZ: 12, Fixed:34)

(ANPR – Automatic Number Plate Recognition)

(SWM – Solid Waste Management)

(PTZ – Pan Tilt Zoom)

The police also needed aggressive and intense surveillance systems involving both human and technological intelligence apparatus. Aerial surveillance like drones, ground surveillance like CCTVs, widespread anti-sabotage checks, explosive detection systems, etc. were required to be deployed. Real-time intelligence analysis and dissemination systems were developed so that valuable intelligence could be distributed in real time to the ground operatives.

Today is an era of meta-data, smartphones and information technology. Thus, companies were invited to build robust security infrastructure both on ground and virtually. Companies having domain expertise in aerial surveillance, unmanned aerial vehicles, satellite tracking, geo-fencing and GPS-based technologies were openly invited to participate. Companies specialising in modern weapons systems, smart traffic solutions, encrypted communication

networks, multimodal public announcement systems, cyber security, integrated software solutions and smart control rooms were cordially invited to come and develop a long-term partnership for Kumbh 2019.



Figure 6.16. Tech-powered security

They also constructed 15 fire outposts and 40 watch towers and a sample tower can be seen in Fig 6.17.



Figure 6.17. Watch Tower

6.9.2. Integrated Command and Control Centre (ICCC)

There was a plan for setting up an Integrated Command and Control Centre (ICCC) as part of the Allahabad Smart City project. This project was dovetailed with the Kumbh Mela and the authorities speeded up the implementation of the ICCC. An ICCC was set up quickly at the Kumbh area and another one in the Police Commissioner's office in the city. The ICCC came up very fast given that there was very little lead time. The key objective of the ICCC project was to establish a collaborative framework where inputs from different functional departments such as transport, water, fire, police, meteorology, e-governance, etc. could be assimilated and analysed on a single platform, resulting in aggregated city-level information.

The ICCC monitored the crowds at various junction points. Public announcement systems were utilised for crowd management and high-risk areas were monitored round the clock through CCTV for crowd diversion. Maximum attention was given to bathing ghats, especially near the Sangam area. Technology was put to full use at these points. The IT team continuously monitored and forecast congestion at these points using Artificial Intelligence (AI) technology and kept the authorities at the junctions informed. Based on the level of congestion at the bathing points, crowds were redirected on the way through longer routes. The IT adoption is discussed later. It must be mentioned here again that all tools – contingency plans, SOPs, IT – were used in the management of crowds.

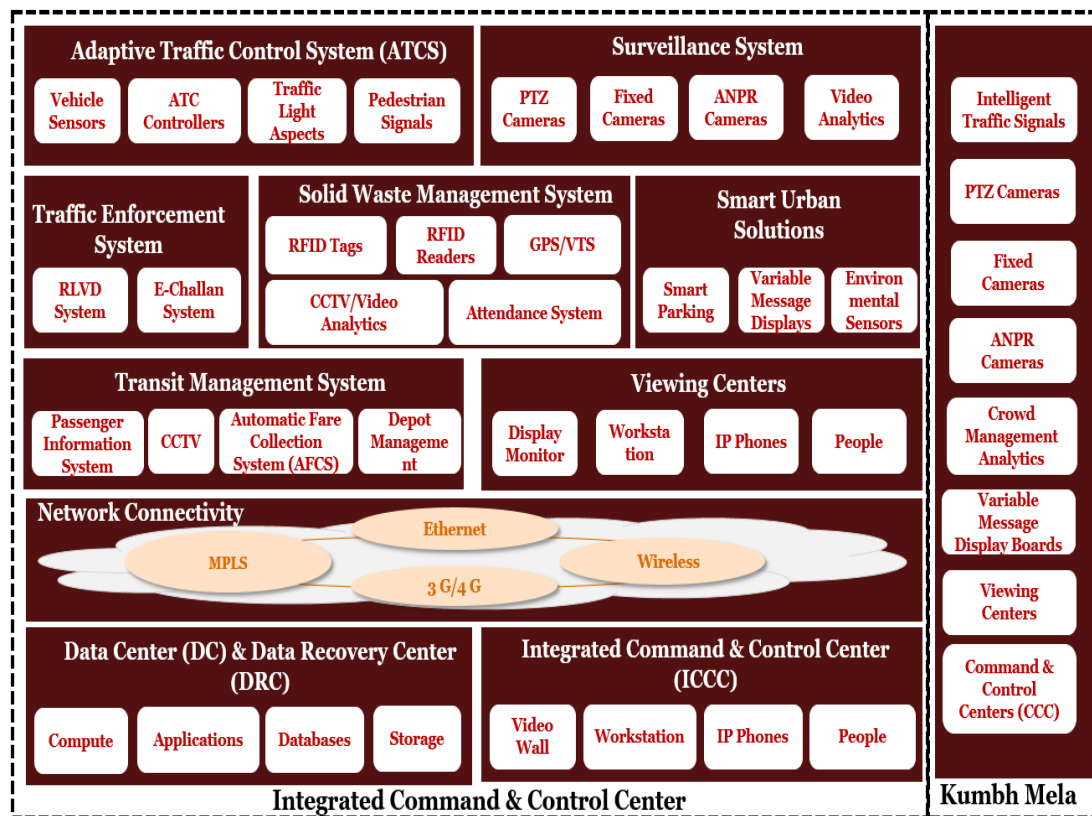


Figure 6.18. ICCC

The scope of work of ICCC was divided into two categories, as follows:

One, ICCC for pan city area from a Smart City perspective – this included the permanent infrastructure that was to be set up as part of the long-term ICCC project. To enhance the efficiency of city operations, an Intelligent Traffic Management System (ITMS) was planned to be established with variable message boards at nine locations and intelligent traffic signals at 17 junctions. Further, for a unified and real-time view of operations, a city surveillance system would be set up with 645 CCTV cameras at 183 strategic locations, including Kumbh area, city area, railway station area and Kudaa Addas for SWM. The integration and IT Infrastructure for 188 cameras were to be provided by Reliance Jio at 47 locations.

Two, city surveillance for areas impacted by Kumbh Mela 2019 – here, the ICCC provided a holistic and integrated video surveillance system during the Kumbh with the objective of ensuring safety and security of the pilgrims and tourists. The ICCC helped in anticipating the challenges and minimising the impact of disruption by ensuring the following:

- Safety and security of pilgrims, tourists and citizens
- Support to police to maintain law and order situations
- Aid for improving crowd management
- Effective traffic management
- Dissemination of advisory information
- Support for disaster management
- Analysis of data for quicker decision making
- Real time information and response

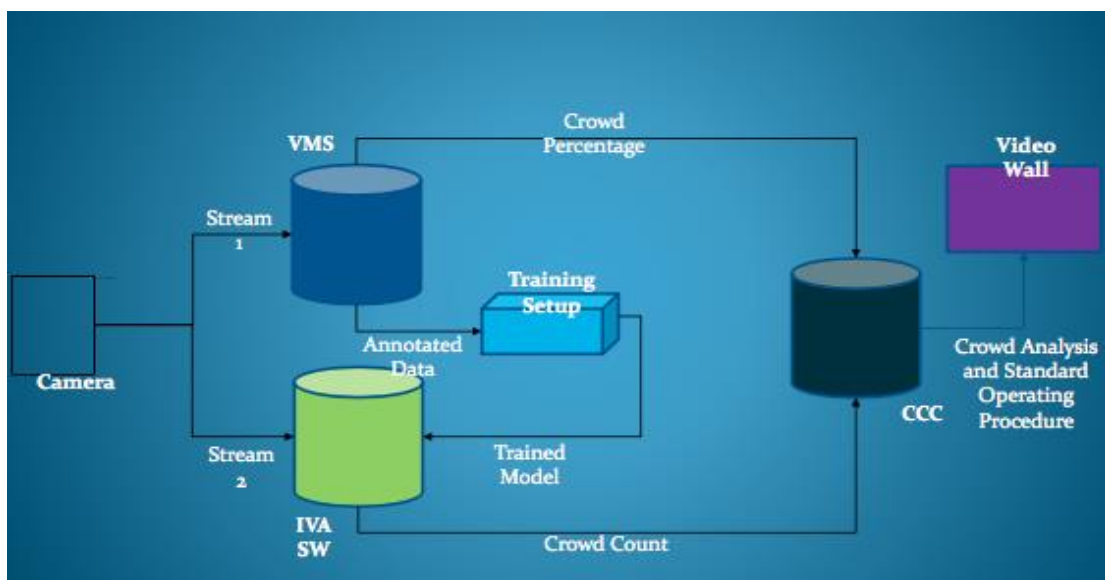


Figure 6.19. ICCC data flow

As part of the ICCC project, India's largest conglomerate L&T developed and installed a whole range of smart solutions including an Intelligent Traffic Management System, Variable Message Displays, a surveillance system, a 24 × 7 call centre and a Solid Waste Management System all connected to a dedicated 24 × 7 City Operations Centre with integrated dashboard to sensitivity. L&T also set up two state-of-the-art Command and Control Centres, one at the Kumbh specific area and another at Police Lines for overall city surveillance. To man the ICCCs, 120 viewing operators and 30 call centre operators were engaged. Video specialists were also appointed at the ICCCs to estimate the footfall at the fair. Further, ICCCs also included a bulk SMS facility and a tollfree helpline number 1920 which was integrated with the emergency helpline number 100.

6.10. Conclusion

While the Administration assured and ensured a Divya, Bhavya, and Swachh Kumbh, Kumbh 2019 Police assured and delivered a Surakshit Kumbh. The mela passed through without any incident which is truly remarkable. A Mela of unprecedented scope and scale, occurring without making news headlines for the wrong reasons, speaks of the integration and coordination among the various departments, from Traffic Police to Central Railways and State Transport, and to the meticulous planning, preparedness of the Police Administration. Every contingency was anticipated and provided for. The police department went beyond the call of security and safety, and provided citizen friendly service and face keeping the overall spirit and mandate of the mela in mind. There was a shared understanding and alignment of the goals among the officers and rank and file.

Chapter 7

Swachh Kumbh

7.1. Introduction

A much-acclaimed success story of the Mela is the management of sanitation and solid waste. The government, right at the beginning, set itself the target of Swachh Kumbh, keeping in line with the national priority on sanitation. Swachh Kumbh has huge implications. In the past, the Kumbh was feared for unhygienic ambience and epidemics like malaria, cholera, and diarrhoea. Kumbh Melas in the past from the British days had strict regulations about inoculation and disease control. However, there invariably used to be disease outbreaks, especially because of the mosquito menace created by unhygienic conditions in the Melas due to heaps of garbage, pools of water from drainages, and slush. Even the river used to be littered with floating objects and appear dirty. Visitors often narrated stories of how there used to be beds of mosquitoes. Open defecation used to be the practice in the past.

It is in this context that the performance on Swachh Kumbh has to be appreciated. The government declared in the beginning of preparation itself that Kumbh 2019 would be:

- Garbage free
- Odour free
- Open defecation free (ODF)

This was a bold statement and the PMA went about implementing it in letter and spirit. Normally, an authority would have equated swachh with providing adequate dustbins, toilets and manpower, and hope that the outcomes would be better. In this Mela, when the authorities said that the Mela would be free of garbage, odour and open defecation, they made a public commitment to the outcomes and not just about making provisions. It was a challenge because it involved not just provision of equipment and manpower, but also influencing mass behaviour at such a scale of a floating population. They provided for this in their communication and even more by simply keeping it clean. They made one of the most elaborate plans, probably giving it a status normally given to security and safety in Melas. Finally, the execution matched the plan and the outcomes exceeded the expectations. The Mela can truly be said to have been garbage free, odour free and open defecation free, which made the Mela epidemic free as well. Pilgrims who had visited past Melas commented on the effective management of sanitation and clean ambience in this Mela.

The challenge in ensuring these outcomes lies in the fact that the pilgrims are mostly a floating population which is disproportionately large compared to the host-city population. It is generally difficult to implement a system for a floating population as compared to permanent residents. This is especially true when they come in millions across geographies and are of various profiles. If they had visited in the past, they could also carry old habits. The PMA factored in all these elements in their comprehensive plan.

Effective implementation of the sanitation plan was one reason why the Mela was successful in attracting lakhs of tourists.

7.2. Swachh Bharat Context

This section provides the sanitation and swachh scenario situation in which the Prayagraj city found itself at the start of planning for Kumbh. The Government of India has been running an ambitious programme, Swachh Bharat (Clean India) Mission, which seeks to provide clean toilets and garbage-free cities and neighbourhoods. Over decades, the absence of toilet facilities and poor waste management systems in India have shaped the behaviour of the citizens as seen in poor appreciation for hygiene and safe sanitation practices. The Swachh Bharat programme seeks to provide not only infrastructure and facilities for decent sanitation standards, but also to modify behaviour of the people towards better sanitation practices. Sustained efforts towards Swachh Bharat have also increased the expectations of the people about sanitation facilities to be provided in general.

Simultaneously, the National Mission for Clean Ganga has been implementing a massive programme towards controlling environmental pollution and rejuvenating the river Ganga. The 'Namami Gange' programme addresses various issues of sewage treatment plants, surface water cleaning, afforestation, river front development, biodiversity, and public awareness (NMCG website). Uttar Pradesh being an important state of Namami Gange, it was imperative that the state ensure that the Ganga remains pollution free and clean.

The comprehensive sanitation plan apart from providing for visitors in the Mela area also provided for the city area and on the ghats and river front. All these three areas were comprehensively dealt with.

7.3. Policies Governing Sanitation

Sanitation and solid waste management in India is now governed by the Swachh Bharat Mission launched on 2 October 2014. It is an ambitious programme which overrode the earlier National Urban Sanitation Policy (NUSP) of 2008, which had been brought out by the Ministry of Urban Development.

The NUSP's vision was to ensure that "all Indian cities and towns become totally sanitised, healthy and liveable and ensure and sustain good public and environmental outcomes for all their citizens with a special focus on hygienic and affordable sanitation facilities for the urban poor and women". The specific goals of the NUSP were:

1. Awareness generation and behaviour change
2. Open defecation-free cities
3. Integrated city-wide sanitation
4. Sanitary and safe disposal
5. Proper operation and maintenance of all sanitary installations

The NUSP also provided for rating and categorisation of cities in relation to their performance in sanitation improvements, using output, process and outcome related indicators. The NUSP set forth various objectives of ensuring ODF towns, providing access to toilets for poor people, ensuring wastewater and solid waste treatment, and achieving public health with environmental standards. It sought to create awareness and to build integrated systems, institutions and capacities. Under the NUSP, monitoring was a key aspect and they developed appropriate indicators, and started ranking cities categorising these into red, black and green cities with green being the healthiest (Indiawaterportal.org).

Besides this, the Municipal Solid Waste Management (MSW) Rules 2000 are applicable to every municipal authority responsible for collection, segregation, storage, transportation, processing and disposal of municipal solid waste (Ministry of Environment and Forests, MSW Rules). The years of ad hoc sanitation plans led to patchy implementation and improvements. Therefore, a countrywide Swachh Bharat programme was drawn up in 2014 to solve the problem comprehensively rather than incrementally.

Swachh Bharat Mission (Gramin) was launched by the Government of India on 2 October 2014 to achieve a clean and ODF India by 2 October 2019. Its stated objectives are:

- To bring about an improvement in the general quality of life in the rural areas, by promoting cleanliness, hygiene and eliminating open defecation.
- To accelerate sanitation coverage in rural areas to achieve the vision of Swachh Bharat by 2 October 2019.
- To motivate communities to adopt sustainable sanitation practices and facilities through awareness creation and health education.
- To encourage cost-effective and appropriate technologies for ecologically safe and sustainable sanitation.
- To develop community managed sanitation systems focusing on scientific solid and liquid waste management systems for overall cleanliness in rural areas.
- To create significant positive impact on gender and promote social inclusion by improving sanitation especially in marginalised communities. (Swachbharatmission.gov.in).

7.4. City Sanitation Plan

The sanitation plan for Kumbh has to be understood in the context of city sanitation plan over years. The Kumbh sanitation plan included a comprehensive plan on solid waste and sewage management for the city of Prayagraj, the Mela area, and the river front. It should be remembered that at any point of time even on non-bathing days, there will be around 20 lakhs making it a city by itself. We describe here the design and implementation of the sanitation plan in these locations. As we mentioned in the section on town planning, the relationship between the city and Mela area is quite symbiotic. The Mela area essentially receives the pilgrims and holds them in transit, but it is the city that ultimately provides and manages all the support systems. It is the same for sanitation. However, for the duration of the Mela, especially during the bathing days it is a challenge. The management of sanitation

is not restricted to just the Mela area. The problem of garbage and sewage is generated throughout the journey of the pilgrims. Even neighbouring towns and railways have to handle these issues.

Prayagraj city has been struggling with its sanitation programme for over a decade. The city covers an area of 70.5 sq. km with a population of about 15 lakhs. It has 80 municipal wards. Based on the NUSP criteria, Allahabad was ranked 249 out of 423 Class I cities and was placed in the 'black' category. The city scored 32.77 marks out of 100. The Allahabad City Sanitation Plan (CSP) was prepared and eventually approved in 2013. This plan formed the core of its sanitation programme and set ambitious targets for various components like segregation, coverage, recycling, etc. but it is still under implementation.

The CSP (2013) envisaged achieving 100% sanitation in the city through demand generation, awareness and sustainable technology selection. It aimed at the construction and maintenance of sanitary infrastructure, provision of services, handling operation and management issues, defining institutional roles and responsibilities, public education, mobilising community and individual action, regulation and legislation. However, in order to achieve 100% sanitation, it recognised that it was important to raise the consciousness about sanitation among municipal and government agencies and citizens. It made an ambitious plan (Table 7.1) but was not backed with a plan and clear road maps and timelines. Kumbh was useful in driving some of the initiatives including improving the consciousness of the sanitation workers and people.

The CSP identified and defined the importance of the major role to be played by organisations, institutions, individuals, NGOs, academics, journalists, local councillors, industry owners, consultants and representatives of the private sector. Hence, a CSTF (City Sanitation Task Force) was constituted by the Nagar Nigam of Allahabad drawing members from these groups into the CSTF and the first orientation workshop was organised in December 2011. After analysing the problems and identifying the gaps, the CSP was formulated to articulate sanitation goals, technical capacity and financial specifications. As per the CSP's Service Level Benchmarking (SLB) done in 2013, 69% households were equipped with toilets while 22,500 households still depended on community toilets. Though toilet complexes were built under the Ganga Action Plan, the city had insufficient public toilets and septage management. There was prevalence of open defecation. The city's road network had a total length of 2,364 km and the total length of pucca covered drains was 578 km (inclusive of storm water drains). The existing drainage covered only 40% of Allahabad city with old and dilapidated naalas within the city itself spread far and wide. It is in this background that the plan and execution of sanitation for Kumbh has to be seen.

COMPONENT OF SERVICE	DESIRED LEVEL OF SERVICE DELIVERY	EXISTING LEVEL OF SERVICE DELIVERY	TARGETS FOR SERVICE DELIVERY LEVELS			
			IMMEDIATE – TERM 2012-2014	SHORT – TERM 2012-2017	MID-TERM 2012-2030	LONG-TERM 2012-2042
Household Coverage	100 %	61 %	100 %	100 % (Demand until 2017)	100 % (Demand until 2030)	100 % (Demand until 2042)
Segregation at Source	100 %	3.7 %	40 %	100 % (Demand until 2017)	100 % (Demand until 2030)	100 % (Demand until 2042)
Collection Efficiency of MSW	100 %	84.5 %	100 %	100 % (Demand until 2017)	100 % (Demand until 2030)	100 % (Demand until 2042)
Extent of Reuse & Recovery	80 %	55 %	80 %	100 % (Demand until 2017)	100 % (Demand until 2030)	100 % (Demand until 2042)
Extent of Treatment	100 %	80 %	100 %	100 % (Demand until 2017)	100 % (Demand until 2030)	100 % (Demand until 2042)
Extent of Scientific Disposal	100 %	73 %	100 %	100 % (Demand until 2017)	100 % (Demand until 2030)	100 % (Demand until 2042)
Cost Recovery						
Extent of Cost Recovery	100 %	30 %	80 %	100 %	100 %	100 %
Efficiency in collection of Sewage Charges	100 %	11 %	50 %	100 %	100 %	100 %
Customer Service						
Efficiency in redressal of customer complaints	80 %	88 %	80 %	80 %	80 %	80 %

Source: [http://www.allahabadmc.gov.in/documentslist/City sanitation Plan Allahabad.pdf](http://www.allahabadmc.gov.in/documentslist/City_sanitation_Plan_Allahabad.pdf)

Table 7.1. City Sanitation Plan Targets

7.5. Prayagraj under Ganga Action Plan

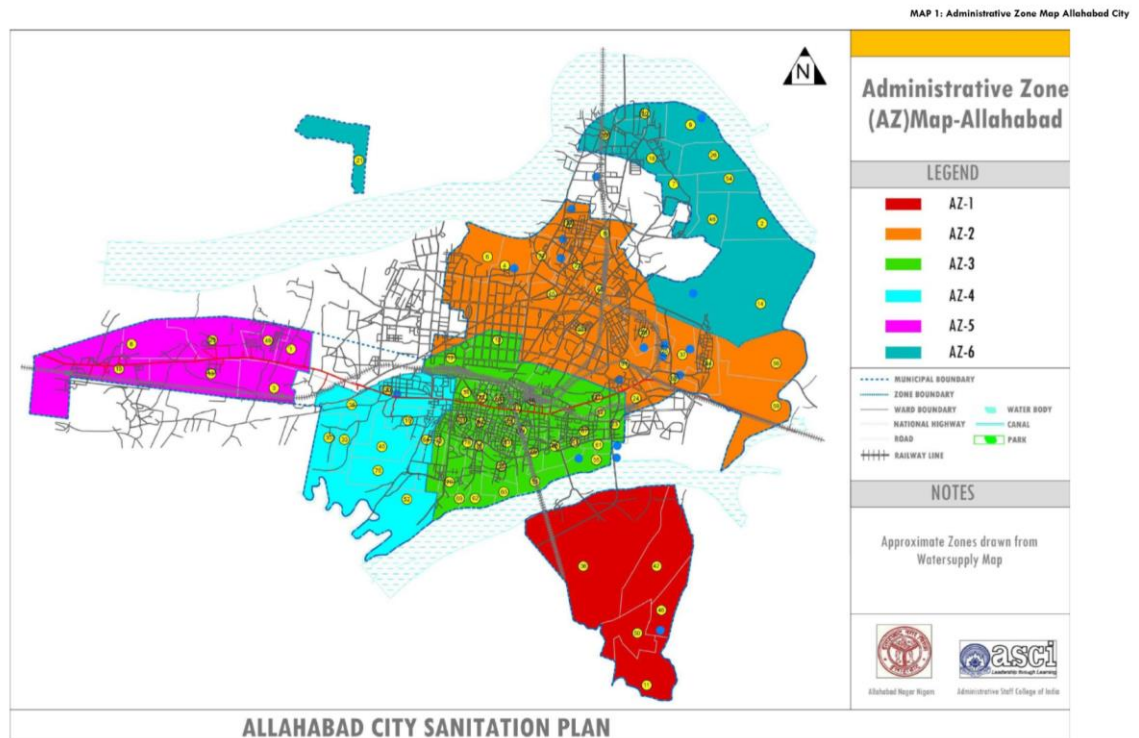


Fig.7.1. Allahabad City Sanitation Plan

Another programme that helped the sanitation plan for Prayagraj and Kumbh is the Clean Ganga Mission. It was launched to control large amounts of pollution that emanate from the sewage disposed of by hundreds of cities and thousands of villages along its stretch of 2525 km. The Namami Gange Programme was started in 2014, under the National Mission for Clean Ganga (NMCG) as a flagship programme by the Union Government for abatement of pollution, conservation and rejuvenation of the Ganga by transforming the existing programmes with more effective plans and execution. The Ganga Action Plan got a fresh lease of life through the Namami Gange programme with comprehensive sewage and septage treatment initiatives to control the pollution problem on a permanent footing.

The salient features of Namami Gange are as follows:

- 45 drains were tapped and treated with bioremediation techniques thereby reducing the sewage inflow into the Ganga during the Kumbh Mela.
- The 400 MLD capacity sewage treatment plant in Varanasi, once completely built, would check the release of 300 million litres/day of sewage water from Varanasi into the Ganga.
- 65 crematoriums were built around the riverbeds to reduce dumping of corpses in the Ganga
- Industries have been checked for any environmental violations and non-compliant industrial units have been asked to shut down.

- Dissolved oxygen levels and hydrogen (pH) levels in the Ganga achieved the standard required to revive marine life in the Ganga due to various initiatives taken by the Government.

The Namami Gange project management team stepped in and helped to maintain the quality of the river during the Mela period. It is in this context of the city sanitation plan and Namami Gange that the efforts taken during Kumbh 2019 in Prayagraj needs to be seen.

7.6. Kumbh 2013

The Clean Kumbh – Green Kumbh programme of Kumbh 2013 has been described in detail by Chaturvedi in his book *‘The Holy Dip’*. The emphasis appears to have been on controlling the quality of water in the Ganga and Sangam area, ensuring overall sanitary conditions and health management. The author mentions four parameters of river quality which were monitored to check for safe limits for bathing – river water having colour parameter less than 300 hazens, pH value between 6.5 and 8.5, biological oxygen demand (BOD) less than 5 mg/litre, and dissolved oxygen (DO) value of at least 6 mg/litre (p182). Of these, BOD and DO levels were of concern. The government managed to ensure safe limits by releasing additional water, monitoring industries for strict pollution control, and through sewage control. The interventions and their outcomes on river pollution are described in the following section.

The Mela authorities speeded up construction of five new sewage pumping stations and installed four new sewage treatment plants. They ensured that sewage was not released into the river. They also banned polythene bags and conducted an awareness campaign about keeping the Mela area clean. They organised massive multi-dimensional social marketing campaigns including a 2-minute *‘Ganga ki Vint’* (request by Ganga) documentary screened at all religious shows (Chaturvedi, 2016, p188). According to Chaturvedi, “100 million tons of waste was generated during the Kumbh” (2016, p193). The primary collection was done by sanitary workers who transferred the garbage to huge pits. This was then transferred by tractor-driven trolleys to the periphery of the Mela area from where the Nagar Nigam carried away the waste.

The health department deployed staff on boats to collect and dispose of flowers and offerings. “Non-conventional toilets developed by IIT Kanpur and DRDO were installed at locations close to the river. These were zero-discharge toilets using bio-digester techniques” (p.190, Chaturvedi). They adopted and installed toilets designed by the Planning and Research Institute (PRAI), which consisted of a seat placed on a raised platform with a soak pit. They also built ten-seater Jan Shauchalaya complexes which consisted of “raised cemented platform with an outlet sewer drain linked to a common underground soak pit having brick lining using the honeycombing technique” (Chaturvedi, 2016, p192). According to Chaturvedi, “For the first time in the Kumbh Mela, 63 units of ten-seated non-conventional toilets were installed” (ibid, p192). The net result of all these interventions was that Kumbh 2013 remained largely clean and hygienic which “was a pleasant surprise

and received recognition, which the machinery deserves because of their planned operations, hard work and management” (ibid, p190).

The management of sanitation at Kumbh 2013 was handled by the Medical and Health Department of the State Government and not the Municipal Administration Department. The riverbed belongs to the village panchayat and the sanitation work is assigned to the Health Department. Chaturvedi mentions, “There have been unsuccessful efforts to transfer this responsibility to the Nagar Nigam of Allahabad” (p19).

7.7. Kumbh 2019

The visioning and planning for sanitation for Kumbh 2019 started with the Chief Minister setting an ambitious goal for it. In consonance with the central idea of Swachh Kumbh, a Swachh Kumbh pledge was signed by the Government. A three-fold strategy was adopted by defining the goal of sanitation as three programmes of Swachh Kumbh, Sundar Kumbh and Behaviour Change to enhance pilgrim experience. Swachh Kumbh was seen as equally important as Surakshit Kumbh, with a strong emphasis on cleanliness and hygiene. The state government allotted Rs. 234 crores towards sanitation out of the total Mela budget of Rs. 4,200 crores. Furthermore, Sundar Kumbh was linked to the Paint My City campaign. LED vans, hoardings and banners were put in place to deliver messages on cleanliness and conservation of biodiversity.

7.7.1 Organisational Structure

Sanitation in the Mela area was managed by the Department of Medical Health and Family Welfare, as has been the practice. It was pointed out earlier that even in the previous Mela, it was handled by the Health Department even though the municipal administration was better suited to do so. Sanitation in the city area was managed by the Prayagraj Municipal Administration. The overall project-in-charge for sanitation in the Mela was the Additional Director of Medical Health and Family Welfare, assisted by medical personnel. The project structure of sanitation administration is produced below. This time, the Authorities had engaged the services of an Advisor who was a Specialist in sanitation which was helpful in bringing systemic thinking into the whole management in terms of planning, technology, training, and quality assurance.

The AD was assigned with the duty of executing the sanitation infrastructure and services required for the smooth conduct of the Mela. Of course, the overall in-charge for the Mela area was the District Magistrate (DM) of PMA, and for the city, it was the Municipal Commissioner. The control of the whole function was overseen by a committee headed by the DM of PMA. It was overseen by a multi departmental Committee and from the composition, one can see the engagement of stakeholder departments.

The department constituted a Tender Committee to decide on various tenders. Considering that a huge amount of work had to be executed with short timelines, it was found prudent to

form a Tender Committee Board under the presidentship of the Allahabad Board as mentioned in an earlier chapter. The Prayagraj Mela Authority Board under the presidentship of Tender Committee Mela Officer of Sanitation approved the formation of the Tender Committee Board of sanitation and proposed the nomination of Additional Director, Medical Health and Family Welfare Department to the Tender Committee Board.

7.7.2 Goals of Kumbh 2019

The Government set ambitious goals for Kumbh 2019 and was not content with just declaring a Swachh Kumbh. Its goals were a bold statement when it said that the Kumbh would be:

- Garbage free
- Odour free
- Open defecation free (ODF)

The administration did not treat sanitation as just about providing for toilets, ensuring a plastic-free zone or providing for adequate manpower. The thrust was on the outcomes which were stated as the fulfilment of a garbage-free, odour-free, and ODF Mela, and the task of the administration was to deliver on these and not just providing infrastructure and manpower and constraints. They worked backwards from the goal and planned the resource requirement rather than starting from available resources. They also realised that making it garbage free or ODF does not end with provisioning but also depends upon tight control and working with the behaviour of pilgrims and workers. After all, it is possible that toilets are available in plenty, but visitors still resort to old habits, or dustbins are available, but people still litter the place.

Defining the goals thus made the authority define the service levels correctly and also provide adequate resources so that it is garbage free and odour free, and to ensure that people observe, adopt and cooperate. A large gathering like the Kumbh is a great platform for governments or influencers to introduce and demonstrate personal and public hygiene messages of good practices, especially about sanitation and waste disposal systems and the Ganga/environment conservation, considering that sanitation and waste disposal consciousness is low among the rural residents from the vicinity. This time, technology was put to good use to complete the loop of monitoring and reporting.

7.7.3 Sanitation Plan for the City for the Kumbh

We have been stressing that the Mela and the city have a symbiotic relationship. The city takes a huge load of responsibility for sanitation during the Mela period of both sewage and garbage. The city supports the Mela through its own infrastructure like treatment plant, landfill, transfer stations, transport vehicles and equipment, and manpower. The city also benefits in the process because its infrastructure gets built for peak Mela capacity which is more than enough for normal times. Especially during this Kumbh, the government

undertook adequate initiatives to help the city take the load and make it compliant with higher standards of sanitation.

Planning for sanitation for the Mela included planning for the city also and not just for the Mela area. The historic peninsular city of Prayagraj, surrounded by the holy rivers on three sides made its citizens gradually aware of the threat of pollution to their ancient city. A consolidated Sanitation Action Plan was proposed to keep the Kumbh Mela clean, comfortable and open defecation free. The plans were discussed in detail keeping in mind the expenditure on the previous Mela and expected scale of pilgrim population. It was decided that the city would use this opportunity to build infrastructure which could be of permanent use. They also considered alternatives of procuring equipment and materials on rentals wherever possible. A consolidated action plan proposal was presented to the Chief Minister and he emphasised on the importance of sanitation for ensuring a clean and beautiful Kumbh and issued immediate sanctions. Funds from Namami Gange Yojana and Swachh Bharat Mission were also sought from the Central Government.



Figure 7.2. Sweepers at work during Kumbh

The National Mission for Clean Ganga (NMCG), under the Ministry of Water Resources, River Development and Ganga Protection, of the Government of India, was sent a comprehensive proposal of a cleanliness action plan on 7 April 2018. The proposal was vetted by a third party, the National Institute of Urban Affairs. NMCG gave the administrative and financial approval of Rs. 113 crores for the Toilet Action Plan, Rs. 3.6 crores for dustbins and lining bags, Rs. 16.68 crores for awareness campaigns and IEC activities. The Sanitation Action Plan prepared by the Medical and Health Department was finally approved on 18 September 2018. Work orders were released after the tender process was completed and after being scrutinised several times at different levels by the Water Resources Department, River Development and Ganga Protection Ministry, the NIUA, and by the Expenditure and Finance Committee of the Central Government under the Namami Gange Yojana.

One challenge in planning for a Mela of this nature and scale is that even though it has been managed in the past, it is still new for the administrators and the vendors given that these events happen once in six and twelve years. It helps if they have had previous experience but in six years, technology changes, the scale grows, and the complexity increases. The procedures are always long. For the vendors as well, it is a challenge as rarely does one prepare for capacity of this scale. The vendors need time to first of all prepare for the tenders, leave alone preparing for supplying later.

Prayagraj practices door-to-door waste collection, and out of 80 wards, it did so in 70 wards under the Hari Bhari programme collecting 363 MT of waste against the target of 414 MT per day. Immediate action plans were devised to achieve 100% collection by the end of November 2018 with support from Nagar Nigam.

It also made a plan for hiring street sweepers in a significant way. Its manpower strength was:

Description	Achieved	Sanctioned Posts	Remaining
No. of Workers Deployed	3286	3989	703
No. of Supervisors	90	151	61

Table 7.2. Manpower Strength of Sweepers

The Prayagraj Municipal Corporation (PMC) hired 2,538 additional contractual safai karmis for the 2019 Kumbh Mela period, and 96 safai karmis were deployed in different Akharas in the city area. Street sweeping was doubled to two shifts. For effective sanitation branding, every worker was given a sanitation kit with colour-coded uniforms and gear.

The PMC tried to ensure in all its plans that they were able to effectively collect and transfer the garbage from door to landfill. They did factor in the additional load that was expected during the Mela period. It prepared a plan for the purchase of vehicles for primary and secondary collection, as shown in Table 7.3. :

Description	Existing Inventory		Additional Procurement		Procurement Completed		Total Inventory	
	HB	NN	HB	NN	HB	NN	HB	NN
Primary Collection Vehicle (TATA Ace Mini Tipper and road sweeping machine)	88	162	32	335	15	23	103	185
	Total = 250		Total = 365		Total = 38		Total = 288	
	36	59	3	80	0	5	36	59
Secondary Collection Vehicle (Dumper Truck, JCB, Robot, Tractor, Hyva, Compactor)	Total = 95		Total = 83		Total = 5		Total = 95	
			HB	NN				
Hook Loader + Portable Compactor			3+9	8+35				
			Total = 55					

Table 7.3. Plan for Purchase of Primary and Secondary Collection

The plan included a GPS tracking system for vehicles, developed by L&T under the Smart City Project, which would enable tracking of the movement of vehicles by zonal supervisors and zonal officers.

The sanitation plan also focused on solid waste treatment plants (Table 7.4). At the time of the Mela, there was just one composting plant at Baswar landfill. Its capacity was about 400 MT per day. The sanitation plan also included collection from bulk waste generators (those producing more than 100 kg a day), which constituted 2-3% of all commercial units.

Description	Deployed
No. of Bulk waste or commercial generators (30/09/18)	1683
No. of sites where on-site collection started	878
No. of sites where on-site treatment started	39
No. of CP bins deployed	48
No. of workshops conducted	37
No. of agreements signed/registrations done	878
Number of notices given	1350

Table 7.4. Sanitation Plan for Solid Waste Treatment

Another important component of the sanitation plan was a strategy for dealing with garbage hotspots along roads. Around 230 hotspots were identified in the Mela area for garbage collection. A dedicated team of 100 safai karmcharis was deployed for 100% clearance of waste from every zone. Each zone was provided with garbage collection equipment that included one JCB and three tractors. The ICT-enabled mobile application used cameras to take pictures of the hotspots before and after cleaning. The application menu allowed for citizen feedback and complaints on garbage hotspots. A service time for attending to the complaints and remedial action was clearly stipulated.

With regard to toilets, targets were set for building of individual house toilets and community toilets. The target for the number of Individual Household Toilets was set at 8756. The existing number of Community Toilets was 113; additionally 200 toilets were proposed to be constructed.

Six sewage treatments plants (STPs) were constructed in Prayagraj with a total capacity of 268 MLD to deal with the current sewage flow of 334.18 MLD. These STPs cover an area of 5,479 hectares for the needs of a population of 13,43,300, with a sewerage network of 1,191 km.

The sanitation plan was strictly enforced by introducing spot fines and challans for the violators, and wage deductions for absentee workers. We can say that the city prepared itself well for the 2019 Kumbh Mela in relation to primary and secondary collection of waste, garbage hotspots, and in ensuring adequate equipment and manpower. The city of Prayagraj

benefited as a result of the Mela and it is now simultaneously equipped to handle large Mela crowds in future. However, there were gaps in making adequate plans for garbage disposal, which later gave rise to a crisis. This is discussed later.

7.7.4 The Pilot: Magh Mela 2018

The Magh Mela is conducted every year in January. It is not celebrated at the level of the Kumbh but as it still attracts lakhs of pilgrims, and the Magh Mela 2018 was used to try certain interventions on pilot basis. The 2018 Magh Mela held in Prayagraj attracted around 80 lakh devotees and was used as a pilot to try out various initiatives in sanitation. Around 5,000 toilets were installed in January 2018. The Health Department utilised the Magh Mela to explore the usage pattern of toilets and their capacity. It was found that a toilet can typically cater to approximately 100 users per day. Since the footfall on the peak days of Shahi Snaan was expected to be around 3 crores during Kumbh Melas, it was estimated that around 1.2 lakh toilets would be required to make the 2019 Kumbh free of open defecation. This estimate formed the basis for other subsequent estimates for arrangements like tents, approach roads from railway stations, bus stands, etc. Different models of toilets were tried out, as also arrangements for deployment of workers and cleaning. Strategies for waste collection and disposal were also piloted.

7.8. Kumbh 2019: Sanitation Plan for Mela Area

Meticulous planning went into managing the Mela area in terms of deciding on solid waste management, toilets and sewage management, and controlling river pollution and maintaining the river front. The PMA and the Health Department went into each aspect of organising sanitation such as the number and design of toilets and even dustbins, the design for the network of sewage drains and collection, transporting of solid waste as well as sewage waste, and location and design of all facilities like transfer stations. It meticulously went into all aspects of equipment, infrastructure, transportation, manpower, IT, and also behavioural dimensions. Most importantly, they mapped all the processes with suitable SOPs to ensure that the Mela area is garbage free, odour free and ODF. Maintaining the sanitation of the Mela for 24 hours required a robust ICT-based system to monitor and ensure timely cleanliness of toilets, proper on-site sludge management, cesspool operation and odour management technologies. It involved massive mobilisation of resources involving around 1,20,000 toilets, 20,000 dustbins and 11,000 sanitation workers to be deployed over 3,200 ha.

7.8.1. Solid Waste Management

Solid Waste Management is a key aspect of Swachh Kumbh as it can make visible impact on the environment of a place. In a gathering such as this, where people come from different walks of life from different regions, with varying attitudes and behaviour towards cleanliness, the only way the goal of swachh can be communicated is by keeping the area clean. It is difficult to alter people's behaviour in such situations and when they come for a

very short duration. They tend to continue to litter. In such conditions, the idea of Swachh Kumbh is best communicated through demonstrating cleanliness.

The sweepers could be seen continuously and tirelessly cleaning the place. The situation became better once the pilgrims observed the cleanliness of the place and they imbibed the overall ambience of cleanliness. Extensive planning was done keeping in mind pilgrims' behaviour and managing it rather than trying to convince them and inconvenience them in any way. This determined how many dustbins would be required, their design, the routine for emptying and transferring garbage, and finally the necessary manpower. Of course, plastics were prohibited and there was minimal use of plastics.

In keeping with the goal of Swachh Kumbh, the authorities decided on 20,000 dustbins (10,000 green and 10,000 blue); 12,000 bins were deployed in the Mela area at a ratio of 1 bin per 125 pilgrims, and 8,000 bins were installed along a 200 km stretch of roads with 1 bin for every 50 m on both sides of the road. Each bin was cleared thrice a day. The city was also equipped with 1,000 hanging dustbins, 100 DP bins, and 400 CP bins; 40 compactors and 120 tippers were procured for timely, effective and efficient disposal. As per SBM guidelines, wet and dry waste bins are to be deployed every 500 m but given the density of the floating population, the bins were placed even closer; 11,000 contract sanitation workers were hired keeping in view the requirement for street sweeping and solid waste management. Also, 35 lakh garbage bags were procured. The workers had to simply pick up the garbage bags and replace these rather than emptying the bins. The dustbins were also designed to make handling easy for the users as well as workers. (The collection of dustbins after the Mela can be seen in fig 7.3.) Each bin was cleared thrice a day, and the primary and secondary collection points were geo-tagged. The status of dustbins and performance of the sweepers were monitored online, and a complaint management system put in place, as described later. It was observed that the dustbins rarely overflowed during the Mela with the exception of the Shahi Snaan days. A budgetary provision was made for the procurement of 20,000 dustbins and 35 lakh garbage bags and balance were sanctioned by the NMCG and the State Government.

Each sector was allotted six tippers and two compactors. The tippers had to follow a schedule of trips to cover all the primary collection points and these were tracked. The tippers then transferred the garbage to the compactors. Each sector had a designated place for dumping the waste. The plan and design factored in all aspects such as parking of compactors and tippers, transfer points and stations, and ease of movement of the vehicles, thereby ensuring that no jams were created. The transfer stations were well maintained. The landfill station was in Baswar which also had a composting unit. There were separate plans and schedules for secondary transfers on bathing days and normal days. The number of trips made by the compactors, and the tonnage carried are given in the Table 7.5.

Sectors	Duration	Classification	Avg Daily Vehicle Loads	Total No. of Vehicles	Wastewater Quantity (MLD)	
1-4	14 Jan- 5 March	Max	16.72	3411		
6-8	14 Jan-20 Jan	Lean	3.2	67		
	21 Jan-31 Jan	Mid	6.86	226		
	1 Feb-11 Feb	Max	16.72	552		
	12 Feb-21 Feb	Mid	9.06	272		
	22 Feb-2 Mar	Lean	3.57	96		
	3 Mar-5 Mar	Mid	3.8	34		
5,9-17	14 Jan-20 Jan	Lean	3.2	224		
	21 Jan-31 Jan	Mid	6.86	755		
	1 Feb-11 Feb	Max	16.72	1839		
	12 Feb-21 Feb	Mid	9.06	906		
	22 Feb-2 Mar	Lean	3.57	321		
	3 Mar-5 Mar	Mid	3.80	114		
18-20	14 Jan-20 Jan	Lean	3.2	67		
	21 Jan-31 Jan	Mid	6.86	226		
	1 Feb-11 Feb	Max	16.72	552		
	12 Feb-21 Feb	Mid	9.06	272		
	22 Feb-2 Mar	Lean	3.57	107		
	3 Mar-5 Mar	Mid	3.8	34		
		Total	146.35	10076		50.38

Table 7.5. Solid waste generated in Prayagraj between 12 December 2018 and 5 March 2019

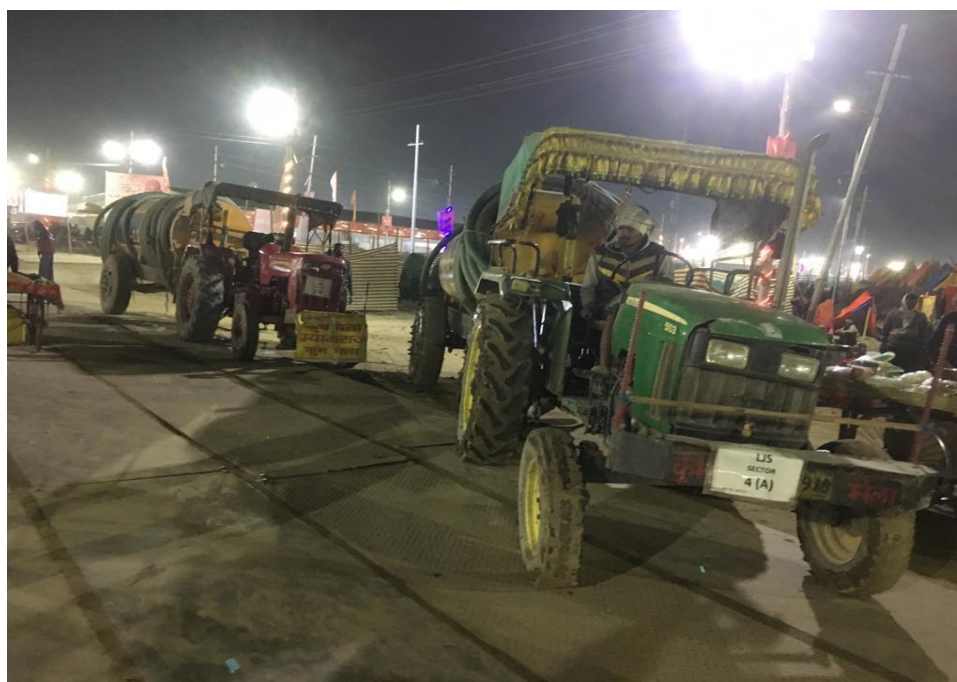


Figure 7.3. Solid waste being transported

7.8.2 Toilets and Sewage

One of the much talked about programmes of Kumbh 2019 was the provisioning and maintenance of adequate odour-free toilets during the mela, which ensured that the pilgrims used the toilets and helped achieve an ODF environment. The authorities ensured that toilets were at convenient places with approachable access. There were swachhgrahis to direct them and sweepers to keep the toilets clean.

The estimation of the requirement for toilets was mainly based on the pilot undertaken during the 2018 Magh Mela which provided usage and time, as mentioned before. They also factored in the expected number of pilgrims, requirements of both Mela area and the city, access points, costs and budget. They finally arrived at the total requirement of 1,22,500 toilets. Toilets were located at regular intervals and in predictable places along roads, ghats, vending areas and OD hotspots.

Of the 1,22,500 toilets installed, 40,000 institutional toilets were set up inside the Mela area where the Akharas and camps were situated. This area was also provided with 20,000 urinals. The remaining 82,500 community toilets were set up across the Kumbh city, the approach routes, parking lots and bus stands. Various types of toilets and urinals were planned based on usage rate in different areas on different days. These were also based on the specifications of the Mela authority and the Health Department in accordance with the stipulations of solid waste management regulations. The various types of toilets are presented in Table 7.6.

Toilet Type	Description
Type 1	Toilets (with septic tanks) made of Fibre Reinforced Plastic (FRP) or similar other material suitable for mass gathering events
Type 2	Toilets (with soak pit) made of Fibre Reinforced Plastic (FRP) or similar other material suitable for mass gathering events
Type 3	Urinals (with septic tank) made of Fibre Reinforced Plastic (FRP) or similar other material suitable for mass gathering events
Type 5	Prefabricated Steel Toilets (with septic tank) made of MS framework
Type 6	Prefabricated Steel Toilets (with soak pit) made of MS framework
Type 9	Tentage (Kanath) Toilets – (only superstructure) deployed within the camps in the Mela area
Type 10	Tentage (Kanath) Toilets deployed within and outside the Mela area, i.e. approach roads and in parking areas
Type 12	Tin Toilets deployed within and outside the Mela area, i.e. approach roads and in parking areas
Type 13	Tin Toilets for Govt Institutes
Type 14	Tin and Wooden Framed Toilets for all convention centres
Type 15	Toilets at tent cities

Table 7.6. Types of toilets installed in Kumbh Mela

It should be stated that the provisioning was able to cater to the number of pilgrims though they were far in excess of the projected number. The number of toilets provided in the 2019 Kumbh Mela in comparison with the previous Kumbh Melas is shown in Table 7.7.

KUMBH	NO. OF TOILETS
KUMBH 2001	20,481
ARDH KUMBH 2007	17,000
KUMBH 2013	35,000
KUMBH 2019	1,22,500

Table 7.7. Comparison of toilets provided in Kumbh Mela 2019 to previous years

One in ten toilets was provided with a sloping ramp and railings to facilitate disabled pilgrims. Each toilet complex comprised 10 toilets with one western-style commode for old or disabled persons. Gender-based and user-friendly toilets were provided, were and colour-coded for men and women; 40% of the toilets were for women.

Of the 82,500 community toilets, 50,000 toilets were set up by the Health Department while the rest were set up and maintained by vendors; 25,000 community toilets were equipped with a septic tank, and 7,500 toilets were connected to the sewerage network. Of the 40,000 toilets in the Mela area, around 25,000 institutional toilets and all the 20,000 urinals were built by the Health Department. It was directed by the Tender Committee that wherever appropriate, based on soil type, soak pit toilets were to be constructed rather than latrines with septic tanks, in order to reduce suction load and save costs.

A separate tender was invited for the superstructure for the 40,000 toilets constructed in the Mela area to cater to the 5,000 camps. The superstructure or the fabric walls of the Mela area toilets were made of a homogenous material and the minimum size was kept at 3 × 3 × 7 feet. Soak pit tanks with a maximum depth of 4 feet were constructed in the substructure of Mela area toilets. The maintenance of these 40,000 toilets was handled by the organisations which had set up the camps and not by the outsourced sanitation maintenance agency; 10,000 Kanath toilets were built on the approach roads to specifically cater to the large crowds on the 6 major Snaan days. The maintenance of these toilets was for just 18 days in accordance with the main bathing dates, and an additional day each before and after the Snaan days. The toilets near the Ganga were linked by a sewerage pipeline to avoid seepage into the river. For the first time in the Mela area, permanent sewage lines were laid out in sectors 1, 2, 3 and 4.

The Mela administration ensured that free electricity was provided to all toilets and urinals, and that the operation and maintenance of all lights was outsourced to the appointed agency as per the tenders and agreements. This was done from 10 January 2019 to 10 March 2019.

The Kumbh deployed 11,500 sanitation workers for cleaning of the Mela area. Their tasks were to clear the bins, clean the toilets, streets, ghats and riverbeds, and to clear any floating waste from the waters. They were recruited through manpower agencies, apart from the

NMCG; however the proposed quantity was revised to 7,000 FRP toilets based on the capacity of the tenderer and NMCG instructions. The NMCG, in its financial and administrative approval order, directed that if steel was sufficiently available, then steel toilets should be employed in greater quantity as it was the best option at a reasonable cost, which would save government money. Therefore, the remaining toilets procured were made of steel. The committee opined that the user experience in FRP toilets was better and also that it had been tested over time as they were employed in the Magh and Ujjain Melas as well. Since this is the first time that steel toilets would be deployed on such a large scale, installing a reasonable number of FRP toilets was also essential as they were time tested and user friendly. Hence, another 7,500 FRP toilets with soak pits were obtained. They are usually employed in those places where sewage is disposed of from soak pits. The NMCG that had provisioned these toilets had instructed that they should be directly connected to the sewage lines. Ironically, given the large number of toilets involved, the vendors were sceptical of meeting the demand. So, the tender conditions had to be revised. Finally, they had to use a combination of steel and FRP toilets. Good competitive rates were obtained at Rs. 24,500 per toilet. Actual budget spent tender wise is provided in the Annexure 1.

The initial tender invited for these types of toilets were met with only the tenderer agreeing for an estimated proposal rate of Rs. 28000. However, even this tenderer did not have enough capacity to build the required number of 10000 toilets. Hence, retendering with revised conditions with respect to the bidder qualification was done with no compromise on the physical aspect or quality of the toilets. During the process of retendering, 10 bidders participated and the final tender price arrived at was Rs.24500 which was less than the estimated price. Finally, 18000 steel toilets were proposed to be set up as the FRP toilet numbers had been reduced in favour of steel toilets.



Figure 7.5. Toilets at the Mela

7.8.4 FRP Urinals, Kanath and Tin Toilets

Totally, 20,000 FRP urinals with septic tanks at a tender rate of Rs.16,000 per unit, and 40,000 Kanath toilets from various suppliers were obtained at best prices. Tin toilets with soak pits were mostly set up in parking areas and approach roads. Although the cost of the prefab steel and tin toilets were similar, tin toilets were more cost-effective when factors such as the costs for the arrangements and unloading were taken into account and considering the distance of the parking lots and approach roads from the Mela area.

The Tender Committee observed that out of the total budget of Rs. 221.19 crores approved by the government for setting up 1,22,500 toilets based on the estimated tender rates, the total expenditure after allotting the suppliers was Rs. 218.58 crores, which meant a saving of Rs. 2.61 crores was made.

The tenders set tight conditions for delivery of contracts. The ICT application which is described below was useful in monitoring the quality of supplies, works and delivery. The Tender Committee issued instructions that the work of all suppliers should be monitored, and the work quality should be verified. In the case of sanitation, the Health Department was asked to ensure a four-level verification process.

1. An observation and monitoring system based on Face Information Technology was deployed by connecting more than 2,000 volunteers in the Mela area to this system for observation.
2. Random physical verifications were conducted by the contracted third-party agency for ascertaining the quality of the toilet construction, skills and efficiency of the deployed human resources and for checking if the supplied equipment is in line with the requisitioned tenders.
3. Physical verification of toilets set up, deployed human resources and supplied equipment was undertaken by the Sector Magistrate in every sector.
4. Absolute physical verification of the established toilets, deployed human resources and supplied equipment was undertaken by the Health Department team with the Circle Inspector, Supervisor, etc.

The suppliers were paid after each agreed milestone was accomplished. All payments to the workers and cleaners were made on time to keep them motivated to avoid any obstructions to sanitation work.

7.8.5 Manpower

The Kumbh authorities hired a total of 11,400 sanitation workers. Toilet complexes were cleaned by groups of cleaners referred to as 'gang'. Each toilet complex was assigned a gang for maintaining its cleanliness. Each gang comprised 12 sanitary workers, One *Mate* who supervised the cleaning works and One *Mrs. Mate* who was assigned the duty of providing food and taking care of the gang. These gangs were hired by *Jamadars*. It is a

traditional practice to hire these sanitation workers through a Jamadar who acts as a swacchadoot. He is the link between the Health Department and the workers, and he determines and commits the number of gangs to be deployed. This time however, workers were hired through contractors who were outside this network. They brought in labourers from outside which had its own problem like unfamiliarity with the Mela and inexperience in handling sanitation. The total number of labourers engaged, and man-days, are given in Table 7.8.

The workers were deployed in three shifts of 10 gangs; and in each shift, they were assigned the cleaning of the Sangam once a day. Five gangs per day were allotted for the cleaning of pontoon bridges. There were 25 health camps and each camp had 2,000-3,000 toilet blocks, and 125 gangs per day were assigned for cleaning them. For sweeping, 600 gangs were assigned for 200 km of roads, and one sweeper for every 100 metres per shift. Totally, 52 gangs were deployed with garbage collection vehicles with 2 persons per vehicle for 2 shifts. A total of 950 gangs of sanitation workers were deployed across the Mela area (Fig 7.8).

Man-days Working		
Sl. No.	Description	Number
1	Total gangs required per day	950
2	Workers per gang	12
3	Total workers per day	11,400
4	Deployment days for 200 gangs	160
5	Man-days for 200 gangs	3,84,000
6	Deployment days for 750 gangs	60
7	Man-days for 750 gangs	5,40,000
8	Total man-days	9,24,000

Table 7.8. Total number of labourers engaged and man-days

Totally, 1,500 swachhgrahis were deployed to keep the ghats clean, and they were also expected to keep a check on open defecation, through spreading the message of cleanliness and hygiene in the Mela area. Swachhgrahis worked in groups of 20 in each sector, and those sectors that were bigger were allotted swachhgrahis in groups of 60. Out of 1,500 swachhgrahis, 900 were men and the rest were women. They were affiliated with the NHM-Swachh Bharath Mission programme and were assigned to report on the condition of the toilets using an ICT-based app designed by the Health Department. The swachhgrahis kept track of the swachhdoots and the dustbins in each zone, and gave their feedback using a simple Yes/No option in the app.

The Swachhgrahis team was set up in December 2019. They were acquainted with the entire Mela area and provided with maps indicating the number of police stations, hospitals and sanitation workers in each zone, which enabled them to coordinate with the team effectively. Of the 1,500 swachhgrahis, at least 500 were hired from the Panchayathi Raj department that worked closely with the Health Department during the Kumbh Mela, thus providing employment to around 2,000 employees.

For the first time, the Prayagraj Mela Pradhikaran (PMP) made provisions for setting up a sanitation workers' colony in the sectors. This facilitated easy access, proximity to the workers, and constant cleaning of the Mela area. The minimum wage per day was Rs. 351 as per the Minimum Wage Labour Act. The cleaners were paid Rs.295 per day, sweepers Rs.350 per day, and swachhgrahis Rs. 500 per day.



Figure 7.6. Sanitation workers during the Mela

7.9. ICT-based Servicing and Monitoring

Technology was put to best use in the management of sanitation in the Mela. Monitoring a largescale Sanitation Action Plan like that of the Kumbh required a great deal of coordination, supervision and inspection that was not viable without adopting technology. A proposal was sent for employing an ICT-based monitoring and surveillance system, for which an administrative and financial sanction of Rs.1.2 crore was given. A System Integrator was engaged to supply, design, develop, implement and commission an ICT-

enabled Sanitation Monitoring System along with operations and maintenance services for the monitoring system.

The System Integrator role was clearly spelt out. The Integrator was responsible for:

- Design and development of the sanitation mobile application
- Supply of mobile devices
- Supply and installation of vehicle tracking units and toilet feedback devices with GPS, GPRS and SMS features
- Design and development of cloud-based vehicle tracking system, sanitation monitoring software and a central server software using secure TLS connectivity with authentication mechanism to join the network and exchange data
- Establishment of a control room, integrating, testing and commissioning of IT infrastructure, maintaining IT hardware and software, providing technical manpower
- Capacity building programmes for sanitary workers and end users for hands-on mobile app training

The sanitation standards and SOPs were followed in spirit and were meticulously tracked through IT applications. The waste collection trucks were provided with a GPS-enabled vehicle tracking system. Toilets were colour coded for easy identification. Sufficient signage boards were installed to assist the pilgrims. Geotagging by the System Integrator and location maps were synced with Google Maps. Toilets were geotagged and each toilet complex had its own QR code; any report of damage or repair was directly sent to the Health Department for inspection.

An ICT-based sanitation monitoring of operations and maintenance of facilities was installed. The system tracked toilets, urinals, bins, frequency and accuracy of their cleaning, and cesspool vehicles engaged in desludging. It also monitored cleaning staff and supervisors, repair works and verification of toilet complexes. A control room with a toll-free number for registering grievances on sanitation facilities was set up, with a service level of 3 hours to attend to complaints.

The Mela was abuzz with technological zeal where every sanitation worker proudly wore his ID card and held an ICT-enabled device for communications with the authorities. Sanitary workers were provided with a minimum of a 5-inch touch screen Android phone with 2GB RAM and an internal storage of 16GB with a 4-8 mega pixel camera supported on 2G, 3G and 4G cellular networks. Almost 1 lakh locations were geotagged after undertaking site surveys of the Mela area. All toilets, primary and secondary collection points, changing rooms, key spots, ghats and parking lots were geotagged. Maps of all locations and routes of bin collection vehicles were synced on Google Maps.

The workers were provided with biometric logins with several built-in calling features with pre-stored database of contacts of reporting authorities, and generation of customised reports and attendance monitoring. The system also had the facility for monitoring geotagged

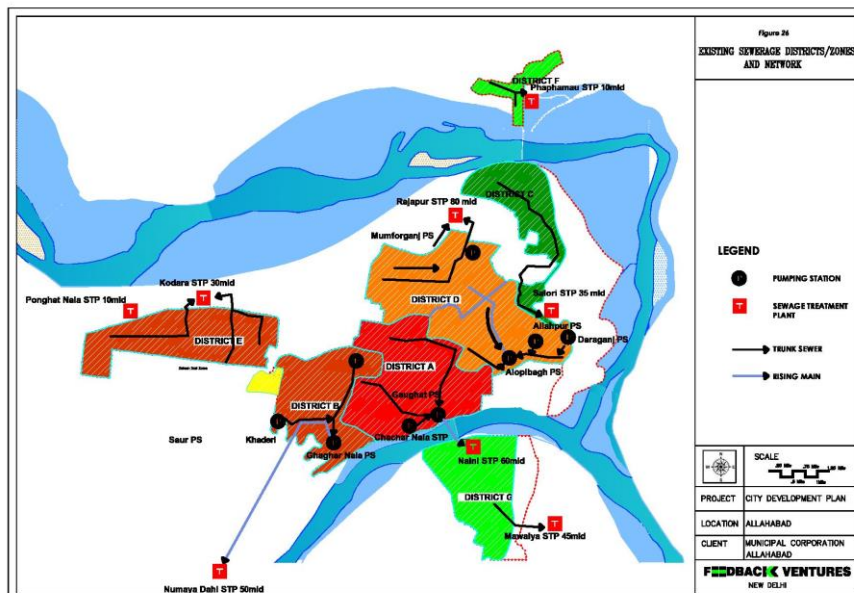
toilets and hotspots, the facility to upload live images of geotagged toilets and hotspots with timestamp and geographical coordinates, and the facility to upload images of any dirty toilets by users for registering complaints. It enabled monitoring of garbage collection vehicles with push notifications from the control room if any deviance was found in the fixed route plan. The user application also provided for basic attendance monitoring and vehicle tracking to take stock of daily and timely attendance of deployed manpower in ensuring constant cleanliness. All these elements kept the workers and the swachhgrahis on their toes.

A temporary launcher was fixed on the mobile devices for the Mela period so that no other application other than the sanitation application could be accessed by the users/workers. The system also had Citizen Feedback System to record observations from stakeholders. The software enabled analysis of real time data on a map, to ensure that garbage vehicles covered all areas of operation through checking the current location of vehicles against prefixed locations in the Mela area. This was done by using proximity calculation methods by geofencing that would trigger a notification of any deviation from a fixed route. Alerts were generated by the system if the vehicle deviated from the pre-designate fixed route.

A total of 2 Cloud-Windows servers, 50 toilet feedback devices, 200 GPS tracking devices, 500 mobile devices for the Mela, 750 sim cards, 2 LED display monitors for the control rooms and other IT infrastructural equipment were requisitioned.

7.10. STPs in Prayagraj

7.10.1. Drains in the City



Map: Sewer zones of Allahabad, image from Allahabad Municipal Corporation site.
Figure 7.7. Existing sewerage districts/zones in Allahabad

The drainage network and septage treatment were augmented for this Kumbh considering the expected flow of pilgrims. Totally, 150 km of high-density polyethylene pipelines were

laid, 850 km of drainage network was constructed, and 100 diesel trolley-mounted pumps were made available. Ponding and bio-remedial sites were built, and permanent sewer lines in select sectors were laid for ensuring uninterrupted transportation of sewage to treatment plants.

The administration constructed STPs at six places with a total capacity of 268 MLD (million litres per day) with a present flow of 334.18 MLD that covers an area of 5,479 hectares for a population of 13,43,300 with a sewerage network of 1,191 km. Temporary STPs of 3 MLD capacity were installed at two places in Sectors 9 and 17 for discharge of septage from the makeshift toilets set up in Jhunsi region of the Mela area. There are 82 large and small drains in the city of Prayagraj out of which 26 drains are connected to STPs and the remaining 56 drains let sewage directly into the river. Of these 56 drains, 35 drains treat the sewage through bioremediation, 5 drains use modular techniques such as geo-tubes, 10 drains use onsite up-flow filters and 6 drains are taken care of in-situ by the National Environmental and Engineering Research Institute (NEERI).

Detailed plans were made for transportation of sewage waste to avoid clogging during bathing days. A total length of 8.5 km of permanent sewer lines was laid in the parade area for discharge of toilet waste from the Mela. Septage from toilets of Sector 6 and Sector 8 in the Mela area was sent to Salori STP. Septage from Sector 1 and Sector 2 in the Mela area was sent to the Alopibagh STP through two 8.5 km permanent sewer lines laid in the parade area. Septage from Sectors 3 and 4 in the Mela area was directed to Daraganj STP through a permanent sewer line laid for the Mela. Sewage from Alopibagh and Daraganj STPs was pumped to Rajapur STP for treatment. Septage from toilets of Sectors 18, 19 and 20 was sent to Naini STP for treatment.

Unlike in previous Melas where heaps of untreated human waste were left dumped beneath the makeshift toilets, the Health Department in the 2019 Kumbh Mela set up temporary STPs so that no faecal waste ended directly in the Ganga. Septic tanks were attached to the toilets at the Triveni-Sangam banks to prevent the discharge of waste into the river. Suction vehicles were stationed near toilet complexes the previous night before peak days so that there were no cases of clogged toilets near the banks. STPs were mostly overloaded during the Mela, especially during the bathing days; yet the daily treated effluent was as per the norms laid out by the Central Pollution Control Board (CPCB).

Domestic wastewater contains large amounts of organic and inorganic solids which are measured as Total Suspended Solids (TSS). Ideally, TSS should measure less than 100 mg/l, as per global standards. TSS can be reduced in wastewater by using various models of filters. The TSS levels during the 2019 Kumbh Mela were well below the stipulated 100 mg/l after treatment. Wastewater is also measured through the component of Biochemical Oxygen Demand (BOD). The parameters for bathing quality water in rivers are prescribed by the CPCB. These parameters are a maximum of 30 mg/l BOD, in line with global standards, to control microbial pollution at bathing ghats. During the 2019 Kumbh Mela, the

average BOD was less than the 30 mg/l, in line with prescribed standards. Details of the performance of the above parameters during the Mela are provided below:

SI. No	Location of STP	PH			Average BOD (mg/l)			Average TSS (mg/l)		
		Inlet	Outlet	Referral range	Intel	Outlet	Referral Range	Inlet	Outlet	Referral Range
1	Naini	7.80	7.97	6.50 to 9.00	116.61	24.68	Less than 30 mg/l	356.87	45.42	Less than 100 mg/l
2	Numayadahi	7.23	7.79		123.06	12.65		270.97	14.55	
3-a	Salori-29 mld	7.82	8.04		119.32	27.29		361.84	46.35	
3-b	Salori-14 mld	7.69	7.87		110.61	8.74		319.14	7.85	
4	Rajapur	7.77	7.87		166.06	24.61		421.13	46.42	
5	Ponghat	7.52	7.67		85.00	6.45		174.29	8.39	
6	Kodra	7.64	7.49	122.90	8.23	282.71	10.29			

Table 7.9. Performance of STPs during the Mela

According to the Bathing Quality (B Class) Standard for Indian Rivers, the permissible limit for BOD is 3MG/L (Maximum), DO, 5 MG/L (Maximum) and COLIFORM (Faecal) 500 Desirable, 2500 (Maximum Permissible). Thus, during the 2019 Kumbh Mela, sewage from all untapped drains was treated onsite by non-conventional treatment methods and no drain discharge was directly let into the river without treatment. However, some of the major challenges faced in treatment of sewage were very low retention time, high amount of sludge at the bottom, and high amount of contamination. Despite these challenges, efforts were made to reduce the BOD/COD/TSS of wastewater, reduce the organic build-up and sludge at the bottom, and increase the overall physical appearance of wastewater. The task was divided among the agencies as follows.

SI. No.	Executing Agency	Method of Treatment	No. of Drains
1	U.P. Jal Nigam	Bioremediation	30 (53 MLD)
2	U.P. Jal Nigam	Modular method by using Geo-tubes	05 (60 MLD)
3	National Environmental and Engineering Research Institute	Treatment by in-situ method	06 (18.5 MLD)
4	National Project and Construction Corporation	Bioremediation	04 (21.60 MLD)
5	National Mission for Clean Ganga (NMCG)	Bioremediation (Pilot Project – Nehru Drain)	01 (2.65 MLD)
6	U.P. Jal Nigam	Treatment by filtration constructing up flow filter (for drains < 0.1 MLD)	10 (1MLD)
Total			56 (156.75 MLD)

Table 7.10. Division of sewage treatment according to agencies

7.11. Non-Conventional Sewage Treatment Methods Used

Given that the increased volume of wastewater during the Kumbh Mela was temporary, many non-conventional methods were used for treatment of wastewater rather than commission new STPs to avoid unnecessary investments of time and finance. The non-conventional methods were faster and more cost-effective, the techniques were easy to operate, and they were effective in preventing untreated water from flowing into the rivers.

The following innovative and ecological solutions for wastewater treatment were employed as reported by the department:

- A liquid inoculum called Bacto Clean was used for drain treatment during the Kumbh Mela. The inoculum contains both aerobic and anaerobic species of microorganisms which are harmless to human, animal, plant and marine life. Bacto Clean was anchored down inside the drains for better results and frequent dosing was done.
- Bottom treatment with mud balls was another innovative bio-remedial method employed to enhance the degradation of sewage. In this method, mud balls with optimal amount of bacterial concentration are thrown into the drains and these mud balls settle at the bottom of the drains preventing sludge build-up. This process enhances the degradation process of waste and reduces the volume of organic sludge at the bottom. Mud balls are made of rice bran, molasses, Bacto Clean and clay mud; this mixture is then allowed to ferment in the dark for 10-15 days until the microbes develop on them. This activated mud ball treatment produces better results compared to the liquid inoculum treatment that flows away with running sewage water.
- In the modular method of geo-tubes, the discharge of drains is temporally stored creating bunds in the drain and pumped to a geo-bag made of geo-textile fabric having 450 micron apertures. Polymers are added before pumping, then it is stored in geo-tubes or geo-bags where impurities are retained, and clean water comes out of the pores of the geo-textile fabric.
- Up-flow filter is a standard onsite treatment method for small flows usually less than 1 MLD. In this method, polluted water flow is directed upwards in multiple settling chambers and passed through an inverted filter from the bottom. This way, the solids are retained in the settling chambers and filtered clean water is let out.
- In-situ treatment developed by NEERI was successfully installed at drains on the Jhunsi side of Prayagraj, helping to reduce BOD to as low as 15 mg/l. The in-situ treatment is a direct dosing treatment method where the apparatus is directly installed in the drains.
- Septage treatment was done with modular technology using geo-tubes. Septage treatment plant with a capacity at 2 MLD was installed in Sector 9 and another plant of 1 MLD capacity was installed in Sector 17.
- At Rajapur STP, bioremediation was added before aeration unit, and effluent BOD was reduced from 40 to 20 mg/l.

- At Salori STP, bioremediation was added before sending to clarisettler at 29 MLD FAB reactor and BOD was reduced from 37 to 28 mg/l. Achieved reduction in level of BOD was less than expected due to reduced retention space in the clarisettlers.

Despite the many bio-remedial and industrial techniques employed for treatment of wastewater under the Ganga conservation schemes and the Namami Gange initiatives, both during regular times and specifically during the Kumbh Mela, the extant STPs proved insufficient though they managed to take the load. The Rajapur STP with an installed capacity of 60 MLD had a maximum recorded flow of 90 MLD, the Salori STP with an installed capacity of 14+29 MLD recorded a maximum flow of 60MLD. It was a challenge especially on the Mouni Amavasya day.

7.12. Behavioural Intervention and Swachh Kumbh Campaign

In line with the Swachh Bharat Mission, a ‘Swachh Kumbh’ sanitation campaign was organised wherein behavioural change was given emphasis. The Swachh Kumbh campaign captured the dual messages of ‘Cleanliness is Godliness’ towards the Swachhta drive and the message of a Clean Ganga and its conservation. The Kumbh was seen as a good medium to communicate swachh messages and demonstrate practices.

Totally, 1500 Swachhgrahis were used for this purpose and were paid under the Swachh Bharat Mission to motivate people to use toilets and avoid open defecation. Their task was to monitor the cleaning activities for each toilet and urinal blocks in the Mela area and simultaneously encourage pilgrims to use the sanitation infrastructure installed under Swachh Kumbh. They were volunteers who were trained on Sanitation issues and challenges. “Prior to the Mela, intense training was imparted to each of these Swachhagrahis about the ways to monitor the operation and maintenance of the toilets deployed in the Mela. They used an ICT-based monitoring app managed through a handheld device where all the community toilets deployed in the Mela area were verified twice a day. This was purely technical and based upon the reports generated every day and there was a mechanism developed to inform and instruct the concerned sanitation supervisors in the respective sector to address any issues raised by the system. Swachhagrahis were given a kit comprising items essential to operate in the field which included jackets, whistles, water bottles, etc.” (Divisional Commissioner’s Report- Kumbh Mela 2019). The reports would reflect in real time the complaints and status of response at the Control room attached to the CMO office.

Apart from this, over 1,000 Ganga Praharis were engaged as foot soldiers to ensure cleanliness. Understanding that no technology can succeed unless there is active human intervention, many teambuilding exercises were conducted in the Mela area. The Authority helped the swachhgrahis and swachh workers gear up for the task of imparting techniques of ensuring proper sanitation services with adequate capabilities. It was recognised that they should have scientific knowledge and awareness of solid waste management methods.

The campaign aimed at mobilising people to participate in the cleanliness initiatives in their everyday lives in their near surroundings. A logo designing contest was launched to encourage youth to participate and propagate the concept of Swachhta.

The idea of Swachh Kumbh was propagated through various hoardings, banners, LED screens, booklets and brochures. In order to promote cleanliness and inspire the crowds to use the sanitation facilities in the Mela area, sanitation mascots were deployed to spread awareness on sanitation and Ganga conservation. This was an effort towards influencing behavioural changes for inclusive adaptation of sanitation facilities.

Another campaign called Swachh Kumbh Champ was launched from 15 October to 4 March 2019, to give recognition to those citizens, organisations or institutions who have been championing the cause of swachhta by adopting models and methodologies for cleaning, conservation, converting of waste into manure, and creating awareness amongst citizens towards the national commitment of swachhta.

The most effective method of ushering in behavioural change is through demonstration of clean and hygienic sanitation facilities and garbage-free surrounding. This was observed by a pilgrim visiting the Mela and surely would have made a lasting impact. *The sanitation arrangements in this Mela was useful in demonstrating to both administration itself and to the people that proper sanitation provisioning is possible and if provided will adapt to it easily.*

7.13. Drinking Water Management

Another important element of ensuring public health and hygiene is ensuring good quality potable water. The sanitation plan aimed at providing facilities for clean drinking water and it experimented with various methods to ensure this. Its arrangements included water ATMs and water posts, which were used and appreciated by the pilgrims and tourists. The provisioning of facilities for water was as follows (Table 7.11).

DRINKING WATER	
Stand posts	5000
Water ATM	200
Water tankers	150
Hand pumps	100
Pipeline	800 km

Table 7.11. Drinking water provisions

These facilities were installed throughout the Mela area: 24/7 drinking water supply was ensured during the Mela period to all camps across the Mela, with 150 water tankers supplying water. Continuous water testing was conducted for quality checks. A pipeline of 800 km was laid to ensure tap water supply in the Mela area; 67 tube wells were built or revived for providing drinking water to the Mela pilgrims.

With a view to providing a safe sanitation plan for the Kumbh Mela, a budget of Rs. 17.27 crores was sanctioned for procuring sanitation tools for the Mela, of which Rs. 14.16 crores was utilised. The items procured included sanitary tools, disinfectants, and pesticides for spraying to control vectors.

7.14 Budget and Expenditure

The government allotted adequate budget allocations for sanitation keeping in mind the goal of Swachh Kumbh. The initial allocation of Rs. 184.86 crores was later increased to Rs. 221.19 crores. A major part of this amount, Rs. 131.80 crores, was sanctioned for the 1,22,500 toilets, manpower costs, and sanitary tools and equipment. It should be mentioned that even though the budgeted amount was a meagre Rs. 1.2 crores for the ICT control system, it was useful in making the delivery process effective and in sending strong signals that the government is monitoring its progress on Swachh Kumbh. The actual budget expenditure on toilets is given in Table 7.12, 7.13 and 7.14. The type of toilets and urinals to be procured, and the rates, are given in these Tables. The tenders were decided by the Tender Committee and were competitively decided. The committee faced a challenge in finding vendors who could supply the required volume and at the tight deadline set. Many of the vendors expressed their inability, and so the government had to suitably alter the eligibility conditions. However, it should be mentioned that the vendors did manage to install the facilities on time and at the desired quality.

Sl. No	Description	Amount in Cr. (INR)	Sanctioned Amount from NMCG (INR) in Cr	Amount to be Sanctioned by State Govt.(in Cr)
1	ODF Campaign (122500 toilets on rental mode)	244.80	113	131.8
2	SWM - Provision of bins and liner bags	5.60	3.6	2
3	Manpower requirement	32.59		32.59
4	ICT Controls - Waste Collection & Monitoring System	1.20		1.20
5	Sanitary tools & equipment – (for Mela)	17.27		17.27
6	IEC Campaign	15.00	15	0
Total in Cr. (INR)		316.46	131.60	184.86

Table 7.12. Item-wise budget for sanitation

Sl. No.	Description	Total Amount Rs. (in crores)	Funds Given by NMCG Amount Rs. (in crores)	Funds Given by the State Government Rs (in crores)
1.	Construction of 1,22,500 toilets for Kumbh 2019	221.19	113.00	108.19
2.	20000 Dustbins installed in Mela area for SWM Rs 1000 per dustbin	2.00		
3.	Dustbin lining bag 3 per day, for 60 days - Rs. 3600000 (Rs.10 per bag)	3.60	3.60	2.00
4.	Manpower of 950 gangs (11400 cleaning workers and 9,24,000 human days)	32.59		32.59
5.	Information technology-based monitoring and surveillance system of sanitation plan	1.20		1.20
6.	Cleanliness tools and equipment, for Mela area	17.27		17.27
7.	Community Participation Campaign	15.00	15.00	0
Total		292.85	131.6	161.25

Table 7.13. Budget allocated and funds provided

Sl. No.	Type of Toilets	Quantity	Budgeted Price	Amount (in Cr)
1	FRP Toilets with Septic Tanks	12000	₹ 40,000.00	₹ 48.00
2	FRP Toilets with Soak Pits	10500	₹ 36,000.00	₹ 37.80
3	Pre-fab Steel Toilets with Septic Tanks	10000	₹ 25,000.00	₹ 25.00
4	Pre-fab Steel Toilets with Soak Pit	10000	₹ 22,000.00	₹ 22.00
5	FRP Urinals with Septic Tank	20000	₹ 15,000.00	₹ 30.00
6	Kanath Toilet (only super structure)	40000	₹ 9,000.00	₹ 36.00
7	Tin Toilets with Soak Pit	10000	₹ 22,000.00	₹ 22.00
8	Kanath Toilets with Soakpits	10000	₹ 10,000.00	₹ 10.00
9	Substructure Work for 40000 Kanath Toilets	-	₹ 3,500.00	₹ 14.00
Grand Total		122500	₹ 1,82,500	₹ 244.80

Table 7.14. Types of toilets and urinals with proposed budgets

7.15 Guinness World Record

The vision to attempt a Guinness World Record (GWR) for “most people sweeping the floor simultaneously in multiple venues (2 March 2019)” stemmed from the Swachh Kumbh initiative and became one of the defining factors of Kumbh 2019. The GWR award in

Prayagraj includes 10,000 Safai Karamcharis who took centre stage and successfully set a record (a new record category) by sweeping simultaneously continuously for 2 minutes across 5 venues viz. Lal Marg (Sector 1), Lal Marg (Sector 2), Sangam Lower Marg, Sankat Mochan Marg and Kailash Puri Marg. This Note is based on the Commissioner' Report of 2019.

For count validation, there were five venues across the Mela area, similar venue development was done across all the venues. The activity area was organised in a controlled environment using hard and soft barricading as well as police personnel. Like the handprint attempt, entry to the activity area was through ticketed lanes only. One steward was responsible for performance verification of one zone. Each zone had 24 participants. One EY personnel was deployed for every five zones to monitor and guide stewards. Stewards received training to monitor the execution of the record.



Figure 7.8. A zone during the Demonstration

Barcoded ticket stubs were issued to participants to obtain a manual count. The barcoded segment of the ticket was ripped and kept in a sealed box. These barcoded segments were scanned after the attempt to obtain an electronic count. Subtraction of the participants marked as non-performers by stewards from the electronic count gave the total number of participants.

Key Statistics:

- 10180 participants successfully performed the task
- 5 venues across 3400 ha
- 650 stewards
- 120 steward supervisors

This indeed boosted the morale of the officers, medical professionals, workers, volunteers, etc.



Figure 7.9. Safai Karamcharis with their brooms

7.16 Observations and Recommendations

The management of sanitation in Kumbh 2019 came for appreciation in many quarters. The pilgrims as well as the tourists from both abroad and India were appreciative of the arrangements made for cleaning the Mela area. Pilgrims who have visited many Kumbh Melas, here as well as in other places also mentioned that this time the arrangements were effective in ensuring cleanliness of the Mela area, toilets, and bathing ghats. The officers who have worked in the past in the Mela administration also mentioned that this time, planning and execution were carried out with a lot of imagination and control going into all details. The officers described what the Mela area used to look like in the past, with garbage and mosquitoes which was not complimentary.

The frequently mentioned factors that helped effective planning and execution were the emphasis given by the government on the goal of swachh, which was followed up with adequate resource commitment, the adoption of sanitation technology and IT, complete mapping of processes and SOPs, engagement of experts, and tight monitoring of all these factors. The Mela received extensive publicity for its cleanliness and this would have also helped in communicating its goal to the pilgrims. The pilgrims were by and large found to be complying with the overall ambience.

We observed that the sweepers were quite diligent in clearing the area allotted to them. We saw them sweeping the Mela area despite the fact that pilgrims were walking all the time. Once, we asked a sweeper why he could not instruct the pilgrims to throw garbage into the dustbins. He replied that they were pilgrims and here for a short time, and it is his job to keep it clean. It was observed that dustbins were always kept lined with bags and these were rarely full. The workers emptied the bins before they became full. Similarly, we found the workers attached to the toilets working tirelessly. They helped to keep the toilets clean and there were rarely any arguments between them and the pilgrims.

On the whole, certain principles were followed in planning and operation of sanitation management:

- They took care to ensure that adequate resources were provided for the bathing days so that resources do not become a constraint. In fact, resource planning was done keeping in mind the crowd flow of Shahi Snaan days so that other bathing days posed less of a challenge.
- They made separate plans for bathing and non-bathing days.
- They had Plan A and Plan B in all cases providing for all expected contingencies and crowds. This turned out useful during main bathing days.
- They pilot tested all technologies, whether it was water treatment, or odour treatment, or IT applications, and finally scaled it up.
- They focused extensively on training the workers and supervisors.
- They had SOPs for all processes and these were monitored. The ICT system-based monitoring mechanism contributed a lot in maintaining service levels.
- The contracts were tied to the delivery on the SOPs.

They did have trial runs but it was observed that most of vendors used the first bathing day as the pilot. On 15 January, it was observed that some toilets were not complete, some were dirty as these were yet to be opened up for public use, some did not have lights, and the swachhgrahis were struggling with their devices. These got rectified soon, but probably there should be provision to lock the toilets when these were not serviced.

7.16.1 Garbage Management

The dustbins were adequately provided in the Mela area. Adequate manpower was provided. The equipment provided was in use all the time, and the locations and transportation were well planned. They had made appropriate plans for bathing days for transportation of garbage and sewage. Only Snaan days posed a challenge. However, it was in quite a contrast outside the Mela area. The roads leading to the railway stations and bus stands were littered.

It was observed that seeing the cleanliness of the place, the pilgrims were also often looking for dustbins and throwing their litter into it. They also became conscious of the cleanliness drive. It was observed that even near the bathing ghat, the place was continuously cleaned and remained by and large clean.

It should be mentioned that the simple design of the dustbins and provision of bags was highly effective, and the users as well as workers found it convenient. The dustbins made of aluminium were sturdy and withstood the rough handling and jostling of the crowd.

One observation worth mentioning is that no paan stains were found either in the walking area or around the toilets or dustbins. This is indeed appreciable. One inference we can

make is that since it was a religious event, the pilgrims were in general disciplined and maintained hygiene standards.

7.16.2 Toilets

The toilets provided were adequate and queues were seen only in the mornings of bathing days. It was observed that the treatment for odour was effective and the toilet clusters and areas were always odour free. The toilets or soak pits were rarely clogged. The planning routine ensured that the pits were evacuated in a timely manner and did not overflow.

It was observed that on the whole the toilet areas were kept clean, though it was felt that the surrounding areas and approach path could have been better maintained. In some places, it was water logged or wet. These could have been covered with corrugated sheets. It is important to ensure that there is no leakage of water as this forms pools around walking areas. In many places, there was no soap. This defeated the purpose of communicating swachh.

The toilet design was appropriate. It was observed in some toilets that the doors did not fit properly or were hanging. The FRP toilets were easy to maintain and the toilet seats were properly laid out. The steel toilets next to the Arail Ghat bus stand were of a different design with slightly elevated roofs with open space between the roof and the steel plate walls for ventilation. Although this design kept the toilets naturally odour free because of sunlight, there was inadequate provision for light arrangements in the toilets. As a conscious decision, they did not opt for water tap inside the toilets as these lead to filling septic tanks faster.

The separate arrangements with colour coding for ladies were quite appropriate. The users said that there could have been better arrangement for water. We were told by the planners that tap water was deliberately not provided as that would fill the soak pits fast. There were always adequate buckets of water around the toilet clusters. The workers ensured that the toilets were kept clean for the next user. We found that lights were not provided in many toilets. This created problems at night. We did find cables and provision for lights, but no lights. They could have used light-coloured FRP sheets for the top so that the toilets could at least have light in the day time.

The separate plans and scheduling for bathing days and normal days were very effective. This was very useful as it would have been difficult to transport waste during main bathing days. They had plans to evacuate all the garbage one day before the main bathing day, and evacuate again once the peak crowd comes in. However, even with this plan, transportation of waste got into a crisis on a Mouni Amavasya day when the crowd was at its peak. The compacters could not be moved the previous night and they had to take the help of police to create a corridor to clear the compacters.

Such was the load on the services. The workers recruited through the jamdars were quite proficient. The workers recruited through contractors had issues as many of them were new to the Kumbh type of Melas and even to maintaining toilets. However, this experience

would have helped in training them in proper swachh sanitation and are deployable elsewhere on regular work. The swacchadoots' cottages were located adjacent to these toilets and they did not have adequate food and other facilities arranged by the authorities. They had to rely on free food in the Bhandaras. The swachhgrahis got good exposure to management of sanitation and this will help them in their regular roles in administration.

Another unique cafeteria called the '*Toilet Cafeteria*' was set up to promote the use of toilets. The cafeteria drew attention due to its commode-styled chairs, messages like '*trip to the toilet will save trip to the doctor*' and '*don't forget to wash hands after a toilet visit*' were painted on the cafeteria walls to stress the importance of using toilets. However, since it was set up in tourist areas which attract good profile visitors, it was not effective in spreading awareness as it was only accessible to people who did not need to be made aware of using toilets. These tourists were in fact amused and also a little repulsed by the idea of associating food with toilets.

The bathing ghats and river fronts were maintained well. There was very little litter of plastics, and pilgrims were discouraged from throwing puja material into the river. There were volunteers who were clearing up the floating garbage materials. On the river, the administration had engaged a boat with cleaning equipment which continuously cleared the garbage from the river surface.

7.16.3 Post Mela Period

The Ganga Mahasabha that was monitoring the Ganga water quality during the Kumbh opined that the water quality was maintained. However, some critics say that this improvement is temporary in nature, as fresh waters have been pumped from the Tehri Dam for the Mela to ensure water quality for the Shaahi Snaan, and once the Mela is over the Ganga is likely to return to its normal level of pollution. It was also reported that these treatments are temporary as contracts for treating plants are given only till the end of the Kumbh Mela which is bound to be the case. Also, the treatment plants at Salori and Rajouri were inadequate for the Mela and dirty water was still released in large quantities. However, it should be mentioned that water quality in the river has improved over the years owing to several initiatives taken up as part of Namami Gange. The arrangements in the Mela have shown the way for managing the pollution and it is for the administration to maintain it during the non-monsoon season.

The National Green Tribunal commented on the Uttar Pradesh Government for huge quantities of untreated solid waste that had accumulated in Prayagraj and the untreated sewage that flowed into the Ganga during the 49 day of the Kumbh Mela and called for urgent steps to dispose of the accumulated waste. The Green Committee found that the STPs received excess amounts of sewage and were overstretched due to inadequacy of the installed capacity and also the geo-tubes installed were inefficient due to ill-conceived planning where untreated waters were let into treated water through a bypass, just before the waters entered the Ganga. However, the Divisional Commissioner of Prayagraj stated that

compliance reports would be submitted to the NGT and expressed hope that they had done their best in comparison to previous Melas.



Figure 7.10. Stacks of dust bins waiting to be distributed after the Mela

After the mela, the departments also spent considerable time utilising the facilities created during the Mela. One such facility is the dustbins shown in Fig. 7.3. Overall, the 2019 Kumbh Mela has been a huge demonstration of the integration of sacredness and swachhta; cleanliness of the soul as well as of the surroundings. It was an earnest attempt to respect the sensibilities and dignity of the common man, especially women and senior citizens.

Annexure

Annexure 1: Item-wise Budget and Actual Expenditure

Tender No.	Type of Toilet	Tender Rate (in Rs.)	Total Quantity	Total Amount (Rs. in Cr)	Sanctioned Total Budget (Rs. in Cr)	Net Increment (+)/Savings (-) (Rs. in Cr)
Tender No. 387	Toilets (with soak pit) made of Fibre Reinforced Plastic (FRP) or similar other material suitable for mass gathering events	42000	7000	29.40		
Tender No. 387	Toilets (with soak pit) made of Fibre Reinforced Plastic (FRP) or similar other material suitable for mass gathering events	36000	7500	27.00		
Tender No. 387	Prefabricated Steel Toilets (with Soak Pit) made of MS framework	24500	18000	44.10		
Tender No. 571	Prefabricated Steel Toilets (with Soak Pit) made of MS framework	23800	10000	23.80		
Tender No. 387	Urinals (with Septic Tank) made of Fibre Reinforced Plastic (FRP) or similar other material suitable for mass gathering events	16000	20000	32.00	221.19	-2.61 (Savings)
Tender No. 570	Tentage (Kanath) Toilets deployed within and outside the Fair area, i.e. approach roads and in parking areas	5550	40000	22.20		
Tender No. 569	Sub-Structure Work	1945	40000	7.78		

Tender No. 570	Tentage (Kanath) Toilets - (only super structure) deployed within the camps in the Fair area Note - O & M for the toilets within camps would not be in the scope of the bidder.	8500	10000	8.50		
Tender No. 569	Tin toilets deployed within and outside the Fair area, i.e. approach roads and in parking areas.	23800	10000	23.80		
TOTAL			122500	218.58	221.19	-2.61

Chapter 8

Healthcare Management

8.1. Introduction

The scale of crowd, the duration and concomitant congestion makes kumbh mela a potential ground for health hazards. The reality of closely packed pilgrims for the bathing ritual, using shared facilities poses a vulnerable risk of potential diseases, water contamination, disease vectors; and from incidents like stampedes, accidents, fire, etc. These apparently glaring health risks and emergencies, necessitate meticulous planning and provisioning of infrastructure and services for incidence free mela.

Diseases at the Mela can spread due to several reasons such as water contamination, poor hygiene standards, inadequate sanitation facilities and poor sanitation practices, flies, air borne transmission, stagnant waters, unhygienic food, etc. Health management is multi sectoral and hence different departments are involved in it. Overall, it comes under Health and Family Welfare department which managed it in coordination with the Jal Nigam for water, Municipal services for sanitation, food department, railways, transport, etc. It also required coordinating with the vendors to ensure the health their employees. Finally, considering the profile of the pilgrims who visit Kumbh, a safe and healthy environment requires greater cooperation by public and their willingness. It also requires promoting behavioral modifications of the clientele.

8.1.1 Epidemics in the Past Kumbh Melas

The Kumbh Melas in the past have witnessed largescale epidemics, fire, stampede and natural calamities like rainstorms that pose their own threat of health hazards. In the past, cholera used to a major outbreak and they tried to manage it through cholera inoculation, but the visitors were exposed to various health risk due to mosquito menace and stagnant water contamination.

The recent 2013 Kumbh had a stampede at the Allahabad railway station killing 36 people and several others grievously injured. The medical system fell short of the requirements and the evacuation and emergency treatments were found to be inadequate. The mela also suffered from severe rain which left 20000 tents under knee deep water with several gates and electric poles collapsing down. There was a complete power shutdown with the Mela almost coming to a standstill with increased risk of epidemic outbreak, but it was the disaster readiness that brought the Mela back to its functional mode quickly. The pilgrims were evacuated to 26 nearby schools. The 2016 Kumbh mela in Ujjain experienced a thunderstorm, fire accident, cylinder bursts which lead to some deaths but the damages were contained. These are mentioned to indicate that in health care management the mela authorities and health department have to provide for health hazards from accidents, epidemics, as well as diseases.

The 2013 Kumbh Mela had provisioned 13 field hospitals with one in each of the administrative sectors and a larger centralized referral hospital equipped with high diagnostic and therapeutic facilities that was open 24 hours with thousands visiting the facility. It was observed that the clinics were understaffed, and the doctors were constrained for time with shortage of resources. They had to scramble to attend to the overwhelming inflow of patients, the doctor-patient interaction lasted less than a couple of minutes. A 20 bedded inpatient unit sector hospital essentially for cholera was provided but somehow was underutilized.

It was observed that the medical reports and prescriptions were written on plain papers in a notebook, there was no systematic efforts to collate data for surveillance of any epidemics or contagious diseases. A disease surveillance tool was piloted midway through the 2013 Kumbh by engaging students from universities. A total of 143 ambulances were provisioned for the Mela, but they lacked trained paramedics (Mehrotra and Vera, 2015; and Mishra 2019). The demand for health care surged steeply on Mouni Amavasya day and other bathing days but the provisioning of facilities and medical personnel were quite inadequate to the demand.

The stampede on Mouni Amavasya in 2013 Kumbh, the grievously injured were left behind and those who could manage to manoeuvre through the crowd reached the railway clinic. The stampede exposed the inadequacy of the provisioning and arrangements for emergencies like stampede (Mehrotra and Vera, 2015).

8.1.2. Kumbh Mela 2019

The Kumbh Mela area spread over 3200 acres enclosed by the holy Ganga and the Yamuna rivers was divided into 20 sectors. Each sector was envisaged as nodes with its own complement of PHC, team of doctors, ambulance and support staff. The facilities were originally planned for 15 crores pilgrims, but the planning was so robust it could handle an inflow of 25 crores with never before peak on Mouni Amavasya day.

8.2. Organisational Structure and the Tender Committee

The Health and Family Welfare Department of UP Government was overall in charge of the health care management in the mela. It was headed by an Additional Director, a Medical professional, who was assisted by a team of medical professionals. It also had a Nodal officer for Special Disease Surveillance. They planned a comprehensive healthcare arrangements consisting both Government and Private sector healthcare facilities including Allopathic, Ayurvedic and Homeopathic medication facilities. Ayush department of Ayurveda and Homeopathy pitched in with Ayush healthcare facilities to provide traditional medical care. Nodal Officers were deputed 4 months prior to the start of the Mela and were instrumental in ascertaining the location and number of hospitals to be established in the Mela and estimating the number of beds required in each of these hospitals, they were also in-charge of monitoring the deputation of doctors and paramedical staff and supervised the

setting up of hospitals at the Mela. The chief of Medical Store was appointed for handling all logistics of the Mela. He was responsible for the purchase and distribution of medicines, took care of payments to daily workers and was also responsible for procurement and deployment of toilets and dustbins.

8.2.1. Health Infrastructure, Medical and Disaster Readiness at the 2019 Kumbh Mela

The Health department comprises of four wings that ensures comprehensive care including both preventive and curative care. These include:

- Medical Preparedness and Disaster Management
- Health and sanitation
- Vector borne disease control
- Integrated disease surveillance program.

The Health and Sanitation wing deals with general public health and inspection of key infection points, the vector control team is assigned with the responsibility of control of pandemics or aggressive infectious outbreaks. The disaster management exercise is an integrated effort of doctors, paramedics, fire and water brigade, police and the NDRF for which ample training programs and mock drills are conducted. Even the sanitation workers and swachhgrahis were trained to serve as volunteers during disasters or any unforeseen emergencies.

The Health infrastructure was planned and developed as per the requirements of these wings. The health infrastructure at the Mela largely comprises of temporary hospitals, first aid posts and healthcare camps, medical outposts across sectors with planned emergency routes. These were:

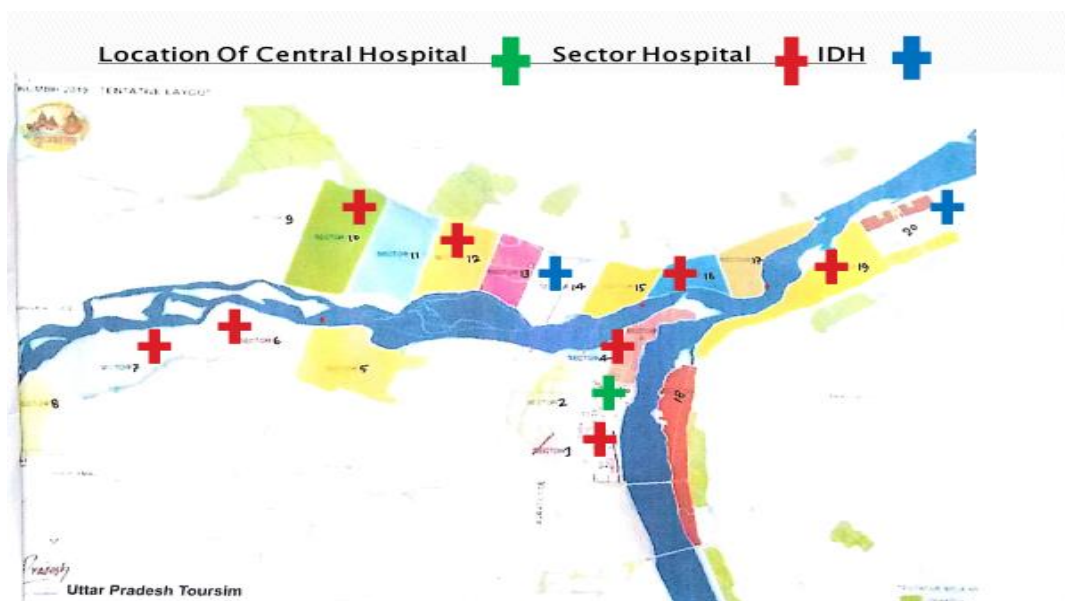


Fig. 8.1. Hospital Locations at Kumbh Mela

Description	Numbers
20 Bedded I.D.H.	2
2 Bedded Outside Health Post	15
20 Bedded Police Hospital	1
20 Bedded Circle Hospital	11
01 Bedded First Aid Post	30
Central Hospital 100 Bedded	1

Table 8.1. Sector-wise Hospitals According to Bedding

A 100 bedded specialized Central Hospital was established in Sector 2 with 4 beds for ICU treatments like cardiac and respiratory emergencies or any trauma exigencies along with other facilities like x-ray, ultrasound and pathology with specialized doctors. Eleven, 20 bedded Sector Hospitals were set up across different sectors where pilgrim flow was estimated to be maximum, these estimates were mostly based on previous Mela pilgrim influx statistics. Given the thick population density expected in the mela, 2 specialized 20 bedded hospitals were set up in Sector 14 and Sector 20, specifically for treating infectious diseases, in the Mela. Since large number of police and security personnel were deployed in the Mela area, a 4 bedded Police Hospital was set up in Sector 1 considering the large number of personnel posted here. 25 First Aid Posts were set up on strategic locations to attend to the immediate needs of the moving crowds. 27 Out Health Posts were set up totally out of which 10 were set up mostly in high pilgrim density areas like parking lots, entry and exit points of the Mela, railway stations, bus stations along with ambulances stationed in these posts. These health out posts were established in coordination and consultation with the Police and Traffic Police departments as a measure towards making medical facilities available and accessible especially during emergencies. Four 30 bedded additional hospitals were set up in Arail, Kotwa at Bani, Sahson and Daraganj.

The department approved 8 private hospitals to provide medical facilities in the Mela. 14 Ayurvedic healthcare centers and 14 Homeopathy centers were set up. 300 Beds were reserved for Mela patients in various public health facilities like Moti Lal Nehru Divisional Hospital, District Women Hospital, Tez Bahadur Shapru Hospital and Government TB Hospital and some private nursing homes at Prayagraj. In case of higher casualties in emergencies, cooperation and coordination was sought from adjacent district hospitals and medical colleges of Kanpur and Varanasi. Besides, there was a four bedded specialized health post set up at Akshay Vat area, it was called First Aid Post of Patalpuri that functioned from the start till the end of the Mela. 36 Quick Medical Response Teams (QMRTs) were ready with disaster management kits that included stretchers, canopies and medicines to set up temporary health posts at a disaster site.

Capacity building programs were conducted where selected persons were trained by specialists from Safdarjung Hospital New Delhi, NDRF, Army, Air-force personnel and CBRM. Integrated mock drills were performed with NDRF, SDMA, police personnel, civil administration and fire departments. The requirement of blood was managed by IMA Blood

Bank, and reserve blood of all blood groups was maintained at Blood Banks of Tez Bahadur Sapru Hospital, MLN and SRN Hospital Blood Banks.

Four health establishments in 4 zones were set up by deploying dedicated team of doctors and paramedics to deal with immediate health services in case of higher number of patients/victims during major snaan days.

Zone	Name of Hospital	No. of Beds
Phaphamau	LBS Homeopathic Hospital	50 Bedded
Dhoomanganj	United Hospital	100 Bedded
Jhunsi	CTC Kotwa Bani Hospital	50 Bedded
Naini	ESI Hospital	50 Bedded

Table. 8.2. Zones and immediate health services

The Prayagraj city was also prepared for the supporting the health facilities of the mela to handle major surgeries and longer medical treatment. Procurement of necessary equipment and repair of existing equipment at Medical Colleges and all public health facilities were undertaken at the Allahabad city. The Government undertook renovation and expansion of MLN Hospital, DWH, TBSH, and Government T.B. Hospital, at Prayagraj. It constructed wards, O.T. and Rain-Basera in PHCs near Mela Area.

8.2.2. Deployment of Ambulances

A total of 150 ambulance was deployed of which 86 Ambulances were deployed in the Mela area, out of which 80 were equipped with Basic Life Support System and 6 with Advanced Life Support System. Four ambulances were stationed in the Central Hospital and 32 ambulances were deployed across the 36 sanitation circles. Tele-Medicine Ambulances were deployed from SGPGI, Lucknow. An Air Ambulance was also stationed for the first time for the Kumbh Mela, at the Bamrauli Airport Prayagraj. Airomet, the company providing this service had arranged an ambulance with advance life support system that was stationed at the AD office in the Mela to transit any serious cases quickly to the airport. At least 7 patients were transferred through this facility during the Mela. The patients were to be taken to AIIMS in Delhi or any Government hospital. There were also 10 motorboat river ambulances, 2 were stationed at the Sangam Nose to attend to any emergencies during the Shaahi snaans. NDRF also provided one river ambulance. Trained personnel were deputed in these ambulances 24/7.

Description	Number
Road Ambulance	150
ALS Ambulance	4
River Ambulance on Boat	5
River Ambulance on Motor-Boat	1
Air Ambulance on Call	1

Table 8.3. Number of ambulances deployed

The Ambulance Drivers and Paramedics were part of the capacity building program for disaster readiness and speedy evacuation of the affected. In the event of any emergency, if a particular hospital is overloaded these drivers and paramedics were amply trained to shift the patients efficiently in the shortest route possible, to another hospital.

8.2.3. Health and Medical Care Staffing

The department deployed around 350 doctors from different districts of UP fulltime in the Mela area during the duration of the mela. The team of doctors included Allopathic Medical Officers, specialists like Cardiologists, Chest Physicians, Orthopaedics and Eye surgeons, general surgeons, dentists and MOCH Medical Officers who were also in charge of Ayush facilities. More than 1000 paramedical staff were deputed in the Mela. Almost 80% of the staff requisitioned was on board. The AIIMS and Government of India trained around 900 medical and paramedical personnel from 27th to 31st December 2018 on First Aid and Triage. The doctors and paramedics were trained by the NDRF and acquainted with all the sectors for any disaster or trauma readiness. In all 1783 regular government health staff, including Doctors and Paramedical were deployed in Mela according to the department.

8.2.4. Medical Emergency Plan within and outside the Mela

The Magh Mela of 2018 served as the mock drill exercise for many health, sanitation and disaster management initiatives of the Kumbh 2019 team. The police along with NDRF conducted mock drills in the Mela region prior to the start of the 2019 Mela, to ready themselves for any real-time emergencies. The 2019 Kumbh Mela had prepared medical emergency plans both within and outside of the Mela in order to ensure that there was no shortage of medical care till the pilgrims were guided back home safely. A medical emergency plan is of utmost importance during such colossal events to avoid any 2013 like stampede incidents where apart from shortcomings in crowd management and security arrangements, the medical emergency unit at the Railway station was un equal to the task.

Another important aspect of the Health department was the disease surveillance team that had a specially customized software tool integrated with the Kumbh Mela hospitals' data, the data captured was displayed on LCD screens and disease patterns were analysed regularly to monitor any shift for swift remedial medical and sanitation actions.

8.2.5. Medical Aid and Disaster Kit Provisions for Emergencies

The doctors were provided with necessary supplies of medicines, trolleys, stretchers and splints required, and placed at all health facilities by the store in charge and chief pharmacist of the Mela Store. Replenishment of supply to all health posts and facilities was planned through runners in case of any emergency situation where vehicle movement was not possible.

A disaster plan for any medical emergencies like fire, stampede, drowning etc. was devised with requisitioned number of medical equipment and disaster kits deployed at strategic points. The following emergency kits were available at any point of time (Table 8.4).

Disaster Kits	Quantity	Availability
Burn Kits	600	Central and Sector Hospitals, First Aid Posts and Ambulances
Stampede Kits	1000	Central and Sector Hospitals, Ambulances stationed at crowded spots
Drowning Kits	100	River Ambulance, First Aid Posts nearby to the bathing ghats
Foldable Canvas Stretchers	200	Strategic and sensitive points

Table 8.4. Disaster Kits and their Availability

8.2.6. Medi-Tracker

A database record of all private hospitals, nursing homes, the total number of beds available, number of beds reserved for Mela patients, their super specialties facilities like burn wards, trauma ward, details of medical and paramedical resources, ambulance facility with details of HR of Prayagraj was been prepared and kept ready for any emergencies.

An information system about the availability of medical facilities in the Mela and the navigation to these health centers and ambulances and first aid facilities was deployed for te convenience of the pilgrims.

8.3. Sanitation and Vector Control Measures at the Mela

Thousands of Safai Karamcharis were deputed to keep the Mela hospitals clean and sanitized. The Sanitation workers were provided with adequate personal protective equipment and other medical and health facilities by the Health Department and the Operator. They were stationed in the Sanitation workers colony of the Mela area. A total of 20 safikaramchari colonies were set up with 2 colonies across each sector. Anganwaadis and schools were set up for their families. The Central Hospital was functional even after the to cater to the working staff who looked after winding-up activities. Solid waste management was done sector wise. There was onsite sludge management, cesspool operations and odour management done for total sanitation. Solid waste management has been described in the previous chapter.

Every sector had a medical officer who was responsible for sanitation, solid waste management and vector control of the respective sector. The Mela area was divided into 36 sanitation circles by the Health Department, each circle had a Health supervisor for its upkeep. Another Nodal Officer was deputed for field visits in every sector, he/she was provided with a vehicle and wireless handsets with sim cards to inspect all the health and

sanitation works in each sector to check for any vector activity and for effective communication, respectively. As many as 122 retired veteran officers who had the vast experience of handling the Magh Mela or the Kumbh Mela previously were posted at the Kumbh 2019 for consultation and guidance. Their insightful inputs like knowing where the patient inflow could be expected or where the toilets had to be established, were very helpful.

8.3.1. Vector Control

Sanitation and vector control are interrelated. While a good sanitation facility with proper handling of waste controls vectors, an efficient vector control system ensures safe sanitized environment. To establish accountability and a single line of command for implementation, the additional director of the health department was made in-charge of vector control in the Mela. It was the government's primary focus to maintain international standards when it came to the Mela area's health and hygiene.

8.3.2. Vector Control Measures

Disease propagation occurs due to environmental conditions, population interaction, vector carrying flies, mosquito breeding and poor sanitation conditions. A separate Nodal officer was appointed in every sector for vector control, who monitored the control of larvae activity and ensured regular pesticide spraying and fogging activities to keep the Mela free of flies. They were responsible for ensuring scheduled garbage collection and solid waste disposal as per guidelines. This was important because an efficient solid water management exercise reduces the risk of spreading vector borne diseases. Every circle had a vector control officer under whom 3-4 supervisors were deputed. Each supervisor had 3-4 field officers who monitored vector control. There were 5 District Officers for Malaria Control. Each sector was supervised by an Assistant Malaria Officer who reported to the Sector Vector Officer Mosquito Breeding Control measures such as anti-larvae activity, adult mosquito control and protection against mosquito bites were taken to reduce the diseases caused by mosquitoes in the Mela. Stagnant water is a breeding ground for mosquitoes hence several measures were taken to avoid water stagnation. Environmental control measures by clearing blocks, cleaning and deweeding naalas or other water parked areas, some basic engineering works were done to rectify any blockages in drains to ensure that water is not stagnated. Chemical control methods of spraying pesticides, insecticides like DDT Deltamethrin in the Mela area and on the tents, volume fogging and thermal hot fogging of insecticides, space spraying mechanisms were adopted.

While mosquitoes breed in water, flies breed in dirty unhygienic environment. Flies breeding can be controlled by ensuring safe sanitation and waste disposal methods. The Mela was deployed with 20000 dustbins, scheduled garbage clearance was done efficiently, 122500 toilets were built, keeping the Mela open defecation free and garbage free which took care of vector control. Each sector was provisioned with 2 compactors for garbage

collection twice a day. The garbage vehicles were GPS tagged which enabled tracking of appropriate disposal system. The periphery of the Mela area was also sprayed and sanitized. In order to improve the environmental conditions, many Clean Ganga initiatives that were already being implemented by the Ganga Conservation program was leveraged and enforced stringently as preparatory work for the Kumbh Mela.

8.4. Epidemic Check and Data Surveillance

The occurrence of any disease at a rate higher than the normal average in a given population constitutes an epidemic. Hence, checking for any disease patterns, the ratio of the spread or occurrence and the epidemiological details such as age, gender, diagnosis of complaint and the medication prescribed is of paramount importance. This is almost impossible to implement in a largescale gathering like Kumbh without technology deployment. Therefore, data and disease surveillance system was incorporated in the health and sanitation plan. The government also deployed 'epidemic intelligence officers' who coordinated with medical units to keep Kumbh safe from infections

8.4.1. Data and Disease Surveillance System at the Mela

An Integrated Disease Surveillance Program (IDSP) module was deployed in the Mela in association with Ministry of Health and Welfare and the WHO. It was first experimented at the 2013 Mela. Field data on pre-defined health conditions for Kumbh Mela was collected through the Integrated Health Information Platform (IHIP) through web enabled handheld tablets. The data was collated into graphical reports to analyze and review public health surveillance data in real time for timely health intervention.

The integrated surveillance system consisted of

1. Incidence based surveillance
2. Laboratory surveillance
3. Water quality surveillance
4. Media scanning

The Kumbh Mela public health surveillance was the coordinated efforts of

1. Disease Surveillance team constituted by the State surveillance unit (IDSP), Government of Uttar Pradesh.
2. EIS team of NCDC, New Delhi
3. WHO Integrated Health Information Platform (IHIP) unit
4. Kumbh Mela Health functionaries

Total Reporting Units 71		Allopathy: 37, AYUSH: 28, Others: 6							
ZONE 1 N= 15		ZONE 2 N=13		ZONE 3 N=16		ZONE 4 N=13		ZONE 5 N=8	
FAP	7	FAP	6	FAP	5	FAP	5	FAP	2
Circle Hospital	2	Circle Hospital	2	Circle Hospital	2	Circle Hospital	1	Circle Hospital	1
Police Hospital	1	Ayurvedic	2	Ayurvedic	5	Infectious Disease Hospital	1	Infectious Disease Hospital	1
Central Hospital	1	Homeopathic	3	Homeopathic	4	Ayurvedic	3	Ayurvedic	2
Ayurvedic	2					Hoeopathic	3	Homeopathic	2
Homeopathic	2								

Fig 8. 2. Reporting Units under surveillance

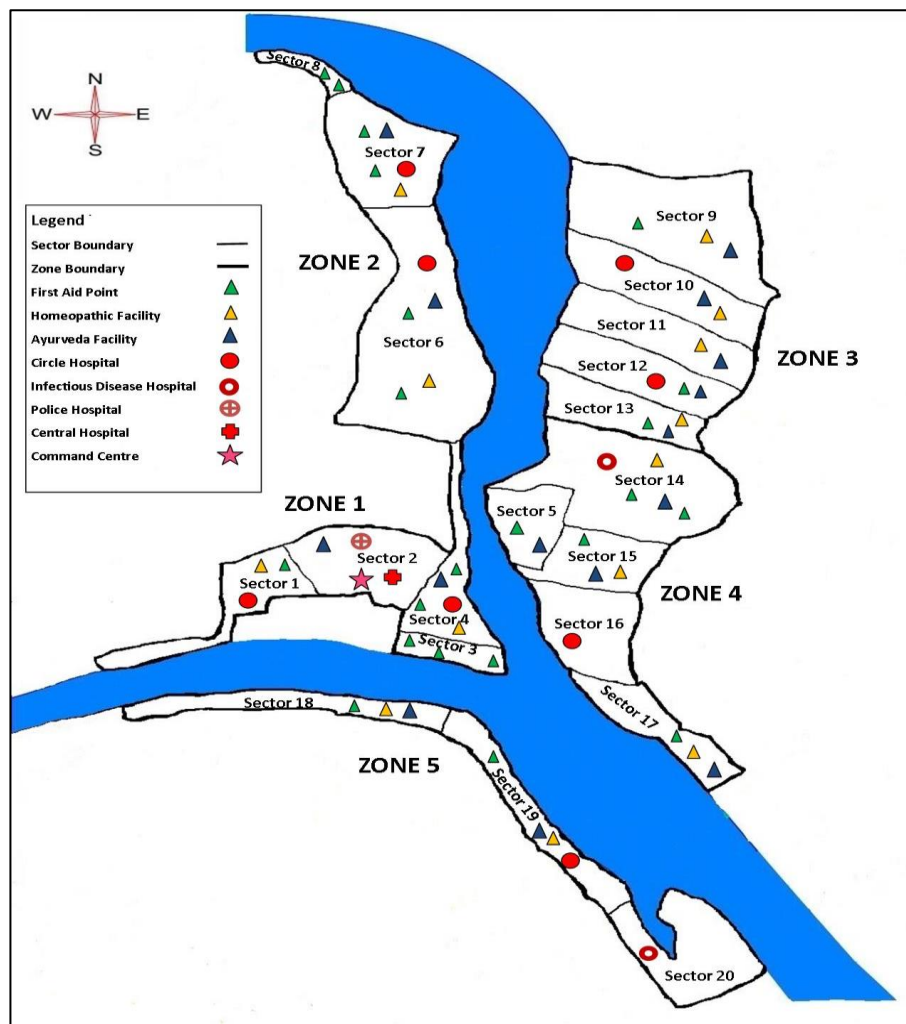


Fig 8.3. Zones and their Health care facilities

The National Center for Disease Control under the MoH had deputed a disease surveillance team of 6 experts in tackling any epidemic outbreaks and monitoring of daily reports for observing any disease building pattern.

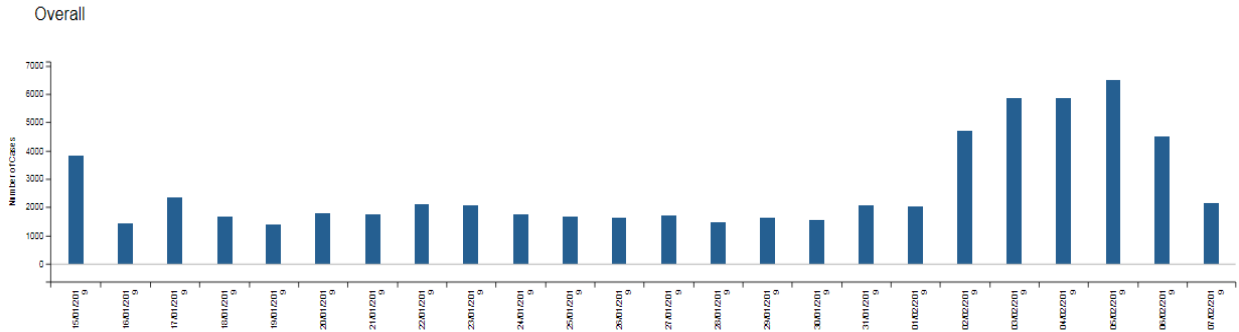
Water testing labs were established, and bacteriological tests were also conducted constantly to check for compliance of safety standards and purity of water quality. In addition to this the health department also conducted Chlorine tests twice or thrice a day. Random water samples were taken for testing from different zones by the expert team to ascertain drinking water standards. There were two types of tests conducted to check the water quality – the OT test and the Hydrogen Sulphide Test, the OT test was done by the Jal Nigam and the Health Department to check the residual chlorine level in the water, the presence of chlorine residue indicated that the water was safe for drinking as the presence of chlorine kills any germs, the second type of test was the H₂S test or the Hydrogen Sulphide test, if this report tested positive then it was indicative that the water was contaminated. The Jal Nigam was also responsible for providing potable water at the Mela and were incharge of remedial actions when surveillance teams reported any accumulation of disease build-up cases in a particular area or any indication of contamination. *The health monitoring system has created a huge useful data base which will be of immense use for medical students in public health.*

An Android based reporting tool was deployed where doctors and paramedics could report the cases. Every health facility was provided with a Tablet and Internet connection, the health department received daily reports/data from these health facilities across the Mela in the control room, these reports were collated and analyzed to ascertain and monitor disease pattern, if there was any deviance from daily patterns then the Nodal officer in the Health department would be alerted. There were high burden health facilities that took maximum load of patient influx during the Mela. The Central Hospital had an OPD registration of 90656 and IPD registration of 1632, circle hospitals like Sector 16 and Sector 10 in Jhunsi, circle hospital at sector 4 in Yamuna Patti and a few First Aid Posts like Akshay Vat, Minto Park, Sangam Nose, Gangoli Shivala, Nritya Gopal Das and Kaali Road saw more OPD than IERT and Arail IDH.

The surveillance system monitored every sector for vector activity, water quality and diseases from the first week of January. A total of 23 diseases types were observed under the surveillance program, out of which 13 were communicable diseases and 9 were non communicable. Some of the main health conditions that were under surveillance during the Mela were Influenza, continued Fever that was less than 7days, Acute Gastro Enteritis (AGE), Skin Infections, Hypothermia, Conjunctivitis and Dysentery. During the entire Mela period, a total of 40201 Fever cases were reported, there were 48260 cases of acute respiratory infection or influenza cases, 56 cases of Malaria, 2 Dengue, 30 Chikunguniya, 216 typhoid, 95 acute Jaundice, 17689 skin infection cases, 1362 Dysentery, 2393 Conjunctivitis, 216 burns, 153 dog bites, 15 drowning, 12 snake bites, 167 Hypothermia and 22746 AGE cases reported. A total of 6,53,121 OPD patients and 4749 IPD patients registered during the Mela period between 15th January to 1st March 2019. The

registrations were maximum during the period of Mauni Amavasya Snaan, 2 days prior and 2 days later. The analysis of the OPDs during the mela is given in 8.4, 8.5 and 8.6.

8.4.2 Overall Registrations (OPD + IPD)



(Ref: Dr. Yash Agarwal Notes, Establishment of Hospitals PPT and Disease Surveillance PPT)

Figure 8.4. Overall Registrations

OPD & IPD data

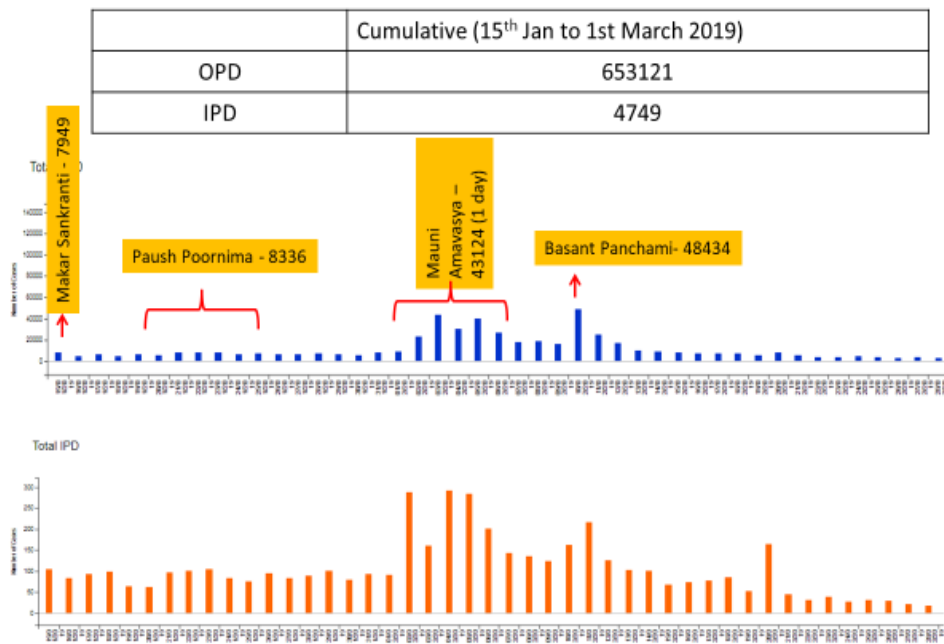


Figure 8.5. OPD and IPD Data

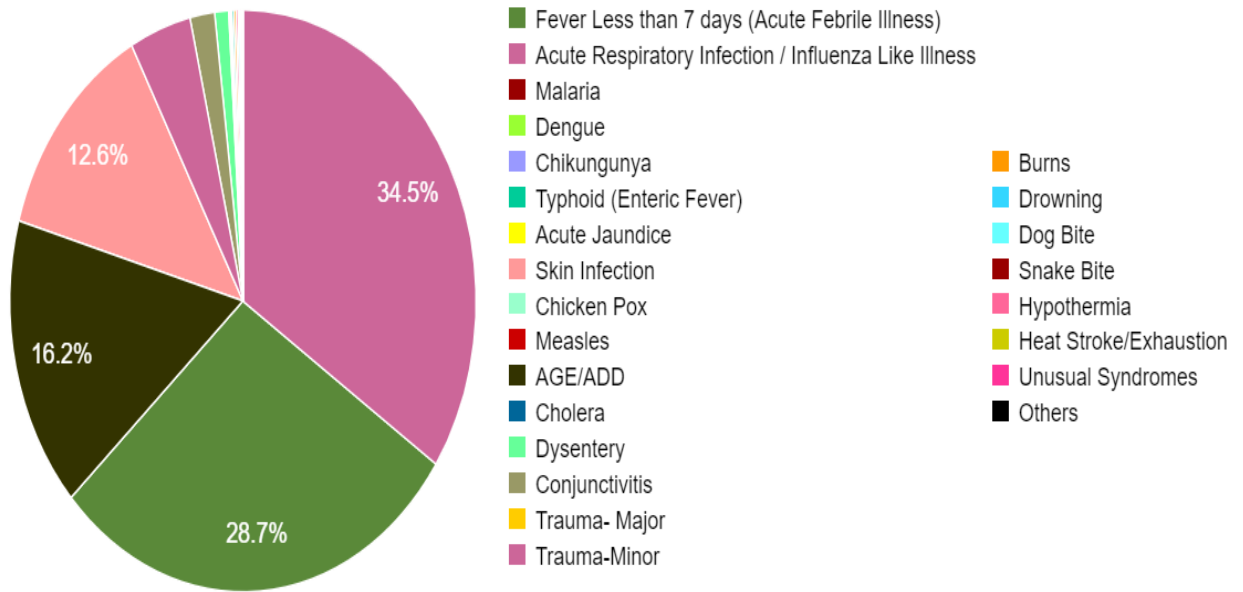


Figure 8.6. Proportion of Health Conditions under Surveillance, Ardh Kumbh Mela- 2019

8.4.3. Heat Maps

Data analysis software of Heat Map was used as a data visualization tool for swiftly interpreting and assimilating activity data from across different sectors, this enabled in comprehensively understanding the rate of activity across health facilities.

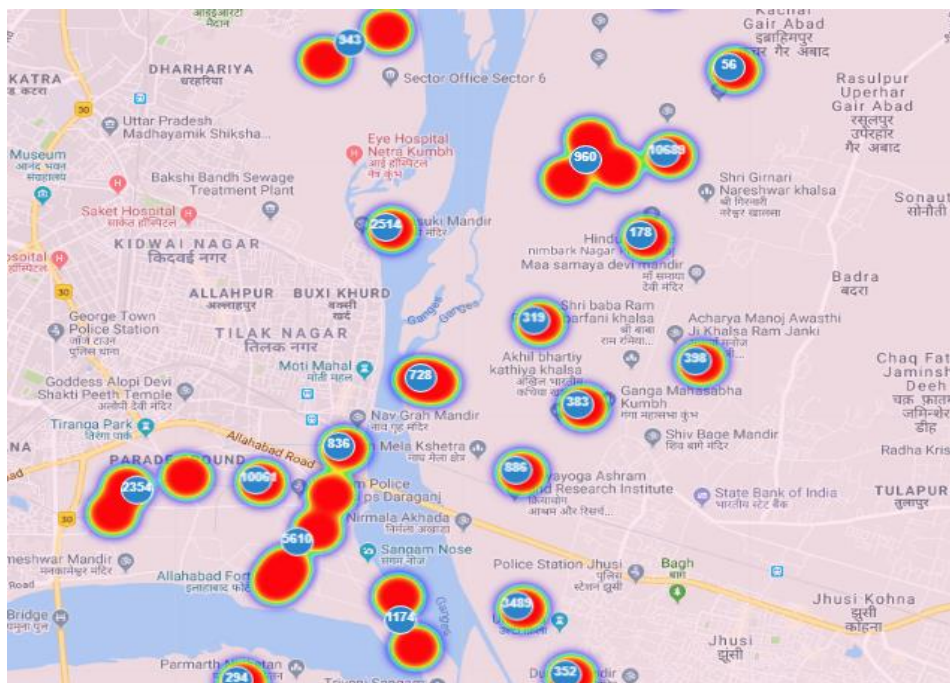


Figure 8.7. Heat Map indicating sector-wise activity

8.4.4. IHIP

The Integrated Health Information Platform is an initiative of the Health and Family Welfare Ministry in partnership with the WHO to enable the creation of standards compliant Electronic Health Record on a pan India basis for optimal information exchange on health conditions to enable better health outcome and analysis of case studies common among health facilities. This module was implemented at the Kumbh Mela as a part of data and disease surveillance efforts to check any incidence.

8.4.5. Lab Data and Media Scanning

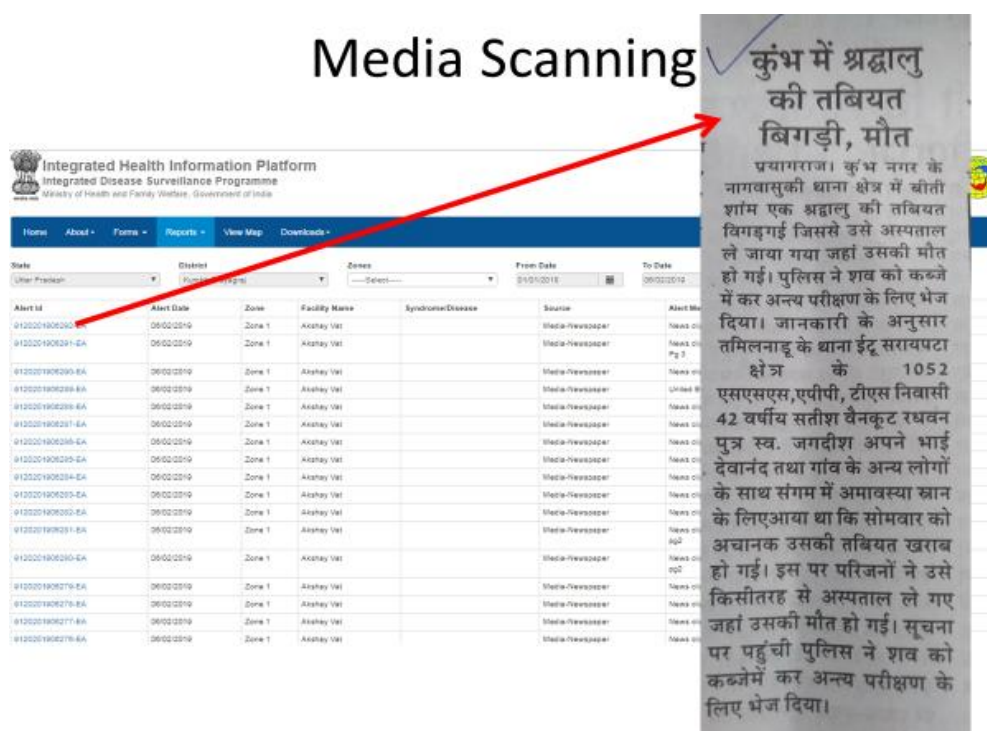


Figure 8.8. Media Scanning through IHIP

Lab reports from all sectors were collated on the integrated data surveillance tool and analyzed regularly for disease patterns, apart from this, the surveillance tool was programmed to capture media reports about any disease or health condition at the Mela, every media post that reported about health/disease cases in the Kumbh Mela was captured and given an ID that alerted the respective health facility/sector/zone to doubly check for any oversights. All such media reports were closely watched and assimilated for surveillance and analysis.

8.5. Bio Medical Waste Segregation Plan

A biomedical waste segregation plan was formulated towards ensuring safe sanitation and scientific solid waste management compliance at the Mela. The Bio-Medical Waste

Management Plan consisted of 3 components, namely segregation, collection and a safe disposal of bio waste.

The segregation which is the first major step towards solid waste management was done at the point of collection in the health facility set up at the Mela area. Yellow bins were used for collecting human waste, red bins for plastic and blue for sharp waste, white punch proof containers were used for collecting used needles.

8.6. Publicizing of Government Health Programs at the Mela

Several health programs of the Government of India were promoted and publicized at the Mela to increase awareness among citizenry about the health schemes and service made available. Audio-visuals were played on TV screens in hospitals and in the Cultural pandals for mass awareness on health initiatives by the Government. IEC programs of health-related schemes of NHM were promoted at the Mela.

There were healthcare awareness initiatives run by healthcare solution companies like Medtronic India that launched a campaign called the Chiranjeev Hriday programme at the 2019 Kumbh Mela. The campaign was designed to spread awareness about the increasing problem of Sudden Cardiac Arrest among the masses and targeted to train first responders and citizens at large in Cardio- Pulmonary-Resuscitation (CPR) to save lives. Around 3000 people were trained in Hands Only CPR technique at the Mela to save precious lives during emergencies. To spread awareness on SCA, unique activities like street plays, demonstrations on boats, partnership with Akharas like Juna Akhara, innovative healthcare messages in the Mela area through hoardings and radio jingles were used.

The Tata Memorial Hospital carried out a oral cancer awareness drive cum screening program using mobile health applications in 20 temporary dispensaries at the Kumbh, as large number of rural populace visiting the Kumbh come from the Northern belts where Tobacco consumption and oral cancer are prevalent.

Free eye checkup was extended to over 5000 pilgrims every day at the Kumbh Mela under the Nethra Kumbh initiative by the Government in partnership with healthcare organizations. Around 400 doctors and thousands of volunteers were engaged in this initiative that distributed free spectacles to 85% of those who availed the free check-up.

8.7. Mental Health at the Mela

The Kumbh Mela is one place where people gather for spiritual solace and immerse themselves in mentally calming activities such as Bhajans, devotional songs, chanting of Vedic Mantras and engaging in mentally uplifting meditational practices. Hence, there was no special provisioning by the Health Department for the mental health of the people

coming to visit the Kumbh mela. There was only one psychiatrist and one other professional in the psychiatric ward provided for any unseen incidents of trauma.

8.7.1. Yoga – The Natural Health Care

The traditional Indian philosophical concept of healing the mind body and soul with the ancient and indigenous art of Yoga and meditation has proven to have immense health benefits for natural healing. The Kumbh Mela from times immemorial has been a platform for the dissemination of spiritual knowledge and Yogic practices. The ascetics and the Akhara Sadhus who vigorously practice difficult forms of Yoga like the Hatha Yoga throughout the year, take the opportunity to demonstrate their Yogic feats at the Kumbh Mela.

Apart from the traditional Yogis, the Kumbh Mela has been a home to various spiritual and Yoga Gurus to disseminate the art of Yoga to their devotees for health benefits like improved breathing, improved concentration, blood circulation and mental calmness. Various Yoga camps and meditation sessions have been conducted in the past Melas by setting up Yoga Shibiras. In the 2013 Kumbh Mela, Pathanjali Yog Peeth conducted a Yoga and Ayurveda camp for 7 days where Pranayama and Hatha Yoga was taught, at the 2016 Ujjain Kumbh, Baba Ramdev, the founder of Pathanjali, taught Kriyas of Hatha Yoga to thousands of pilgrims at the Mela. Various forms of Yoga are taught, puranic Katha and meditation sessions conducted for an overall rejuvenation.

8.7.2. Yog Kumbh

The 2019 Kumbh Mela had organized a **Yog Kumbh at Prayagraj**, supported by the Ministry of Tourism, Government of India, from 31st January to 7th February. The Indian Yoga Academy (IYA) along with 32 schools of Yoga participated in the event. There were various activities and early morning Yoga sessions conducted at the Parmath Niketan camp in Sector 18 at the banks of Ganga. Activities conducted included daily yoga sessions, research on yoga, free blood screening, sangam arthi, bhakti yoga immersion, kalayog sessions, everyday discourses and satsang with gurus and yoga therapy sessions.

These Yoga schools had been allotted separate tents, they had full-fledged Yoga packages designed specially for the Kumbh Mela where they offered Yoga sessions, Satsang, lunch, dinner and stay for the pilgrims. Yoga sessions, talks, YogNidras, Yama Niyama, Yoga music and dance, Yoga panel discussions by Gurus of various Yogpeets on different days were organized.

8.8. Budget Requirement

Description	Requirement (INR in Crores)
Health Sector Setup (Tin, Tentage, PUF & Furniture's) of the following: <i>100 bed Hospital (1), 20 Bed Sector Hospital (11), 20 Bed Infectious Disease Hospital (2), 1 Bed First Aid Post (30), Circle Health Office (40), Water Testing Laboratory, Anti-Mosquito & Anti-Fly Unit, Additional Director Office, Residences of Doctors, Paramedics, Health Workers, Sweepers</i>	17.10
Daily Wage Employees	7.88
Medicines & Instruments	8.43
River Ambulance – On Boat	0.34
Contractual Employees	0.28
T.A. & D.A.	1.25
Consumables	6.20
Catering Services for Indore Patient	0.10
Health Workers equipment (apron, mask, cap, gloves etc.)	1.32
Rent for vehicles and Petrol, Oil, Lubricant (POL)	3.95
Total	46.85

Table 8.5. (Proposed) - Phase I Budget Requirement

Description	Requirement (INR in Crores)
Purchase of river ambulance on motorboat	1.00
Rental of air ambulance for 60 days	4.5
Repair and strengthening of Drug warehouse for Mela Purpose	0.30
Publication of various tender notices & advertisement in all India editions of leading newspapers.	0.90
Total	5.70

Table 8.6. Phase II Budget Requirement

8.9. CSR Initiatives at the Mela

Many institutions and corporate companies came forward to extend CSR support, services and contributions as a social responsibility in the sacred grounds of Prayagraj. The Medanta Hospital provided specialist services at the central hospital in the Mela, Hewlett Packard provided for E-PHC kiosks, Saldar Infrastructure provided for water ATMs at hospitals and Neelkamal Industries contributed for the provision of 500 large dustbins in the Mela. *Narayanan Seva Sansthan*, an NGO set up a 100 bedded facility in the Mela area.

The *Youth For Seva*, SEWA International's local partner, a volunteer organization working as part of the Kumbh Mela's voluntary platform of 'Seva Mitra' for rendering essential social services in the Mela for a better pilgrim experience. YFS had pitched in their team of *Doctors For Seva* for extending Health Services by engaging medical and non-medical

volunteers for access to quality healthcare for all at no or low cost. The team consisted of 300 doctors that included General Physicians, Cardiologists, ENT Specialists, Anaesthetists, Surgeons, Dermatologists, Gynaecologists and Orthopaedics who were supported by nursing staff, technicians, Several programs like School Healthcare Programs, Awareness on Nutrition, Menstrual Hygiene, Community and Health camps were conducted by them during the Mela.

8.10. Kumbh Seva Mitra - Volunteer Engagement in Kumbh 2019

Kumbh Seva Mitra, the volunteer engagement program of Kumbh 2019, focussed on mobilising and engaging youth to represent their city and Kumbh Mela 2019, and enhance the experience of the pilgrims. The program was aimed at drawing more youth to be the face and backbone of Kumbh Mela 2019.

The Kumbh Mela presented a rare opportunity for organizations to showcase their community involvement to the world audience, by inviting Corporates to serve the pilgrims through CSR (Corporate Social Responsibility) partnerships. NGOs focused on volunteer engagement were also sought to be part of the organizing whole.

The Seva Mitra program presented an unparalleled opportunity, especially to college students in and around Prayagraj, who along with a lifetime experience of donating their time for a heritage event, would be equipped with unique skills to shape their career path ahead and mark their position as valuable members of the society.

Along with sensitization and awareness campaigns schools, colleges and universities, promotions on social media handles and the official website of the Mela, and print and radio advertisements, the Kumbh Mela authorities ensured enormous reach-out by organizing volunteer enrolment drives at malls, parks and marketplaces too.

The volunteers were shortlisted based on online applications, followed by interviews. They also underwent police verification as a part of the vetting process. Post clearing them all, the volunteers were assigned to their respective departments. The volunteers enrolled in the program supported the following Government Departments in successfully executing Kumbh Mela 2019:

- Prayagraj Mela Pradhikaran for Boat Management, Tent Services and Ghat Management roles
- Kumbh Mela Police Department for Traffic & Movement Management, Crowd Control and Lost & Found Services
- Health Department for Health Services
- Tourism Department for Tourist Guides and Tourist Services Management
- Media and information Department for Press and Media Services Management

The Mela Pradhikaran conducted workshops for onboarding volunteers – generic induction including the history and background of the Kumbh, the broad areas of work, the Mela area map and so on. Following this, the respective departments conducted role-specific trainings. Mock drills were also conducted by the departments prior to the start of the Mela, to provide hands-on experience to the volunteers. Regular monitoring and mentoring of the volunteers was an integral part of the program.

Volunteer manuals, uniforms and access control passes streamlined the engagement, while adding a sense of pride and responsibility to the volunteering experience. Certificates appreciating the contributions of the volunteers were also issued post the Mela, adding to their repertoire of treasures.

Doctors from all over India and a few from other countries such as US and UK , including general practitioners, paediatricians, gynaecologists, orthopaedicians, cardiologists, anaesthetists, and pathologists also rendered their voluntary services in the Central and other sector hospitals during the Mela, as a part of the Doctors for Seva platform.

The volunteer inclusive plan for Kumbh 2019, Kumbh Seva Mitra left a lasting legacy behind, having been powered by the selfless, ‘we can do it’ attitude of citizens wanting to give back to the society. On the other hand, it provided the volunteers with a unique opportunity to be a part of the team that will organise and deliver the world’s largest religious human gathering, not only equipping and enabling them with key and critical skills which would help them shape their career and future, but also making it to their life book as one of the most cherished memories.

While tremendous efforts have gone into planning and organizing the Seva Mitra program with reference to volunteers who were directly enrolled and allotted by the Mela authority very less attention was given to organizations which engaged volunteers, thereby making their volunteers outside the whole lifecycle of orientation to monitoring. This could probably be because they did not expect any organization like ours’ to come forward and be persistent about the same. It would help if they could also include in their plan ways to reach out to NGOs too, along with colleges, universities etc. and include them and their volunteers in the entire process.

This would help in lessening the gaps created later on during the Mela, decide the plan of action and respective responsibilities beforehand (between the NGO and the Mela authority) and focus on service the pilgrims/ visitors alone, rather than solving issues faced by the volunteers themselves.

Chapter 9

The System of Lost and Found

9.1. Importance of Lost and Found

A big challenge that Kumbh Mela faces is the issue of Lost and Found, which comes next to crowd management in threat perception and also this can be a spoiler of the overall atmosphere. Crores of devotees congregating in a small area leading to high congestion poses a serious threat in terms of individuals getting separated from their families and groups. This is a perennial problem in all Kumbh Melas and is much written and talked about. The problem gets accentuated by low levels of literacy and as they come in groups with old members and children of the families. Pilgrims speak different languages and communication creates its own complexity. The numbers used to run in thousands and sometimes over a lakh on peak days, and it used to cause lot of concerns to the affected people. This is something which can spoil the whole experience of the pilgrims. The PMA, considering the criticality and gravity of the issue gave it serious attention that it deserves. It put in place an elaborate plan to both prevent and manage this issue of lost and found. In the past, the lost and found problem was managed by NGOs like Khoya Paya and Bhule Bhatke. This time the arrangements were formalized with the setting up of Lost and Found centers in a systematic manner along with these NGOs.

9.2. Arrangements in the Past Melas

‘Khoya Paya’ and ‘Bhule Bhatke’ were the leading agencies which managed the operation of reunited with the families of the lost person. In previous melas, the problem of missing persons was handled voluntarily at camps set up by these organisations and volunteers committed to the cause of helping lost or missing persons reunite with their families. These are two voluntary organisations which have a long history of setting up and running these camps at the melas.

The first one was started by Shri Raja Ram Tiwari, popularly called 'Bhule Bhatke Walon ka Baba' (Bharat Sewa Dal). Shri Tiwari worked tirelessly for 71 years, from the age of 18, when he first attended the Kumbh Mela and witnessed the anguish of lost persons, especially old people and children who got separated from their families. It is said that during his long mission, he succeeded in uniting over 14 lakh adults and 21,000 children with their families. He used to enrol more than 150 volunteers for the cause. He died at the age of 88 in 2016, and his son Umesh Tiwari now runs the camps under the banner of a charity called Bharat Seva Dal.

The second camp is run by Rita Bahuguna Joshi of the H. N. Bahuguna Smriti Samiti which was first established in 1954 by Kamala Bahuguna. It is a non-government organisation and works through approximately 40 volunteers, and is primarily for women and children who

get separated from their families at the mela. This NGO set up camps to host lost persons till they are reunited with their families.



Figure 9.1. Lost and Found Centre

The camps run by these two organisations maintained manual registers to keep a record of all lost and found persons. They made announcements on the public address system, and their volunteers often fanned out into the crowds searching, in their efforts to track down and reunite family members. In many cases where the lost persons could not be reunited with their family or friends but knew the address they had come from, the volunteers with the help of the police, make arrangements to send them home safely. These NGOs also supplemented the efforts of Lost and Found Center as they have battery of volunteers. In fact, many times it can be seen that visitors were more comfortable with their set up than the automated lost and found center. They were all aware of these NGOs as most of them would have in the past. Though these camps lead by NGOs provided much-needed help and relief, their approach had some limitations. As they had only one centre each, these were hard to reach in the mela and access. Additionally, the service quality was not standardised and therefore unpredictable, which could result in delayed resolution.

In the Kumbh 2013, they had introduced certain innovations. They set up a Centralized Control Room with a call center with 30 lines working for 24 hours. They also set up six computer centers in different sectors of the mela which was managed by an outsourced agency. It will receive complaints and pass it on to the lost and found organizers. An interesting innovation they introduced was marking the electricity poles uniquely which helped in limiting search areas. Still, about 173,733 persons were reported lost and all most all of them were reunited same day (Chaturvedi, p167). Chaturvedi mentions that 31,890 persons were reunited through IT initiatives. Of these some of were helped financially to return to home.

9.3. Lost and Found System in Kumbh 2019

The PMA decided to make it even more systematic in order to minimize the delays and stress, and opted to use ICT-enabled system to deal with the problem. The PMA set up the digitally run centres along with the Khoya Paya centres and Bhule Bhatke centres. It was a

classic case wherein the offline system worked with the digital system. They played a crucial role in spreading out through the mela and searching for the family.

This time the mela authorities targeted to manage the lost and found problem systematically from the time a person gets reported as lost and is reunited. They also decided to automate the process. The primary objective of the intervention was to digitally register all lost persons and track the process until they are formally reunited. Another intervention they undertook was to open centers at multiple locations in the mela area and also at the Railways stations. The PMA decided upon a user-friendly web-based application that would be deployed in the mela. This application would systematically register, record and disseminate information on lost and found persons, and streamline the process of tracking and reuniting family members. The system was designed to include two languages – Hindi and English.

9.3.1. Key features of the system

The system had several important features and it operated at much different level. 15 lost and found centres were set up in various sectors and the main railway station. All 15 centres were interconnected through the system. The centres put together had 35 computers and a team of 80 members. The workers had bikes and 4-wheelers to pick up lost persons from the spot. There was a panel of people on call who were proficient in different languages and could be contacted when necessary. LED TV display was set up at the lost and found centres. The operators had the facility to search for data on lost persons through attributes such as age, gender, name of village/district. The system had the ability to generate and share reports whenever required. A public lost and found website with reports was set up. The centres had provision of meals and other necessities to lost persons until reunited with their family. A mobile application was launched that allowed uploading of photos, documents, and integration with SMS etc. Counselling was provided to hapless victims who were stressed.

The activity was under the supervision of DM of PMA. The lost and found programme worked in coordination with Police, medical team and vendors who were managing the Centres, public address system, and the NGOs. EY team provided all professional support in planning, contracting, writing out the processes, etc.

9.3.2. Identified Advantages of a Digitally Managed System

There were many advantages of the digitally managed system. Several centres were set up at strategic locations for easy access. Service quality was monitored using software utilities. Escalation in case of non-resolution could be quick and automatic through alerts sent to the appropriate authorities. Information exchange were better integrated giving users the ability to act more quickly.

9.3.3. Standard Operating Procedures (SOPs)

One hallmark of the arrangement for Kumbh is making of specification of Standard Operating Procedures (SOPs) for almost all the activities. The system developed was intended for three scenarios: when a person is lost and asks for help; when family/friends are looking for a lost person; when the police or a volunteer finds a lost person in the mela. For all these scenarios, the methods outlined below were adopted:

- Capturing all relevant details of the person lost – it could be a family which has lost a member or an individual who has got separated. The sample data entry screens can be seen in Annexure 4.
- Lost persons (not carrying mobile phone) could call and connect with their family/friends who may be carrying mobile phones, through the centres
- Lost persons' details would be displayed at every lost and found centre, along with the name and location of the centre they are staying at, to help their family/friends locate them
- Public address announcements would be made promptly at all lost and found centres
- Social media (Facebook, Twitter) would be utilised to post information on lost persons
- Police intervention, if lost persons are not claimed by their family/ friends within 12 hours, would follow
- Volunteers from other voluntary organizations would also look around

Detailed SOPs were prepared to deal with the above scenarios to assist the police and PMA. Working definitions were adopted to ensure that everyone understood the issue in the same way. The flow chart of the different processes can be seen in Figure 9.2.1, 9.2.2, and 9.2.3.

‘Missing person’ is anyone who is lost, separated from family, has left home without notice, has been abducted, kidnapped, trafficked or abandoned. In such cases, it is usually a family member who files a missing complaint but complaints may also be filed by a guardian, friend, NGO, public servant, or anyone who has knowledge of the incident and is concerned about the welfare of the missing person. Complaints could be registered at any lost and found centre, or by calling designated helplines, or through the lost and found website by uploading details.

‘Traced person’ is someone traced by the police on the basis of a missing person complaint.

‘Found person’ is someone found by the police anywhere in the mela area, or on the streets, marketplace, railway station, bus stop, airport, hospital, or any public place, and is brought to a lost and found centre. The authorities have to get themselves satisfied that the persons claiming the lost persons, could be children, are the real guardians.

The steps outlined in the SOPs are depicted in the following flow charts (Fig 9.2.1 and 9.2.2).

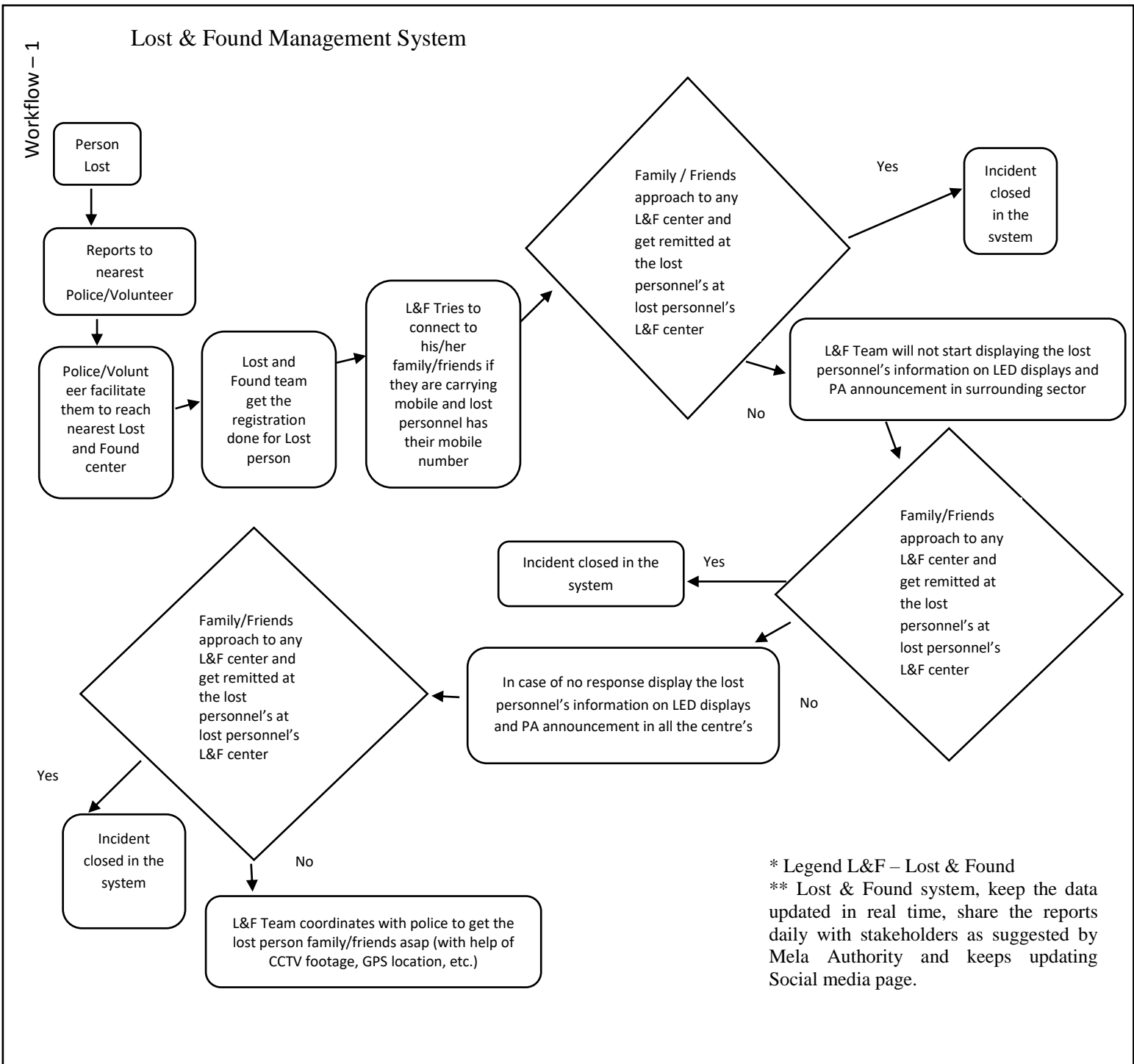


Figure 9.2.1. Lost and Found Steps Outlined

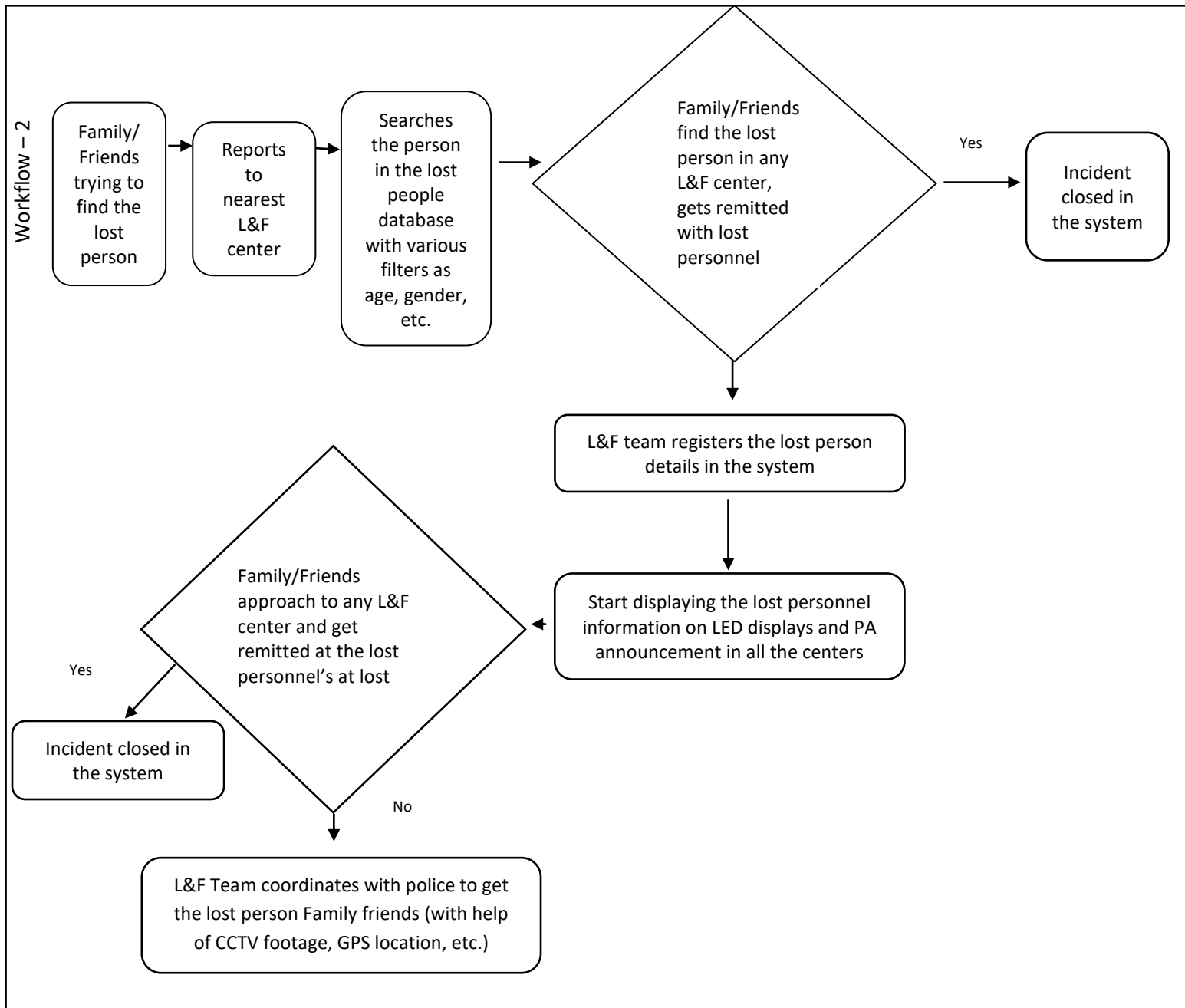
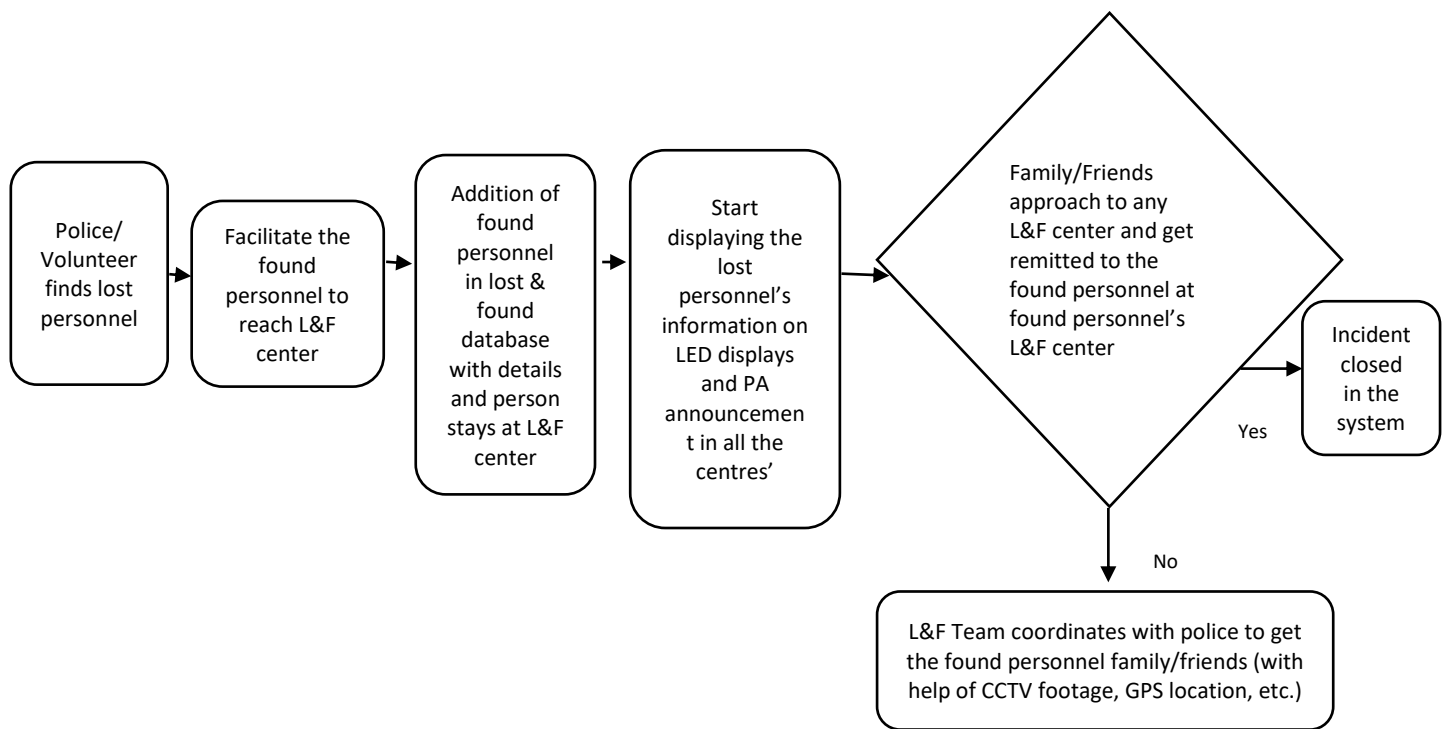


Figure 9.2.2. Lost and Found Steps Outlined



Source: PPT presentation made by ADG in October 2018

Figure 9.2.3. Lost and Found Steps Outlined

9.3.4. Responsibilities of Lost and Found Centres

Lost and found centres were expected to adhere to the responsibilities outlined here. The lost and found centre is expected to register the complaint within 5 minutes of hearing of a complaint from a lost and found person. The center should immediately display it on the LED screen and announce it on the PA system within 30 minutes. They have to collect a photograph of the missing person, make calls if phone numbers were available, fill relevant forms and upload information on the system. The information of the missing person also has to be displayed on LED screens of all the centres after a time period of 2 hours if s/he was not found after displaying the information in the reported centre. The announcements to be continued until the person is traced, or up to 24 hours, in all centres. If there was no response, a police officer had to be informed within 12 hours, and the case handed over to the agency designated by the SSP for further follow up. The main thrust here was to widely and visibly disseminate the information, and to coordinate with all agencies involved in tracing the missing person.

When a person was found by the lost and found centre, the person had to be examined for communicative skills. This was crucial when it was a child or old person, or there were language barriers, or there were medical/disability/psychological issues. If there were no communication barriers, details had to be collected and if there was no registered complaint pertaining to the case, the centre needed to make attempts to trace relatives. Again,

responsibilities included taking of photograph, filling of relevant forms, uploading information, and contacting relevant agencies as designated by the SSP. Once again, wide dissemination of information was stressed. If the person was found uncommunicative, then physical details were recorded, and the process for tracking of relatives was followed as described above. The timeline for this process was the same as the one described for missing persons. Scanning of areas where the person went missing, via CCTV data, was also taken up to assist in the process, when necessary.

Once a missing person was found, or the relatives traced, the missing person could be handed over only after following certain procedures. First and foremost was a proper verification to ensure that all claims were genuine. Once verified, the handover procedure followed is described below, depending on age and gender. Other steps included counselling to the families, and treatment in the case of illness or disease, before handing over the missing person.

For children and women, before 12 hours:

- Handover of child to their parents to be done in the presence of a police constable, a member of the Child Welfare Committee / Juvenile Justice Board (JJB)/ Women Welfare Board, or any agency designated by SSP, and one witness from the public
- Acknowledgement form to be filled in and signed by parents
- A photo of parents taking the child/woman to be captured

For men and senior citizens, before 12 hours:

- Handover of missing men and senior citizens could be done in the presence of any witness from public
- Acknowledgement form to be filled in and signed by relatives
- A photo of relatives taking the person to be captured

Overall, it can be observed that very detailed preparations were made for the smooth management the lost and found system. These procedures took time, but they were deemed essential. They were followed to ensure that the authorities did not inadvertently hand over vulnerable persons to the wrong hands or in the wrong manner.

Simultaneously, the Koya Paya centers and Bhule Bhatke centers also worked. In fact, when we visited their Centers we observed that because they have operated in the past, there is greater awareness about them. They might have also found it less formal. The lost and found centers worked closely with these centers and they spanned out to locate the families. So, the online and offline systems worked in close coordination which helped improve the effectiveness.

This time Public address system and LED screens were also put to good use. This time it was organized such that if a person is lost in one center, the PAS can address only that sector.

9.4. Services of System Integrator

A System Integrator (SI) was hired to carry out the design, development, implementation, operation and maintenance of the ICT-enabled lost and found system. The process of selection of the SI was carried out by the office of the Senior Superintendent of Police (SSP) by inviting bids through a Request for Proposals (RFP). Stringent eligibility and evaluation criteria were set for selection of the best bidder. The duration of the contract was for 3 months covering the period 1 January 2019 to 10 March 2019.

The scope of work of the SI was split into two streams:

1. Design, development, testing and rollout of the application
2. Deployment of the system, operation and maintenance

The SI's work was monitored by a steering committee set up by the office of the SSP. It was made up of key officials from the Prayagraj Mela Pradhikaran and the police department. The SI was required to create digital access credentials (login ID, password) for these officials so that they had complete access to the system and all MIS reports pertaining to lost and found. The SI was also expected to keep the steering committee fully informed of progress at all stages of the project implementation. The team to implement the lost and found project included a Project Manager, an Application Lead, team leaders, computer operators and support staff.

Consolidated Lost and Found Report		Registered				Traced				Missing			
SI. No.	Sector	Male	Female	Child	Total	Male	Female	Child	Total	Male	Female	Child	Total
1	User App	30	42	1	73	30	42	1	73	0	0	0	0
2	Sector 4 Model Center	2011	2883	248	5142	1999	2881	248	5128	12	2	0	14
3	Sector 17 Uttari	40	50	2	92	40	50	2	92	0	0	0	0
4	Allahabad Junction	38	137	2	177	38	137	2	177	0	0	0	0
5	Prayag Junction	30	42	0	72	30	42	0	72	0	0	0	0
6	Jhusi bus stop	109	161	2	272	109	161	2	272	0	0	0	0
7	Sector 3 Sangam Ghat	8212	12038	321	20571	8209	12037	321	20567	3	1	0	4
8	Public Center	56	149	2	207	55	149	2	206	1	0	0	1
9	Sector 18	1029	1781	143	2953	1023	1780	143	2946	6	1	0	7
10	Sector 19	98	126	16	240	97	126	16	239	1	0	0	1
11	Sector 3	817	625	47	1489	816	625	47	1488	1	0	0	1

12	Sector 4	976	1039	68	2083	974	1039	68	2081	2	0	0	2
13	Sector 5	383	440	50	873	383	440	49	872	0	0	1	1
14	Sector 6	540	461	75	1076	540	461	75	1076	0	0	0	0
15	Sector 14	518	461	40	1019	518	461	40	1019	0	0	0	0
16	Sector 17 Madhya	326	265	9	600	326	265	9	600	0	0	0	0
	Grand Total	15213	20700	1026	36939	151 87	20696	1025	3690 8	26	4	1	31

Table 9.1. Consolidated Lost and Found Numbers

The system being automated, the administrators can always get real time data. The system was continuously monitored. Data for the whole period is provided in Table 9.1. One important factor because of overall better management at the usual congestion points.

9.5. Observations

The lost and found system and arrangements came in for praise in this mela. There was all round appreciation not just from the families which suffered but also from the general public. The lost and found centres had visible presence made more prominent with a high-flying balloon. This visibility contributed to full utilisation of its services. Appreciation was recorded on social network sites as well. On the whole there was complete awareness of these centres and the affected parties had no problem in approaching them.

This Kumbh Mela saw fewer numbers of lost and found. It should also be mentioned that whoever got separated, got reunited speedily most of the time. This could be because of arrangements made at the sangam point, pedestrian routes, points of congestion like railway stations, etc. The mela area was well spread out and lit, and all these contributed to minimising the problem. There were constant announcements cautioning the people about the prospect of losing family members and this kept the pilgrims vigilant all the time. It was also observed that passers-by were always willing to help whoever looked lost or separated.

In general, it was observed that most of visiting families and groups had some members who had visited past melas and therefore had the experience to lead their members.

The arrangements were well thought out and systematic. The approach sought to make the pain of separation less. The centres were spread out and easy to access. On the opening day, i.e. Jan 15th, only the main centre in Sector 2 was operational as other centres were still not fully equipped. Other centres came later, and this could have been avoided.

It was generally observed that the other Khoya Paya and Bhule Bhatke centres were also well sought after. Because of their historic association many pilgrims were aware of them. They had a large number of volunteers and this also helped as they could physically spread out.

It was observed people were more comfortable with the informal systems of other centres than the systems of the digital centres. Lost and found centers could have also been made more informal and less official.

The handing over process was very cumbersome. Strict identification process was required ensure authenticity of claims, but the families were restless after finding their lost members. The staff in all the centres were very courteous and sensitive to the situation. The centres were overcrowded with passers-by who were trying to help, and this should have been avoided. This put pressure on the staff and families.

Annexures

Annexure 1: 'Missing Person's' Form

Report No. 01
विवरणिका सं.

Date :
दिनांक :



MISSING PERSON'S REPORT / FORM लापता / खोये हुये व्यक्ति की विवरणिका

Photo
छायाचित्र

A. PERSONAL DETAILS व्यक्तिगत विवरण :

01. Missing Person's Name : खोये हुये व्यक्तिका नाम :	First पहला	Middle मध्य	Last अंत	Mobile No. मोबाइल नं.
02. Gender : लिंग :	M / F पुरुष / स्त्री	03. Date of Birth : जन्म की तारीख :	04. Age : आयु :	
05. Father's Name : पिता का नाम :	First पहला	Middle मध्य	Last अंत	Mobile No. मोबाइल नं.
06. Mother's Name : माता का नाम :	First पहला	Middle मध्य	Last अंत	Mobile No. मोबाइल नं.
07. Spouse's Name : पति/पत्नी का नाम :	First पहला	Middle मध्य	Last अंत	Mobile No. मोबाइल नं.
08. Name of Local Gaurdian स्थानीय अभिभावक का नाम :	First पहला	Middle मध्य	Last अंत	Mobile No. मोबाइल नं.
09. Relationship with Local Gaurdian : स्थानीय अभिभावक के साथ संबंध :	Father पिता	Mother माता	Husband पति	
10. Nationality : राष्ट्रियता :		11. Religion : धर्म :		
12. Voter ID No. / Aadhar : मतदान कार्ड/आधार कार्ड सं. :		13. Mother Tongue : मातृ भाषा :		

B. CONTACT DETAILS संपर्क विवरण :

01. House No. : घर/मकान संख्या :	02. Road/Other : सड़क /अन्य :	
03. Gram Panchayat : ग्राम पंचायत :		
04. Post Office : डाक घर	05. PIN : पिन :	06. Town : शहर :
07. District : जिला :	08. State : राज्य :	
09. Mobile No: मोबाइल नं. :	10. Phone No. : फोन नं. :	
11. Email : ई-मेल :		

C. MISSING EVENT DETAILS खोये हुये प्रसंग/घटना का विवरण :

01. Missing Place / Last Seen : खोये हुये जगह/अंतिम जगह :		
02. Medical Condition : व्यक्ति की अवस्था शारीरिक /मानसिक :		
03. Identification Details : पहचान का विवरण :	Height ऊंचाई	Hair Colour/Style बालों का रंग/बंग/प्रकार
	Eye Colour : आँखों का रंग :	Scars/Marks/Tatoos : निशान/गोदना :
	Clothing : परिधान/पहनावा :	

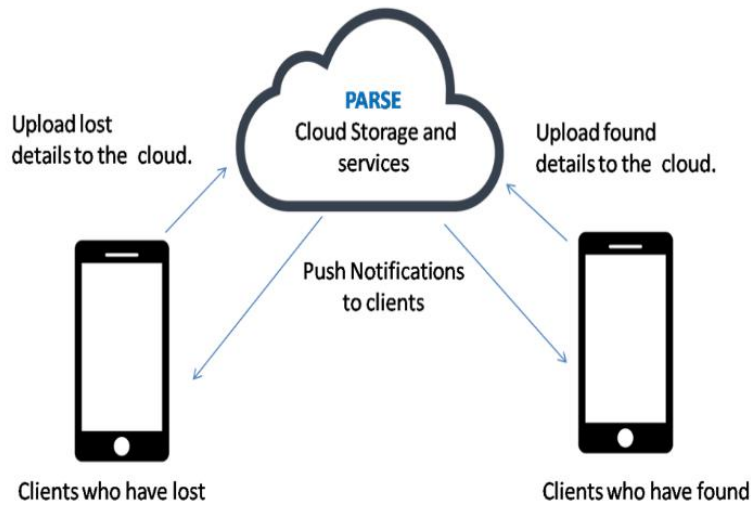
Signature
हस्ताक्षर (डेटा एंटी ऑपरेटर/अधिकारी)

Signature
हस्ताक्षर (खोये हुये पक्ष का)

Annexure 2:



Crowd-sourced Lost and Found Support App



Technology

Native Mobile Application
Android Application for Smartphone and tablets

Cross -Platform web Application

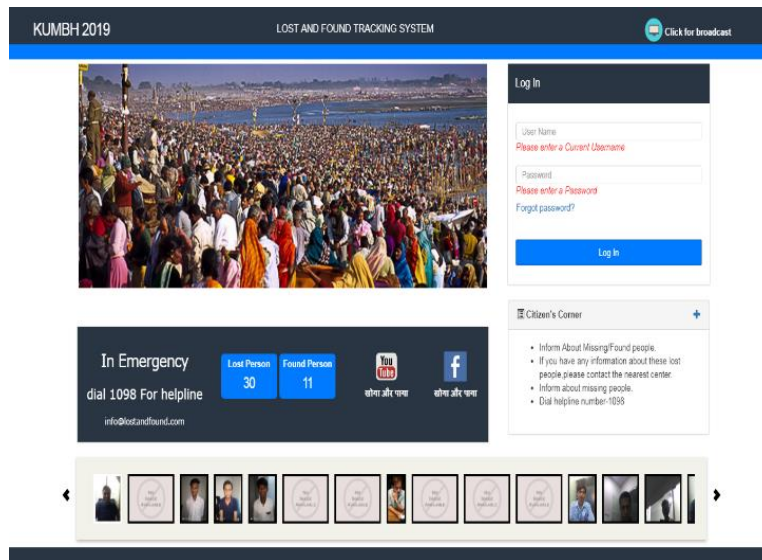
HTML5/CSS3/ Mobile Jquery/JS Application on Android,Windows



Annexure 3:



Demo – Login



Source: Kumbh mela website

Annexure 4:



Demo – Data Entry Screen

Lost and Found Dashboard Lost Information Acknowledgment Lost Search Found Search Calling Status Reports Social sharing TV Dashboard Select Language

Missing Person Information

Complaint Number: KUJ-161

Complainant: Select

Lost person information

Date: 28-10-2018

Date of Birth: *

Age: *

Disability: No

Lost at which place:

Communicable description: Select

L&F Center:

Gender: *

Height: *

Any Marking:

Last seen date:

Complexion: *

Attire: *

Incident Reporting Time:

Other information

Aadhar Number: Taluka: Supporting Document 1: Choose file | No file chosen

Pan Number: District: Supporting Document 2: Choose file | No file chosen

Address: *

State: *

Village:

Submit

TRACED
MATCH PROFILE
DETAILS

Powered by INTELLECT DIGITAL - Web Application Framework © 2017-2018



Source: Kumbh mela website



Chapter 10

Transport Infrastructure and Logistics

10.1. Introduction

The mammoth gathering at the Kumbh Mela is always on the move. Like the waters of the river Ganga, visitors arrive continuously and flow through the area in unbelievable numbers. For weeks, Prayagraj and its environs, and the mela area, see surge after surge of humanity, arriving, staying and departing in rapid cycles. It is critical that this continuous flow of visitors is managed extremely well to prevent any mishap. They come by multi-modes of walking, in scooters, own vehicles, tractors, trucks, buses, trains and this time by airlines. Of critical importance in managing these crowds and ensuring smooth movement is robust transport infrastructure and logistics. It requires seamless coordination between multiple stakeholders. The aim is to both provide the visitors a smooth experience and to simultaneously ensure that life continues as normal for residents of Prayagraj and surrounding regions.

Road transport and railways played a major role in establishing and maintaining connectivity between the Kumbh Mela and the outside world.

10.1.1. Quick Highlights of Kumbh 2019 Transport Arrangements

- 5,500 buses arranged for Kumbh pilgrims
- 500 Kumbh Special shuttles for transporting pilgrims from bus stations and parking lots to mela area
- 97 Parking lots with capacity for parking 563,000 vehicles
- Upgradations of 10 mela railway stations in Prayagraj
- 800 mela special trains
- 500 e-rikshaws

These arrangements greatly surpassed those of previous Kumbhs and were intended to avoid any potential mishaps. Learnings from previous melas were taken into account in making a detailed plan for necessary traffic infrastructure and logistics.

10.1.2. Bus and Railways Logistics – Past Kumbhs

	Kumbh 2001	Kumbh 2007	Kumbh 2013
No. of temporary bus stations	4	4	5
No. of buses in operation (reg)	776	798	892
No. of buses in operation (spl)	2824	2202	3608
Passengers handled (lakhs)	36.64	46.78	90.00
No. of railway stations in operation	7	N/A	7
No. of trains	600	N/A	750
Passengers handled (lakhs)	36.64	46.78	90

(Ref: D. Chaturvedi, 'Holy Dip')

Table 10.1. Bus and Railway Logistics for previous Kumbhs

The Additional Director General of Police, Allahabad Zone, chaired the first meeting held on 8th November 2017 to discuss the traffic plan for Kumbh 2019. Following this, a 25-member Transport Advisory Committee was constituted on 23rd January 2018. This was headed by Additional Director General of Police (ADGP), Allahabad Zone. The committee held several meetings and put together a transport plan and presented the same to the Chief Minister, Chief Home Secretary and the Director General of Police. Efforts were also made to seek inputs from other stakeholders and from those with experience of previous melas.

Key elements of the plan included:

- Movement planning for 7 major approach routes to the Kumbh area
- Emergency movement planning
- Pedestrian movement planning
- Movement of bus shuttles and e-rickshaws

Since Prayagraj is well connected to other major cities through the state and national highways network, a concentric traffic plan was charted out identifying the main approach routes to the city.

State-run buses from major destinations across the country were made available that could be booked through the UPSRTC website and through many private aggregators such as OSTs, makemytrip.com, redbus.in and yatra.com. Apart from train bookings on the IRCTC website from different destinations, bookings for special trains could be made from the RailKumbh app.

10.2. Road Transport Infrastructure and Logistics

10.2.1. Approach Routes to Prayagraj

Seven main approach routes were identified for development and management to meet the needs of Kumbh 2019. These were:

1. Jaunpur (through North Jhusi)
2. Varanasi-Badhohi (through South Jhusi)
3. Mirzapur-Vidhyanchal (through Arail)
4. Chitrakoot-Bhand-Rewa (through Arail)
5. Kanpur (through Fatehpur)
6. Lucknow-Raebaraeli (through Yamuna Bridge)
7. Ayodhya-Pratapgarh (through Yamuna Bridge)

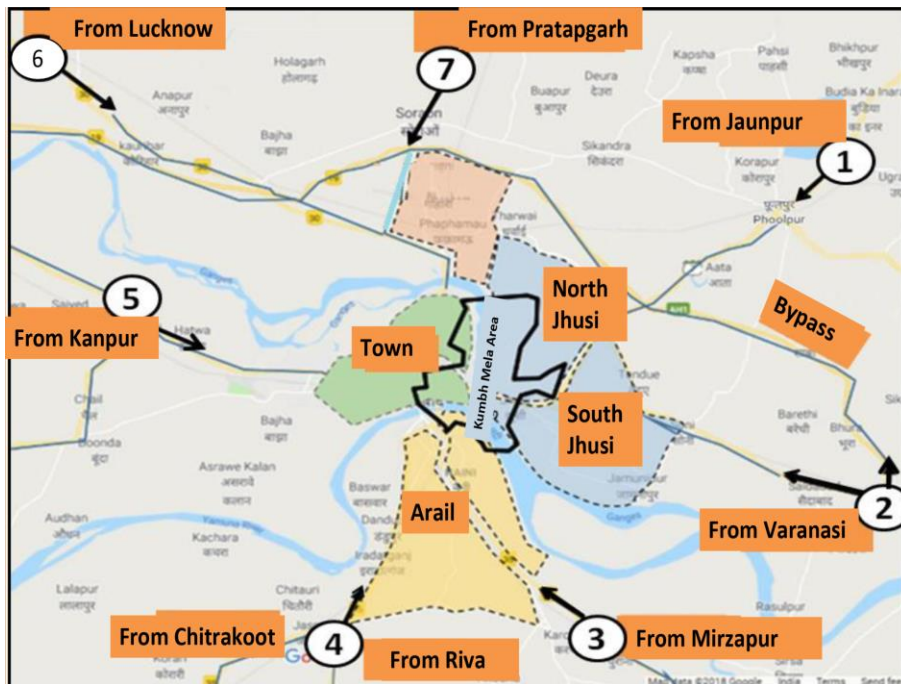


Figure 10.1. Seven Approach Routes to Kumbh

These routes form the arteries that carry the bulk of the Kumbh pilgrims from North and North-Central India to Prayagraj. They were therefore renovated and readied to accommodate the massive traffic inflow expected for Kumbh 2019. The National Highways Authority of India (NHAI) undertook the rebuilding and upgrading of the major highways from Pratapgarh, Raibaraeli and Varanasi.

Separate routes were chalked out for heavy and light, and private and public, vehicles. Enroute traffic was diverted from the city and were routed through bye pass roads.

10.2.2. Road widening works

An overwhelming number of pilgrims who come from neighbouring districts and state take the pedestrian route to the mela, after arriving in the city by bus or rail. As a result, all routes leading to bus stations and railway stations are choked with crowds. During the previous mela, some stretches like Lauder Road, Heavet Road, Prayag Station Road, Rambagh Station Road, Daranganj Road and Jhusi Railway Station Road, were found inadequate to handle the traffic, leading to heavy congestion on routes like Nawab Yusuf Road. These routes were widened and upgraded.

Considering this, the 2019 Kumbh transport plan undertook many road works to increase their carrying capacity of both vehicular traffic and pedestrians. An upgradation plan was made for widening of roads in a radius of 15-20 km. This plan catered to railway stations and bus stations within the city and outside the city as well. Many alternative routes were identified for traffic diversion planning. 34 roads were widened, and 64 traffic junctions were refurbished. Additionally, some new routes were built, and a few flyovers and over-bridges

constructed. Overall, 140 roads were renovated. Apart from the highways renovated by the NHAI, the State Public Works Department (PWD) developed 116 roads covering a total of 247 km. Some of the roads were widened to 30 metres keeping future development in mind as well (ref: Police Authority Report (EY), CTB Making of Kumbh).

Some of the key roads that were upgraded were:

- Stanley Road
- Shastri Bridge route
- Jhalya Crossing to Chawfatka route
- Vivekanand Road
- Rambagh Road
- Barhana Road
- Old GT Road
- Begum Bazar Road
- Lukarganj to Allahabad Junction

10.2.3. Temporary Bus Stations and Holding Areas

In order to reduce crowding at regular bus stations and to simultaneously increase accessibility to the mela area, construction of many temporary bus stations and holding areas were undertaken by UPSRTC. These additional facilities helped to distribute the crowds, ensured smooth traffic movement and reduced blockages. Some of the constructions undertaken were:

- Passenger hall and rain basera at Zero Road
- Passenger hall and rain basera at Civil Lines bus station
- Camp office, rain basera and foreman office at Jhusi
- Bus Station Jari Bazaar
- Strengthening of bus station, construction of guest houses and passenger shelters at Vindhyanchal bus station
- Temporary mela bus station at Jhusi.
- Temporary mela bus station at K.P. College
- Temporary mela bus station at Leprosy Mission, Arail
- Temporary mela bus station at Omaxe city - I.T.I. Naini
- Temporary bus station at Vill Rudapur Phaphamau
- Temporary bus station at Sant Nirankari Satsang Parisar bus station
- Temporary bus station Vill Durjanpur, Sahson Road
- Bela Kachara Bus Station
- Nehru Park Bus Station
- Dev Prayag Bus Station

The Power Grid Corporation of India Ltd and the Prayagraj Nagar Nigam deployed some of their CSR funds to build toilets and urinals at Zero Road and Civil Lines bus stations. In order to monitor the smooth movement of buses, seven check posts were constructed across different approach routes connecting to Prayagraj. All bus stations and check posts were equipped with supervising staff and integrated with the regional and central control rooms where the crowds at each bus station were monitored and instructions given when required.

Temporary 20 KL diesel stations were set up at the bus stations at Jhusi for fuel refilling during the mela period. The Zonal Officer's permission was sought to allow Indian Oil diesel vehicles to be stationed at the diesel depot office during the entire mela period, to facilitate fuel refill for transport services. Mobile stores carrying spares, brake oil, Mobil oil etc. were made available on every route in case of technical snags.

At the bus stations, basic amenities like waterproof shamiyanas and resting shelters with mattresses were set up. There were separate toilets for men and women with regular maintenance. Other facilities included dustbins, PayJal, signages, Wi-Fi, generators, police booths, cloakrooms, CCTVs, helpdesk with PA system for dissemination of logistics information, health camps and ambulances. These facilities were provided for pilgrims both at the temporary and regular bus stations. NCC cadets of Bharath Scouts Rovers worked as guides at these bus stations to assist pilgrims. LEDs were set up to display information on the bus arrival schedules.

In addition to the temporary bus stations, 54 route-wise holding areas were set up, as described below:

- Devotees coming from Fathehpur/Koshambi were asked to halt at the parking/holding area at Kokhraj Bypass in Koshambi district.
- Devotees coming from Lucknow/Raebareilly were asked to halt at the parking/holding area at Nawabganj.
- Devotees coming from Pratapgarh were asked to halt at the parking/holding area at Soranv Bypass.
- Devotees coming from Jaunpur/Phulpur were asked to halt at the parking/holding area at Sahson Bypass.
- Devotees coming from Varanasi/Bhadoi were asked to halt at the parking/holding area at Handia Bypass.
- Devotees coming from Mirzapur were asked to halt at the parking/holding area near Meja.
- Devotees coming from Rewa-/Banda were asked to halt at the parking/holding area near Gahonia.

10.2.4. Mobile Garages and Bus Breakdown Evacuation Planning

Every major route had a 'bus breakdown vehicle' that worked like a mobile helpdesk or a mobile garage to attend to rescue or repair in the event of any bus breakdown. 8 such

breakdown vehicles were deployed, and the mobile phone numbers of these breakdown vehicle drivers were made available at bus stations and parking lots.

Each route was provided with designated diesel depots for fuel refills.

Kanpur Route	Fatehpur depot
Bairayich-Gonda-Faizabad Route	Sultanpur and Pratapgarh Depot
Lucknow Route	Raebareeli Depot
Vidhyanagar-Sonabhadr Route	Mirzapur Depot
Gorakhpur-Azamgarh Route	Azamgarh-Dohrighat-Badshahpur-Jaunpur Depot

10.2.5. Parking Lots

Dedicated parking lots were created for the vehicles arriving from the 7 main routes mentioned above. Parking spaces along the outer periphery of the city were identified and separate parking lots were arranged for light and heavy vehicles. Separate parking spaces were also earmarked for two-wheelers and private cars, public buses and private buses, coming from each route. Vehicles on each of these routes were guided accordingly and required to park in the assigned area and collect parking tickets. Several parking lots were built close to the Sangam.

In all, 97 parking lots were established of which 18 were developed in the satellite towns. The parking lots covered an area of 1,253 hectares and had the capacity to hold 5,63,000 vehicles. The intention was to ensure that there was no congestion. Additionally, 172 watch towers, 144 diversion points, 118 cranes, 2,500 signages and 54 holding areas were organized to ensure smooth and safe traffic movement.

Public transport buses reaching Prayagraj were stopped at 6 satellite bus stands and passengers were offered free shuttle services from here to reach the mela area and back to the bus stand. Parking lots were set up at Phaphamau and at the Arail area near the new Yamuna Bridge, extending the approach roads up to the STP in Santipuram. Four-lane approach roads were constructed parallel to Basna drain in Phaphamau to connect the parking areas to the main road. A new route was constructed to reach the parking lot at Leprosi Churaha.

Pedestrian routes were earmarked; and bus shuttle and auto services were arranged from the parking lots to the destination. A fleet of 500 special buses ferried the passengers every 15 minutes. The Kumbh Mela Control Centre monitored and managed the crowds by coordinating with various police and security personnel who were provided with wireless communication gadgets.

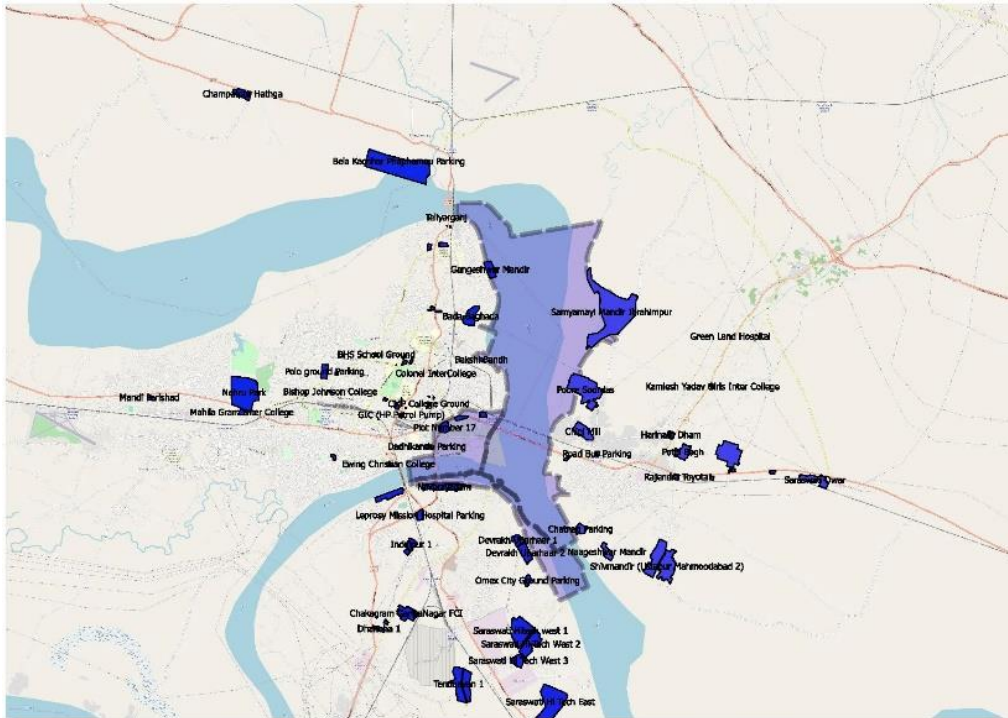


Figure 10.2. Parking Lots

The number of parking lots and holding areas set up on each route was decided based on factors such as width of the roads, availability of space for parking, and traffic inflow estimates from each of the routes. On routes where large parking spaces were not available, multiple parking lots of smaller dimensions were created. Also routes with lesser parking area were provisioned with greater number of holding areas.

Route	No. of Parking lots	Hectares	Holding Capacity (No of vehicles)	No. of Holding Areas
Jaunpur	6	278.2	110119	3
Varanasi	10	211.1	81754	13
Mirzapur	7	206	91830	7
Rewa Chitrakoot	16	145	56448	6
Kanpur Marg	22	121.4	88638	20
Lucknow Marg	13	234	93498	5
Pratapgarh-Ayodhya	5	29.1	17640	-
Mahatma Gandhi Marg	13	19.3	19780	
Old GT Marg	5	8.8	3618	
Total	97	1253	563325	54

(Ref: Police Traffic Plan)

Table 10.2. No. of parking lots for each route

Contingency routes were identified, and emergency/alternative plans were put in place to divert pedestrian and vehicular traffic in the event of heavy congestion or failure of any traffic plan. Old traffic plans were modified in line with infrastructural additions. Sector Officers were assigned the responsibility for the implementation of the contingency plans in

case of an emergency. They were required to brief and train the officers deputed under them, and coordinate with the control rooms.

Pilgrims arriving from specific parking lots were guided to specific bathing ghats through appropriate routes within the mela area, as per the traffic movement plan.

Year	No. of Parking Lots	Vehicle Holding Capacity	Parking Area
2001 Kumbh	35	NA	NA
2007 Ardh Kumbh	44	NA	NA
2013 Kumbh	99	2,30982	577 Hectares

(Ref: D. Chaturvedi, 'Holy Dip', Police Authority Report)

Table 10.3. Past Kumbh Parking Lots Statistics

Parking facilities management was outsourced to a contractor. This was done through a bidding process announced in August 2018. The contract was for 105 days and the scope of work covered 24/7 management of parking lots allotted to the bidder through an adequate deployment of manpower and equipment.

Tenders were put out with details of the name of the parking lot area, the holding area capacity of the parking spaces and geographic location details. Interested parties had to bid for a minimum of one package above the reserve price. Each package had a group of parking spaces allotted with their respective reserve prices and details of vending shops provided for the designated parking areas. To be selected, the bidder had to meet certain eligibility criteria. The bidder had to be registered under the Companies Act or Partnership Firm registered under the Partnership Act or registered under the Indian Limited Liability Partnership Act or a Proprietorship, with an average annual income of INR 50 lakhs or above in the last 3 financial years. I specified that the bidder should have a successful experience record in handling similar parking facility management services in India to the government or private organisations for a land area accommodating 1,000 car spaces, in the last 3 financial years and be willing to set up a local support office in 3 weeks in case of being awarded the contract. The highest eligible bidder with highest annual turnover was preferred. The bidders were encouraged to visit the site and understand the local conditions before sending the bid proposals. They were required to submit authentic information and abide by the annexure documents.

Once selected, the contractor was required to construct entry and exit gates for all the parking lots, install boom barriers, install billing software, provide handheld devices, construct and manage temporary vending zones and cloak rooms. The service conditions and levels were specified very meticulously by the Consultant.

Employees and attendants at the parking lots were required to wear their ID cards and make themselves identifiable with uniforms and be approachable. They were required to work in shifts with a single shift no longer than 12 hours at a stretch. The contractor was required to

manage traffic circulation within the parking lot, avoid chaotic situations such as grid locks and conflicting traffic movements, and ensure proper arrangement of vehicles within the parking lots. They were also required to manage a ticketing system as per the tariff determined by the authorities for all parking areas allotted. Parking tickets were to be issued using digital handheld ticketing machines, and the contractor had to keep track of the number of vehicles parked, their registration numbers and conduct management, collection, banking and full accounting details of ticketing revenue and provide a detailed report to the authorities. The contractor was responsible for the security of the parked vehicles, assets in the cloakroom and vending shops. They were also responsible for the general administration, management of control rooms and cashier counters by deploying adequately trained staff.

Parking facility tariffs were fixed nominally as follows:

<u>Tariff/Charges</u>	<u>24 hours</u>	<u>48 hours</u>	<u>72 hours</u>
Cycle	₹5.00	₹10.00	₹15.00
Two-Wheeler	₹10.00	₹20.00	₹30.00
3-4 Wheelers	₹50.00	₹100.00	₹150.00
Tractor Trolley	₹50.00	₹100.00	₹150.00
All Buses	₹200.00	₹400.00	₹600.00
Cloak room tariffs (each item)			
Small bags	₹20.00	₹40.00	₹60.00
Big bags	₹40.00	₹80.00	₹120.00

Vending shops were allowed at the parking lots and the contractor was required to arrange for basic infrastructure like power supply and water to these shops. Waterproof material was used to build the vending shops and they were to be no bigger than 100 sq. ft. Strict guidelines were issued on the items allowed to be sold in these vending shops – they were of basic pilgrim utility and relevant to the pilgrimage, honouring the decorum of the religious event. Only commercial cylinders were allowed in these vending shops and shops were to be set up away from the entry and exit points of the parking area so that they did not obstruct smooth traffic flow.

Cloak rooms were to be positioned as per the layout guidelines issued by the authorities (waterproof material, not exceeding 600 sq. ft). One cloak room was provisioned for every 5,000 car spaces.

No sub-contracting of services for parking management was allowed and all staff/attendants hired by the contractor had to have verified police background checks. All staff were required to be trained for a period of 7 working days after commencement of the mela before being assigned any position. They received training on emergencies and evacuation. They were required to familiarise themselves with the entire parking layout, ticketing work and operating the handheld devices, before actually starting work. The contractor was responsible for the safety, security and attendance of his staff and had to generate a computerised database of the number of tickets sold, stating vehicular turnover. These reports along with

attendance reports had to be submitted to the authorities for audit and inspection. The authorities provided the bidder with basics like barricading of parking area, land-levelling aid, Public Address System and police deployment.

10.2.6. Traffic Movement Plan

Separate traffic plans were made for regular and peak days. Different zones like Arail, Jhusi and Parade Ground had different traffic plans depending upon traffic inflow. Separate arrival and departure routes were identified for people arriving by bus, train and private vehicles so that there was no confusion in getting back to their mode of transport.

Pilgrims were given special attention and ferries to Sangam were arranged as per their pace. Arriving passengers were ferried to the nearest bathing ghat so that they did not have to walk much. Pedestrians were given preference and it was ensured that they were given the shortest route.

The emergency traffic management scheme of Kumbh was under the supervision of the Deputy Inspector General of Police or Senior Superintendent of Police. Traffic Parking of the Kumbh Mela area was under the supervision of the Additional Superintendent of Police (Traffic) and Deputy Superintendent (Traffic). The commandant of traffic parking in Prayagraj District was under the zonal charge of Additional Superintendent of Police, and at sector level, under the charge of the Police Deputy Superintendent.

10.2.7. Peak day Strategies

In order to manage the crowds on peak days, certain strategies were defined, and instructions given to flush out vehicles 2 days in advance, clear all vending zones and holding areas, and make the city a no-vehicle zone for 2 days. Farther parking lots were activated, shuttle bus depots moved away from the mela area, and emergency services were on high alert. We produce below tables (10.4 a and 10.4 b) on the demand estimation and movement plan for peak and non-peak days here as these can give templates for the planners of future melas.

Particular	Number
Estimated demand per day (Peak)	20 Lakh
People travelling by road (Peak) <i>(Assuming 90% of total demand)</i>	18 Lakh
People arriving by bus <i>(Assuming 20% of population)</i>	3.6 Lakh
People arriving by private vehicles <i>(Assuming 70% of population)</i>	12.6 Lakh
People arriving by other means <i>(Assuming 10% of population at one time)</i>	1.8 Lakh
No. of Buses for parking <i>(Assuming 60 people per bus)</i>	6,000
No. of private vehicles for parking <i>(Assuming 6 people per vehicles)</i>	2.30 Lakh
Total PCU for Non – Peak Days	2.36 Lakh

Table 10.4a. Movement Statistics for Non-Peak Days

Particular	Number
Estimated demand per day (Peak)	300 Lakh
People travelling by road (Peak) (<i>Assuming 90% of total demand</i>)	270 Lakh
Population at one time (<i>Assuming 3 shifts during the day in which people will arrive in the city</i>)	90 Lakh
People arriving by bus (<i>Arriving 20% of population at one time</i>)	18 Lakh
People arriving by private vehicles (<i>Assuming 70% of population at one time</i>)	63 Lakh
People arriving by other means (<i>Assuming 10% of population at one time</i>)	9 Lakh
No. of buses for parking (<i>Assuming 60 people per bus</i>)	30,000
No. of private vehicles for parking (<i>Assuming 6 people per vehicle</i>)	10.5 Lakh
Total PCU for Peak Day	10.80 Lakh

Table 10.4b. Movement Plan – Statistics for Peak Days

Emergency plans were put in place for specific situations. In case of excessive traffic and congestion despite implementing traffic management schemes, planning orders were explicit that all vehicles carrying devotees were to halt at the parking or holding areas outside the district boundaries. Public announcements were made through loudspeakers and tokens for parked vehicles were arranged by PAC platoons. Large open spaces or stadium grounds were identified that could hold pedestrian traffic in case of any unexpected eventualities.

Estimated Footfall on Peak Days and Movement Planning:

Special Days	Estimated No. of Pilgrims (In lakhs)
Makar Sankranti 15 th Jan 2019	120
Paush Purnima 21 st Jan 2019	55
Mauni Amavasya 4 th Feb 2019	300
Vasant Panchami 10 th Feb 2019	200
Magh Purnima 19 th Feb 2019	160
Maha Shivrathri 4 th Mar 2019	60

Table 10.5. Estimated Footfall on snan says

The estimation of footfall data is repeated here to indicate the basis on which they planned buses services for peak days. To cater to these estimated numbers on peak days, the 2019 Kumbh Mela authorities arranged for a fleet of 5,500 buses plying to Prayagraj. Other states also pitched in to add to the fleet. On other non-peak days with a lower estimated number of pilgrims, the fleet size was set at 2,500 buses. Hindu Hostel, Bharath Scout Guide College, Bank Road, Leprosy Bus station, Andava Bus Station were some of the major pick up points. 165 routes and 19 bus stations were designated for these traffic movements.

10.2.8. 'Kumbh Special' Bus Shuttles

The overwhelming numbers of private and public vehicles entering the city for the Kumbh would have literally choked the city. Therefore, it was decided that a mass shuttle service would be provided to ferry the passengers to the mela area. All external pilgrimage vehicles entering the city were directed to the designated parking areas.

The state transport department arranged shuttle buses called 'Kumbh Special' to transport the pilgrims from the arrival point in the city to the mela area. A fleet of 500 Kumbh Specials ferried the pilgrims on peak days (including one day prior and one day after the special bathing days) from the designated pickup points like bus stations and parking lots up to the mela area and back.

These shuttle buses were organised by the State Transport Department and put in place in December 2018 and flagged off by the Chief Minister on 5th January 2019. These buses were specially designed for the kumbh mela artistically though these were part of the overall plan for the state for future use. .

The bus fares were very nominally fixed at five, ten, fifteen and a max of twenty-five rupees on normal days and was made available as a free service on important bathing days. The free shuttle service during bathing days ensured smooth movement of the massive numbers of pilgrims. A total of 10 routes were fixed for the shuttles covering distances ranging from a minimum of 17 km to a maximum of 27 km across the city. On special days, these buses made a total of 13,966 trips.

A world record was set with this arrangement of 500 shuttle buses in the Kumbh Mela. On 28th Feb, these buses were paraded for the people and media to catch a glimpse. On normal days a total of 201 buses plied across the city where 116 were city buses and 85 were shuttles.

City and Shuttle Buses Arrangement:

Route	Number of Buses			
	On Important Dates		On Regular Dates	
	Rural Bus	Shuttle Bus	Rural Bus	Shuttle Bus
Jaunpur Marg	2555	20	1095	25
Varanasi Marg	330	40	160	45
Mirzapur Marg	320	18	135	45
Rewa-Chitrakoot Marg	357	104	180	30
Kanpur Marg	994	120	415	21
Lucknow Marg	190	104	410	20
Ayodhya-Pratapgarh Marg	754	94	105	14
Total	5500	500	2500	200

Table 10.6. City and Shuttle Bus Arrangements

On normal days the shuttle buses operated for 17 hours each day and only around half the fleet was deployed but on peak days the shuttle services were operational 24/7. On special days, the shuttle buses were made available on an average frequency of every 4 minutes and

on normal days shuttle services were available every 15 minutes. The detailed working of the plan for shuttle bus operations is reproduced in Table 10.7 to indicate the exercise that went behind it. Table 10.9 gives the routes and the numbers of passengers travelled.

Plan for Shuttle Bus Operations on Peak Days (each day within 24 operational hours)												
SI · No	Route	Start Point	End Point	Distance (Km)	Average Speed (km/hr)	Time Elapsed (minutes)	Trips by each bus	Frequency(in minutes)	Total Number of Trips	Number of Buses	Frequency in Distance (meter)	Total Distance per day (km)
A	B	C	D	E	F	G	H	I	J	K	L	M
						(E/F) X60	1440 min/ G		1440 min/l	J/H	E/K	ExHx K
1	Kanpur Road to Mela Area	Puramufhti	Hindu Hostel	20	10	240	6	5	300	50	400	6000
		Hindu Hostel	Puramufhti									
2	Kanpur Road to Mela Area	Nehrupark	Hindu Hostel	7	10	84	17	1	1190	70	100	8330
		Hindu Hostel	Nehrupark									
3	Lucknow Road to Mela Area	Navabganj Highway	Bharat scout college	22	10	264	5	3	420	84	262	9240
		Bharat scout college	Navabganj Highway									
4	Pratapgarh Road to Mela Area	Shivgarh Highway	Bharat scout college	22	10	264	5	4	370	74	297	8140
		Bharat scout college	Shivgarh Highway									
5	Lucknow/Pratapg arh Road to Mela Area	Bela kachhar	Bharat scout college	6	10	72	20	2	800	40	150	4800
		Bharat scout college	Bela kachhar									
6	Jaunpur Road to Mela Area	Phoolpur	Andawa	21	10	252	6	12	120	20	1050	2520
		Andawa	Phoolpur									
7	Varanasi Road to Mela Area	Habusa	Andawa	7	10	84	17	2	680	40	175	4760
		Andawa	Habusa									
8	Mirzapur Road to Mela Area	Pachdevra	Leprosy	18	10	216	7	11	126	18	1000	2268
		Leprosy	Pachdevra									
9	Rewa & Chitrakoot Road to Mela Area	Gauhania	Leprosy	18	10	216	7	2	728	104	173	13104
		Leprosy	Gauhania									
									4734	500		59,162

Table 10.7. Plan for Shuttle Bus Operations on Peak Days, Transport Dept

Plan for Shuttle Bus Operations on Normal Days (each day within 17 operational hours)												
SI · No.	Route	Start Point	End Point	Distance (Km)	Average Speed (km/hr)	Time Elapsed (minutes)	Trips by each bus	Frequency(i n minutes)	Total Number of Trips	Number of Buses	Frequ ncy in Distanc e (meter)	Total Dista nce per day (km)
A	B	C	D	E	F	G	H	I	J	K	L	M
						(E/F) X60	1020 min/G		1020 min/I	J/H		ExHx K
1	Kanpur to Lucknow/Pratapgarh Road	Nehrupark	Devprayag	17	10	204	5	15	68	14	1.21	1190
	Lucknow/Pratapgarh to Kanpur Road	Devprayag	Nehrupark									
2	Kanpur Road to Jaunpur Road	Nehrupark	Durjanpur	17	10	204	5	10	102	20	0.85	1700
	Jaunpur Road to Varanasi Road	Durjanpur	Neharupark									
3	Kanpur Road to Varanasi Road	Nehrupark	Santnlranka ri	20	10	240	4	10	102	24	0.83	2040
	Varanasi Road to Kanpur Road	Santnlrankari	Nehrupark									
4	Kanpur Road to Mirzapur Road	Nehrupark	ITI	20	10	240	4	10	102	24	0.83	2040
	Mirzapur Road to Kanpur Road	ITI	Nehrupark									
5	Kanpur Road to Reva/Chitrakoot Road	Nehrupark	Leprosy	25	10	300	3	10	102	30	0.83	2500
	Reva/Chitrakoot Road to Kanpur Road	Leprosy	Nehrupark									
6	Lucknow/Pratapgarh to Jaunpur Road	Devprayag	Durjanpur	22	10	264	4	15	68	18	1.22	1530
	Jaunpur to Lucknow/Pratapgarh Road	Durjanpur	Devprayag									
7	Lucknow/Pratapgarh to Varanasi Road	Devprayag	Santnlranka ri	24	10	288	4	15	68	19	1.26	1615
	Varanasi to Lucknow/Pratapgarh Road	Santnlrankari	Devprayag									
8	Lucknow/Pratapgarh to Mirzapur Road	Devprayag	ITI	27	10	324	3	10	102	32	0.84	2720
	Mirzapur to Lucknow/Pratapgarh Road	ITI	Devprayag									
9	Jaunpur to Mirzapur Road	Durjanpur	ITI	25	10	300	3	15	68	20	1.25	1700
	Mirzapur Road to Jaunpur Road	ITI	Durjanpur									
10	Varanasi Road to Mirzapur Road	Santnlrankari	ITI	20	10	240	4	15	68	16	1.25	1360
	Mirzapur Road to Varanasi Road	ITI	Santnlranka ri									
									850	217		18,44 5

Table 10.8. Plan for Shuttle Bus Operations on Normal Days

Route No.	Route Name	No. of Buses	Trips	Kms Operated	Passengers carried
1	Puramufti To Hindu Hostel	50	4811	74818	338617
2	Neharupark To Hindu Hostel	70	17298	121686	1081599
3	Navabganj Highway To Bharat scout college	84	8203	138286	551549
4	Shivgarh Highway To Bharat scout college	74	5334	98013	392800
5	Bela Kachhar To Bharat scout college	40	3967	43825	291341
6	Phoolpur To Andawa Chauraha	20	3654	34777	207875
7	Habusha More to Andawa Chauraha	40	6625	43399	401049
8	Pachdevra To Leprosi	18	5030	52116	296153
9	Gohaniya To Leprosi	104	11030	211897	741869
	Total	500	65952	818817	4302852

Table 10.9. Routes with the number of passengers carried

The UPSRTC report reveals that during the 9 peak days alone, the shuttle buses made a whopping 65,952 trips covering 8,18,817 km carrying 43,02,852 lakh pilgrims. This feat was achieved with a fleet of 500 buses. Painted in a conspicuous holy colour of saffron, easily identifiable to the pilgrims, the Kumbh Special shuttles were the star attraction of Kumbh 2019 that helped streamline the traffic movement. They provided last mile connectivity to pilgrims and proved to be a big hit.

10.2.9. Guinness World Record: The Largest Parade of Buses, 28th February 2019

Uttar Pradesh State Road Transport Corporation (UPSRTC) and Prayagraj Mela Authority (PMA) on 28th February 2019 got the award for ‘largest of parade of fleet of buses with 510 buses’ at a stretch. It broke the Abu Dhabi’s record of parading 390 busses on 2nd December 2010. The buses were paraded on a stretch of 3.2 kilometres between Sashon Nawabganj toll plaza in the Prayagraj City of Uttar Pradesh. The achievement was real feat considering the strain of an ongoing Mela was commendable. It was done on a non-bathing off peak day and was made possible through Diversion schemes, Pedestrian Movement plan and Traffic Movement plan. It was an encouragement for the administrators who deployed more than 1000 e-rickshaws and 500 shuttle buses to facilitate massive movement of people. This Note is based on the Commissioner’ Report of 2019.

On the appointed day, a stretch of 21.9 km on one side of the Allahabad Bypass Expressway (NH 19), i.e. two lanes and the verge were used as venue for the attempt. The venue was divided into 3 zones, Zone A (8.7 km) for Parking the buses before the activity area, Zone B (3.2 km) the area used for the attempt and Zone C (10.0 km) a buffer area.

Stewards were deployed to validate the count at the start and end-point, and a pair of stewards were placed every 50 m along the attempt area to verify that no bus stopped during the attempt. EY Personnel were deployed at the start and end point and every 250 m to monitor and guide the stewards. Stewards received training to monitor the execution of the record.

Verification of the count was done to maintain a count of buses entering and exiting the activity area by stewards at the start and exit point. Any bus stopping in the activity area had to be marked by the steward responsible for that area. Subtracting the total buses stopping in the activity area from the count of buses entering and exiting the activity area gave the total participating buses count.

Key Statistics:

- 503 buses
- 2000+ personnel
- 10 km distance between first and last bus while standing
- 72 Stewards to verify the participant performance



Figure 10.3. Busses Lined up before the attempt

10.2.10. E-rikshaw and CNG Auto Shuttles

Apart from the Kumbh Special shuttle buses, e-rikshaws and CNG autos were also deployed to aid in the transport of small groups of pilgrims to the mela area. This intermediate public transport facility helped to ensure last-mile connectivity to the large numbers of pilgrims. The service was outsourced to a contractor by inviting tenders from external agencies to own, operate and maintain e-rickshaws and CNG autos inside the mela area on designated routes for a period of 3 months. The selection of the contractor was based on the agency's experience, vehicle specifications (in order to meet technical specifications and GOI certification as per Motor Vehicles Act). Apart from the minimum eligibility criteria the bidders had to meet, there were also background and compliance checks.

The selected agency was required to provide 24/7 service at the Kumbh Mela and was responsible for insurance, safety, security, hygiene and comfort of their resources – both vehicles and manpower.

The agency was required to ensure management of traffic circulation within the routes assigned for vehicles to avoid grid locks and conflicting traffic movement. They had to manage and direct pilgrims while riding, boarding, deboarding and waiting for services, to avoid any chaotic situations. They were required to ensure proper arrangement of vehicles within parking areas provided by the authorities and follow the tariff guidelines (tariff could not exceed Rs. 20, inclusive of taxes, per passenger per ride, under any circumstances). After commencement of the operations, all staff from the agency working at the mela were required to undergo a week’s training before being posted to any position, and to familiarise themselves with the entire mela location in order to provide accurate information to public. The selected agency was also required to provide a full report on ridership for review by the authorities.

While the number of bus shuttles provided increased with the growing footfall, e-rickshaw movement showed the opposite trend. It was high on regular days, and low during peak days. On regular days a total of 1,465 trips were made and on special days it came down to 575 trips. This was because e-rickshaws were arranged to ferry pilgrims from bus stands, parking lots and Chourahas to the mela area, and on peak days, their movement within the mela area was restricted as part of crowd management measures.

The e-rickshaws were colour coded based on their routes for easy identification:

Routes	Colour Code
Jaunpur-Varanasi route	Blue
Rewa-Mirzapur route	Yellow
Kanpur Marg	Orange
Lucknow-Pratapgarh route	Red
City Area-Patel Sansthan- GT Jawahar- MPVM-Traffic Line-Mayo Hall-Dhobighat- Eklavya-Civil Lines-Medical-Bairhana- Patel Sansthan	White

Table 10.10. E-Rickshaws their routes and colour code

The pick points of e-rickshaws on regular and special days:

Regular Days	Route on Regular days	Special Days	Route on Special Days
Patel Sansthan	Lucknow Marg	Andhava Chauraha	Lucknow-Pratapgarh Marg
Bangad Dharamshala	Kaushambi Marg	Leprosy Chauraha	City Area
Eklavya Chauraha	Jhusi Marg	Eklavya Chauraha	Mirzapur Marg
Bharat Scout	City Area	Bharat Scout	Rewa Marg
	Karchana Road		Jhusi Marg
	Mahewa Road		
	Bara Road		
	Railway Station to Daraganj Marg		

Table 10.11. Pick points of E-Rickshaws on regular and special days

10.2.11. Information and Incentives

In order to enhance the effectiveness of the bus transport facilities provided, information on the services was widely disseminated through various methods. 50 signages were placed in prominent places in the city, and another 10 signages in the mela area, giving information about bus facilities and amenities. 5,000 posters, each measuring 2 ft by 1.5 ft were displayed in prominent places in the mela area giving information on bus facilities and routes. 10,000 pamphlets were distributed to pilgrims giving them the information.

There were also several promotional and motivational initiatives offered to bus transport staff, to incentivise effective deployment of their services:

- Bulk bookings were incentivised by offering 2 additional tickets to anyone making a bulk purchase of tickets, and no cess or tax was applicable to the ticket amount.
- If a driver and co-driver succeeded in filling their bus to full capacity, they were each given 2% of the Nigam's earnings on that trip. If they succeeded in filling the bus to 90-99% capacity, they were each given 1.5% of the earnings.
- During the peak mela days (31st Jan to 10th Feb 2019), any driver and co-driver travelling more than 300 km in a single day was awarded Rs. 150 per day.
- Drivers completing 11 days duty covering over 3,300 km were awarded an additional amount of Rs. 1,650; those completing 9 days duty covering 2,700 km were given Rs. 1,350; and those completing 7 days duty covering 2,100 km were given Rs. 1,050.
- Workers from other depots providing services in the mela area during the 11 peak days were given Rs.1,650 in recognition of their services.
- During the entire Kumbh period, depots of all zones were required to keep their entire bus fleet on the road. This was incentivised through a token recognition award of Rs. 800 to the supervisors of the depots.

10.2.12. Safety and Security of Passengers

Bus drivers were issued strict safety guidelines for the safety and security of passengers. Safety and comfort of passengers was given primary focus, speed limits for the buses were imposed, and no overtaking was tolerated. The drivers were instructed to deal with passengers in a kind and appropriate manner. In case of emergencies, alternative drivers were arranged.

10.3. Railway Infrastructure and Logistics

Prayagraj is well connected to all major cities through land and rail. It has 10 major railway stations linking it to different districts and states. The railways constitute an important mode of transport carrying the bulk of Kumbh passengers from the Northern and North Central belt. With the onset of every Kumbh Mela, Indian Railways gears up for a massive movement of people that is unprecedented in the history of any railway transport. Past melas have yielded valuable lessons which were built into a strong strategy and action plan for rail

transport for the 2019 Kumbh Mela. Great emphasis was placed on coordination between various stakeholders. This write up is based on material received from the office of DRM, Prayagraj.

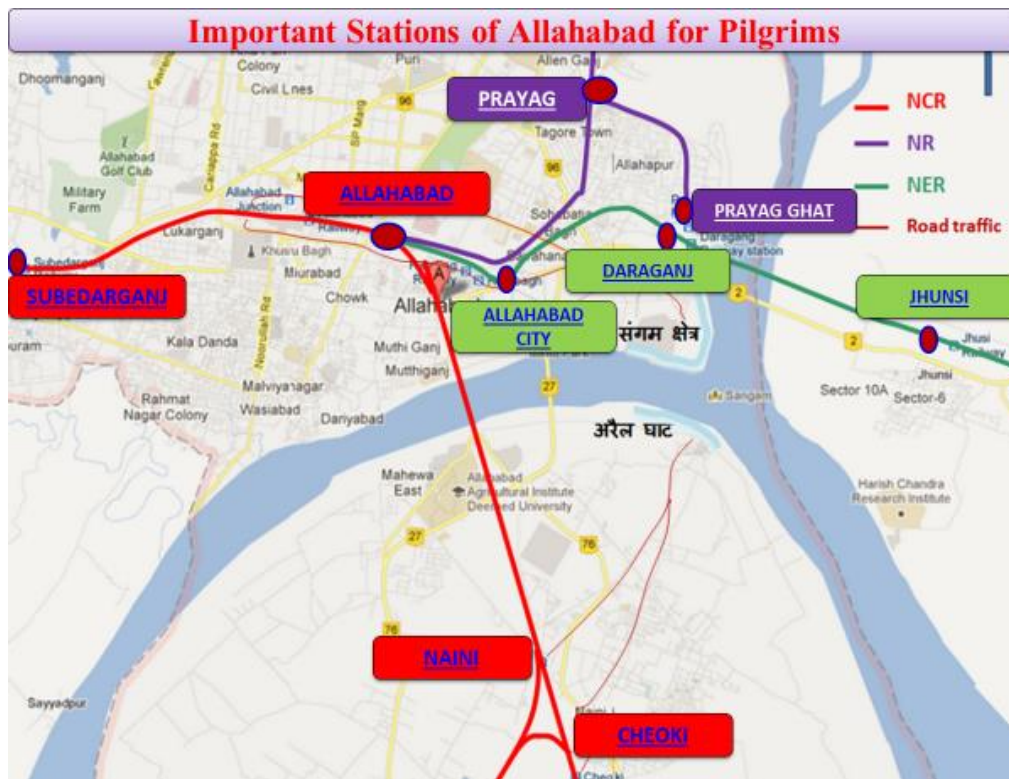


Figure 10.4. Important Stations of Allahabad

Station	Route
Allahabad Junction	Towards Kanpur, Deen Dayal Upadhyaya Junction Satna & Jhansi
Allahabad Cheoki	
Allahabad City	Towards Varanasi, Mau and Gorakhpur
Naini Junction	Towards Manikpur, Banda, Jhansi & Satna
Subedarganj	Towards Kanpur and New Delhi
Jhansi	Towards Varanasi, Mau and Gorakhpur
Prayag/Prayag Ghat	Towards Raebareeli, Lucknow, Pratapgarh, Faizabad, Unchahar and Jaunpur
Prayag Ghat	Ayodhya - Faizabad - Jaunpur
Phaphamau	
Daraganj	

Table 10.12. Important Stations and their routes

10.3.1. Lessons from Railway Station Disaster at Kumbh 2013

During the 2013 Maha Kumbh, the stampede at the Allahabad railway station on the important day of Mauni Amavasya reflected deficient logistical planning and crowd control readiness, coupled with poor response on the part of the NCR railway officials. The CAG report noted that the Railways failed to establish coordination with the State authorities and did not regulate the influx of pilgrims towards other mela stations from Allahabad Station. As per the CAG report, reasons for the incident were as follows:

- Implementation of the pilgrim traffic diversion plans was deficient.
- There were 8 stations designated as mela stations but the bulk of pilgrims (60%) was handled by NCR at the Allahabad Station alone due to the lack of coordination by NCR officials with nodal officers of other zones (NR, NER) for the diversion of pilgrim traffic to other mela stations, leading to swelling of crowds.
- Many measures were planned for managing additional flow of passengers such as running of special trains, passenger information system in Sangam area about train schedules, temporary enclosures to hold pilgrim rush at the stations, control towers for centralised monitoring of security arrangements, train movements and crowd management, deployment of additional security, installation of CCTV, provision for medical posts with doctors, paramedical staff and ambulances planned at designated stations. However, many of these plans remained on paper and were not implemented completely.
- A record 41.04 lakh passengers travelled against an anticipated 34 lakhs where the bulk of the passengers (around 60%) was handled by Allahabad Station alone.
- The UTS (Unreserved Ticketing System) booking counters introduced to spread out the crowds across different stations were underutilised.
- The number of special trains was reduced by the Railways with no consultation with the mela administration.
- No alternative arrangements were planned by the NCR Administration for the movement of freight trains to ease the path for Mela Special Trains. This lack of foresight in diverting freight trains resulted in overburdening and reducing the outward movement of Mela Special Trains from Allahabad Station.
- Many special trains remained stranded at platforms during important Snaan days restricting the entry of other trains. Improper time management of train schedules due to slow coordination between security and operating departments led to ineffective crowd management.
- The additional works provisioned exclusively for the mela remained incomplete with inadequate enclosures for holding passengers.
- No civil management check was exercised and mela passengers arrived without authorisation from the restricted Civil Lines side.

- There was Inadequate security deployment (33% shortfall) to handle the crowds. Out of 1,541 RPF/RPSF deployed, only 869 were available with the Railways. Audit reports further revealed that out of the assessed requirement of 995 GRP forces only 513 were deployed and out of this 513 only 268 personnel were handling the crowds inside Allahabad Station. This massive shortfall of security personnel led to the incident.

The Ministry of Railways and the DRM officer factored these observations while undertaking planning for and execution of the 2019 mela.

10.3.2. Planning Criteria

All logistical planning and provisioning for the Kumbh Mela is based on expected pilgrim numbers. A good forecast of expected numbers is imperative in the logistical planning, and the success of the mela is dependent on the successful implementation of the plan. With each new Kumbh Mela witnessing an increased footfall, the estimate of numbers is drawn from the previous Kumbh data and based on the budgets and the scale proposed and propagated.

Item	Maha Kumbh 2013 (Actual)				Maha Kumbh 2019 (Projected)			
	NR	NER	NCR	Total	NR	NER	NCR	Total
Total Outward Mela Special (<i>Bathing days + Other than bathing days</i>)	46	85	473	604	68	131	733	932
Total Outward Mela Special (<i>On Main Bathing Days</i>)	46	85	402	533	68	131	622	821
Total Inward Mela Special	35	78	405	518	59	131	627	817
Total Mela Special	81 (46+35)	163 (85+78)	878 (473+405)	1122 (604+518)	127 (68+59)	262 (131+131)	1360 (733+627)	1749 (932+817)
Additional stoppages to other trains at ALD, BDL, ACOI, ETW & NYN			42 Pair				50 Pair	

(Ref: CBR visit report-railways ppt)

Table 10.13. Evacuation capacity & Estimated No of Pilgrims to be carried on major bathing days by NCR, NR & NER

Bathing Days	No. of Passengers to be carried by Mela Spl.	No. Passengers carried by Originating Trains	No. Passengers (only pilgrims) carried by passing trains	Grand Total (Evacuation Capacity)
Makar Sankranti (5 Days)	3,73,350	50,000	1,20,000	5,43,350
Paush Poornima (4 Days)	2,62,200	40,000	96,000	3,98,200
Mauni Amavasya (6 Days)	6,66,900	60,000	1,44,000	8,70,900
Basant Panchmi (6 Days)	3,87,600	60,000	1,44,000	5,91,600
Maghi Poornima (5 Days)	3,64,800	50,000	1,20,000	5,34,800
Maha Shivratri (5 Days)	2,85,000	50,000	1,20,000	4,55,000
Total Pilgrims to be carried on Main Bathing days	23,39,850	31,00,000	7,44,000	33,93,850

(Ref: CBR visit report-railways ppt)

Table 10.14. Evacuation capacity & Estimated No of Pilgrims to be carried on major bathing days by NCR, NR & NER

Hence the 2019 railways logistical plan was conceptualised to deploy frequent and adequate number of trains in coordination with the police and mela administration. With an estimated total pilgrim flow of 8.75 crores on all the important snaan days, and total 33.93 lakh pilgrims projected to be using railway services on those days, the railway authorities (NCR, NR, NER) jointly planned inward and outward Mela Special Trains for evacuation of Kumbh pilgrims. A total of 1,762 Mela Special Trains were arranged to carry Kumbh pilgrims from across the country to Prayagraj. 800 outward trains, which is a 68% increase from the previous Kumbh logistics, were arranged on the main bathing days to continuously clear accumulation of crowds. The NCR had arranged 440 Outward Mela Specials in the Allahabad Junction alone. Different zonal railways, over and above the NCR, NR, NER, also planned pilgrim specials. Other regular trains were assigned to accommodate Kumbh pilgrims by creating additional stoppages at ALD, BDL, ACOI, ETW and NYN.

A stringent crowd management plan jointly signed by the civil authorities was enforced to ensure a unidirectional flow of passengers at all stations during main bathing days to avoid any confusion or chaos. Direction-wise segregation of passengers was done at entry gates and the passengers were guided to the appropriate enclosures. Also, the enclosures built were colour-coded for easy identification by the pilgrims.

A Mathematical modelling and computerised simulation of crowd movement with mock rehearsals was done with the help of a research team from MNNIT headed by Prof Mayank Pandey to ascertain the time taken for passenger movement from one point to another in the railway station. Such measures and technological adoption enabled a better pilgrim traffic plan to manage crowds more efficiently. A model simulation is shown in Fig 10.5 below.



Figure 10.5. Computerised Stimulation of Crowd Movement

10.3.3. Organisational Structure

The Divisional Commissioner who is also the Chairperson of the Mela Authority coordinates with the respective zonal railway administration officers assigned by the railways to handle the mela requirements together with the district police heads. A railway logistics and resource requirement plan is prepared and sent to the railways and police. Depending on the estimated pilgrim numbers using railway services during the Kumbh period, the final logistical plan is made. The ADGP is responsible for the traffic plan of the entire logistics of Kumbh.

In the backdrop of past stampede experience that lingers in the minds of the administrative and planning authorities, a detailed study of past incidents was done to identify the gaps and anomalies. With several reflections and recommendations from the past Kumbhs, the 2019 Kumbh Mela Railway logistical planning laid central focus on the safety and security of pilgrims to mitigate any or all aspects of untoward incidents. Stringent crowd management and strict train schedules were adhered to, adequate number of regular and additional trains were provisioned. It was found that along with increased number of trains and orderly schedules, many infrastructural improvisations, technology adoptions and its effective implementation, efficient and monitored crowd management mechanisms, space creation and information dissemination were a must for the logistical plan to be implemented successfully. Another pressing factor, an important one at that, was to ensure horizontal coordination between the mela administration, the Police and the Railways administration under a single command line, as mass casualty mitigation is provenly inefficient without syncing the functions of the different government organisations. But the biggest element of focus in the 2019 Kumbh was to ensure adequacy of services, to keep passengers informed, and to create additional space by refurbishing facilities. The primary goal was to ensure a hassle-free, informed and orderly pilgrim movement.

10.3.4. Infrastructural Changes

Many new legacy infrastructural development initiatives and improvisation works were undertaken by the Railways to spruce up the landscape of Prayagraj during Kumbh. Several encroachments were cleared, access roads to stations were widened, new stations were added, new platforms and foot over bridges were built, widened and renovated. Many new ROBs and RUBs were constructed. The façade of the city received a complete facelift with various beautification and upgradation works within the city and at the railway stations. The leveraging of innovative technological adoptions for crowd control, safety and efficiency of services provided, diligent Swacchta drives, the infrastructural ramp-up, and the swift coordination and administrative efficiency of government officials that one witnesses during the Kumbh makes a conspicuous point that indeed it is the religious nature of the fair coupled with the enormous economics of employment and revenue generated from the Kumbh Mela that galvanises the city's developmental grandeur and administration's commitment to agreed deliverance that aids swift actions with strengthened political will and coordination to execute and deliver the best, as the world is watching you. So, the moot point is if the same model of monitored diligence and developmental enthusiasm can be sustained and replicated across State Governments to revamp and replicate the same sense of accountability, adherence of process and quality in a time-bound manner on regular days in a secular environment. Also, the best practices applied for decisive infrastructural augmentation during the Kumbh are something that can be inculcated and deployed in regular administrative works of the government.

The 2019 Kumbh Mela was a developmental booster to the Prayagraj's railway infrastructure. Some of the major works undertaken were:

- Construction of 8 road over bridges at Pani Ki Tanki, Naini, MNNIT, Phulpur, Rambagh, Manauri, Bheerpur-Karchana and Rasulabad.
- Widening of 6 RUBs at 174 - Sobhatiyabagh, 176 - CMP Degree college, 171 - Kundan Guest House, 164 - Shivkuti-Teliarganj, 116 - Daraganj, 120 – Sobhatiyabagh to facilitate smooth flow of pilgrim traffic.
- Construction of 5 new foot over bridges at Allahabad City, Subedarganj, Prayag Ghat and Prayag stations.
- Widening of foot over bridge at the Allahabad Junction station from 6 meters to 12 meters. FOB was widened at Subedarganj station as well.
- Construction and development works were undertaken by Allahabad Development Authority in railway area below the ROB at DSA Ground near Khusrubagh Chauraha with cooperation from Railways.
- As a Swacchta initiative, permission was granted by the Railways to Nagar Nigam under jointly agreed MOU for construction of toilets in the vicinity of the railway stations in the city.
- Circulating area was increased to facilitate traffic flow.

- The washing pit lines, stabling lines and number of platforms were augmented in accordance with the increase in number of trains. 2 new washing lines were provided at Allahabad and Kanpur for maintenance of the additional rakes set up during the Kumbh Mela.
- Existing washing line at Allahabad was upgraded.
- 95 additional coaching rakes (NCR-60, NR-20, NER-15) were stationed at different stabling lines of different stations to run special trains. This included 16 MEMU and 06 DEMU which helped in quick evacuation of passengers. All rakes (except MEMU/DEMU) were of 20 coaches as against 12 to 15 coaches previously.
- Construction of skywalk for inter connectivity of 2 main FOBs of Allahabad Junction.
- Four road level crossings were widened to cater to road traffic.
- Passenger enclosures were developed as per the traffic management plan. Four covered passenger enclosures to hold around 10,000 pilgrims were constructed at Allahabad Junction.
- Additional platforms were developed at Allahabad Junction, Allahabad Cheoki and Subedharganj stations to facilitate handling of increased number of trains.
- Existing platform was raised at Allahabad Chheoki station.
- To cater to the massive crowds availing railway services and to reduce the burden on the existing stations, new stations and platforms and lines were developed. Subedarganj Station was developed as a new terminal station.
- Prayag Ghat was developed as a new station in the vicinity of the mela area. Five platforms along with new station buildings were provided.
- New station building and washable apron was provided at Allahabad Cheoki station.
- Allahabad Junction is an important station that takes the bulk of the traffic, hence the landscape of Allahabad Junction was revamped and upgraded with many facilities. The circulation area at the junction was improved, 4 new enclosures were provided to increase the covered holding area to house the waiting pilgrim passengers. Ticket booking counters, medical booths, toilets and vending shops were provided.
- Skywalk connecting Foot Over Bridge No.2 and No.3 were provided. New Platform No.6 was provided at Civil Lines side.
- Solar panels were installed on the top of each passenger enclosure and all the illumination was done with solar energy.
- Temporary watering line in the yards and additional watering lines at stations (PF No.6 at Allahabad) were installed for water in the coaches.
- Temporary fuelling point was provided in Allahabad Chheoki and Naini.
- In order to facilitate pilgrim movement, the Railways granted special permission for construction of a temporary road from level crossing No. 78A at Bakshi Bandh via Sanjay Nagar to Kundan Guest House RUB.
- Permission was given by Railways for construction of temporary helipad in village Hariharvan (Jhusi) and construction of temporary road on railway land near Naval Kishore Roy Marg.

10.3.5. Safety and Security at Railway Stations

The previous Kumbh Mela had experienced an acute shortage of security personnel deployed on the ground and this was one of the reasons for the railway station tragedy. Hence during Kumbh 2019, extra care was taken in planning the deployment of security personnel for monitoring and management of the crowd. Additional manpower for assistance was also sought leaving no stone unturned for the safety and security of the pilgrims.

- Around 3,000 external railway personnel were deployed for duty during Kumbh. This included personnel for maintenance of rakes and commercial staff for assisting passengers.
- A requisition for 2,700 RPF personnel was made, out of which 1,877 reported in time and 440 more were expected to report by 30th January 2019 which would have given them just enough time to get trained. Also, as per the recommendations of Justice Onkareshwar Bhatt Committee report, sufficient police force was requisitioned to avoid 12 hours duty of the RPF staff, which was not plausible with requisitioned numbers, hence it was requested that sufficient numbers of RPF staff be deployed in advance to enable imparting of adequate training. Eventually additional security was deployed to ensure an incident-free Kumbh. A total of 34 companies of RPF/RPSF with 4,000 personnel and one company of Lady RPF staff was assigned on duty for ensuring the security of pilgrims. Additionally, 450 staff for coach maintenance, 200 staff for signal maintenance and 200 operating staff were deployed.
- Provision for water mist type portable fire extinguisher.
- More than 400 CCTV cameras were deployed at 10 stations for live monitoring in the Central Control Room. Live feed of all the cameras was available at Integrated Control Command Centre on 18 TV screens of 75 inches.
- Live feed of cameras installed from Kumbh area was obtained and displayed in the Control Tower at Allahabad Junction. This enabled the monitoring of crowds and rationing the influx of pilgrims at the entry points.
- Advance communication system with 100 very high frequency sets (VHF) sets with emergency channels were used, 850 VHF sets with Hotlines were added to Division, 130 mega mikes and Duct phone formed backup of communication system at the stations.
- A Quick Response Team (QRT) and GRP forces equipped with disaster management core team were readied at important stations as per the Railway Police Plan.

10.3.6. Crowd Management Plan

Handling two-way traffic amidst overwhelming crowds in a confined space could prove to be disastrous with the slightest glitch. During the 2013 stampede, there were no directional restrictions followed or monitored, hence the crowds surged both ways on the FOB leading to the tragedy. In the wake of such incidents, Kumbh 2019 took extra precautions in monitoring

the railway logistics and ensured a controlled traffic movement. Some of the steps taken were as follows:

- Direction-wise holding enclosures at stations were identified for running special trains.
- Separate entry and exit gates to the station were set up.
- Designated gates were allotted for specific directions and routes.
- The gates and passenger enclosures were colour-coded to indicate the train routes.
- Passenger movement was guided and escorted from enclosures to platforms.
- Additional holding areas were built in the civil areas in the vicinity of respective stations to cater to the massive pilgrim influx during peak days.
- The civil administration and the railway administration coordinated seamlessly. Not more than 10,000 pilgrims at a time were allowed by the civil administration from the City Holding Area to Allahabad Junction.
- In the 2013 Kumbh, although the entry from Civil Lines side was restricted, masses entered the station from all directions leading to the pandemonium. Therefore, this time, the entry to platforms could be secured only through passenger enclosures. No direct entry to station was entertained for unreserved passengers. However, passengers were guided to the booking windows and enabled with mobile ETMs and the App.
- Traffic movement plan at all 10 stations were coordinated and the train schedules were timed at regular intervals.
- The foot over bridges were stringently monitored and the one-way rule enforced.
- It was jointly agreed that the railway officials would be available at the Mela Control Room at Sangam and in the Police Control Room for seamless coordination and cooperation. Likewise, it was also agreed that the civil authority officials would be available at the Railway Control Room at Allahabad Junction. This step decisively ensured smooth coordination and correspondence between the Railways and mela administration for a successful implementation of crowd management and logistical plans. Between 17th May and 18th December, at least 22 meetings were organised with the civil administration to ensure absolute synchronisation of the plans.
- Regular and emergency pedestrian movement plans were charted out by identifying and provisioning for alternative routes and roads to divert pedestrian traffic to avoid any overcrowding.

10.3.7. Initiatives for Better Pilgrim Experience

- The Railways normally levies surcharge on railway tickets to places conducting major religious fairs in order to meet the extra internal expenses. But in December 2018, just before the 2019 Kumbh Mela, the Indian Railways announced that it would discontinue the mela surcharge.

- A mobile app called ‘Kumbh Mela App’ was developed as a one-stop solution for assisting the pilgrims in booking tickets, providing information about railway stations, special trains, navigation and the amenities available for pilgrims.
- Three *Pravasi Bhartiya* Special trains were run on 24th January 2019 to carry around 2,500 *Pravasi Bhartiya* from Prayagraj to New Delhi. Special arrangements were made for them at Platform No.6 at Allahabad Junction.
- High speed *Vande Bharat* Express was introduced between New Delhi and Varanasi during Kumbh. This was very useful for passengers coming from Delhi.
- A mobile electronic ticketing machine named “Praveen” was created which was widely used by pilgrims during Kumbh 2019, garnering earnings of Rs. 1.12 crores.
- Hand-held ticket dispensing machines were arranged where pilgrims could purchase tickets in the moving trains from Electronic Ticketing Machine (ETMs); however, this was sometimes difficult as the person carrying the ETM had to manoeuvre carefully amidst teeming crowds.
- An app-based multi-lingual Public Announcement System was developed and used during Kumbh 2019. Announcements were made in seven languages (Malayalam, Tamil, Kannada, Marathi, Gujarati, Hindi and English) giving instructions and information about services and train schedules to assist pilgrims from non-Hindi states.
- A multi-lingual face-to-face enquiry system was introduced. It had the facility of translating the user’s voice in any of the seven inbuilt languages (Malayalam, Tamil, Kannada, Marathi, Gujarati, Hindi and English) to Hindi/English, and again translating back to the enquiry clerk the response from Hindi to the desired language of the users. It was developed to help pilgrims coming from southern parts of India.
- Infotainment screens were provided in the enclosures for displaying Kumbh-related video and live feed of Kumbh Mela.
- Two video walls of 165 inches and 08 85 inches LED TVs were provided. Six true colour boards were provided at Allahabad Station. 10 LED display boards and 12 single line display boards (white) were provided for better dissemination of information to the passengers.
- All additional security personnel, Kumbh Rail Sewaks and railway staff on Kumbh duty were given specially designed jackets with Kumbh Rail Sewak logo which not only motivated and gave them a sense of pride but also made them easily identifiable for the pilgrims to approach them to seek any information or guidance.
- Train operations were planned for optimal use. Additional stops of regular trains were given at Naini and Subedarganj stations to facilitate pilgrims coming for Kumbh. 942 trains (448 inward and 494 outward) were run. 70,82,000 were evacuated by train (Mela Special originating trains and Regular trains). All the trains except MEMU/ DEMU were of 20 coaches.
- 250 additional toilets were constructed for pilgrims.
- Customised signage boards like ‘You are here’ boards, LED signages, direction-wise boards and pictorial signage boards were put up.
- True colour signage boards were put up

- Route wise colour-coded signage boards were put up on the way to the railway stations.

इलाहाबाद जं. स्टेशन से मेला स्पेशल ट्रेन पकड़ने हेतु						
प्रवेश द्वार नं. 5	प्रवेश द्वार नं. 4	प्रवेश द्वार नं. 3	प्रवेश द्वार नं. 2B	प्रवेश द्वार नं. 2A	प्रवेश द्वार नं. 1	आप यहाँ ह
आरक्षित टिकट यात्रियों के लिए	बंद है।	कानपुर, दिल्ली की ओर वाया सूबेदारगंज, मनीरी भरवारी, सिराथू, खागा, फतेहपुर, मालवा, बिन्दकी रोड की तरफ आगे के सभी स्टेशन।	मुगलसराय, पटना की ओर वाया बिरोही, मेजारोड, माण्डा रोड जिगना, झिगुरा, गैपुरा विन्ध्याचल, मिर्जापुर, तथा आगे के सभी स्टेशन।	लखनऊ, वाराणसी की ओर वाया प्रयाग, फफामऊ, प्रतापगढ़, सुल्तानपुर, फैजाबाद, अयोध्या, अमेठी, तथा आगे के सभी स्टेशन।	सतना, जबलपुर की ओर वाया, मानिकपुर, मैहर, कटनी, इटारसी तथा आगे के सभी स्टेशन।	

Figure 10.6. Instructions for Travellers

10.3.8. Facilities

- Around 70 additional booking windows were opened for pilgrims to make easy travel bookings. Two Passenger Reservation System/Unreserved Ticketing System counters were opened in the mela area.
- The announcement system was extended to the road surrounding the station to guide the passengers coming to station area.
- Additional manpower was deployed at all the stations and passenger enclosures to keep the area clean.
- Additional vending stalls were provided in the enclosures and new platforms during mela period.
- Passenger enclosures were provided with vending stalls, water booths, ticket counters, LCD TVs, PA System, CCTVs and separate toilet blocks for men and women.
- Arrangements for medical aid were made. A total of 25 first aid booths were established at 9 stations (NCR - 17, NR - 4, NER - 4) where 92,814 patients were given first aid treatment during the first five main bathing days. Apart from this, a 16-bed Emergency Health Unit was set up at Allahabad Station for emergency treatment of pilgrims. A total of 1,600 patients requiring emergency treatment were admitted and given emergency treatment in this unit before shifting them to other main hospitals. Apart from this, 30 doctors from other Zonal Railways were deployed to assist mela pilgrims with medical aid.

10.3.9. Branding of Kumbh and Beautification of existing stations



Figure 10.7. Railways Branding of Kumbh

Around 1,409 coaches of Mela Special and other originating trains from Allahabad Junction were vinyl wrapped with images of the Kumbh and the improved landscape of Prayagraj, with pictures of culture and heritage, and promoting tourism as well. As an initiative to promote local culture and heritage a Cultural Corner was provisioned in passenger enclosures where stalls were set up for displaying local handicrafts, cuisine & other items of art.

Several other beautification works were also undertaken. The stations of Daraganj, Phaphamau, Prayag, Jhusi and Allahabad were lit well with improved illumination initiatives. Empty spaces in the circulating area were thematically painted under the 'Paint My City' programme and murals were installed in the station area. The façades of all stations were given a makeover by clearing all encroachments and lit up with focused and high mast illumination. The 150-year-old Naini Bridge was illuminated with façade lighting making it a landmark sight to behold from the mela area.

10.3.10. Challenges Railways Services Management

The challenges faced in managing passenger traffic through trains were complex though everything fell in place finally. Coordination with various agencies and synchronising progress of work across departments proved especially difficult. Implementing and achieving actual requisitions was another challenge faced. The mela special trains required 82 rakes but received 36 rakes (652 coaches) with 132 coaches overdue. The coaches had shunting and capacity constraints. Only 527 serviceable coaches (28.5 rakes) were available for running mela trains when 40 trains were required on Makar Sankranti. Dispensation from IOH/POH for 3 months was requested but declined by the Railways Board, hence additional coaches were requested to be given by the Railways Board.

The requisitioned number of RPF staff was not provided at one go. While 1,877 staff were deployed on time, 440 were deployed as late as 30th January 2019, leaving no time for adequate on-ground training for the staff. When requisitioned numbers of staff are not provided, it leads to overburdening of the available police forces, which is not in compliance with the recommendations of Justice Onkareshwar Bhatt. Clearing encroachments, infrastructural addition and upgradation, and elimination of change of traction at Allahabad Station was very trying, but the administration was able to achieve it. Handling pilgrim rush immediately after Snaan days at important junctions was a challenge as it required concerted efforts and coordination at the railway stations, the holding areas, and the mela area.

Chapter 11

Vendor and Procurement Management

The public procurement of various goods and services from private sector vendors is essential to the successful conduct of an event of the scale of the Kumbh Mela. In this context, effective vendor management strategies and procurement processes are critical for selection, oversight and management of vendors, without which a host of complications can arise dampening the event.

11.1. Principles of Vendor Management

Vendor Management is more than mere procurement and contract management. The prime most key ability lies in specifying eligibility for appropriate vendors and selecting the best one from the available lot. Corporates give major emphasis to vendor empanelment and selection. It is generally said that a good vendor and partially specified contract is better than poor vendor and tightly specified contract. Vendor management belongs truly to management discipline than to legal discipline.

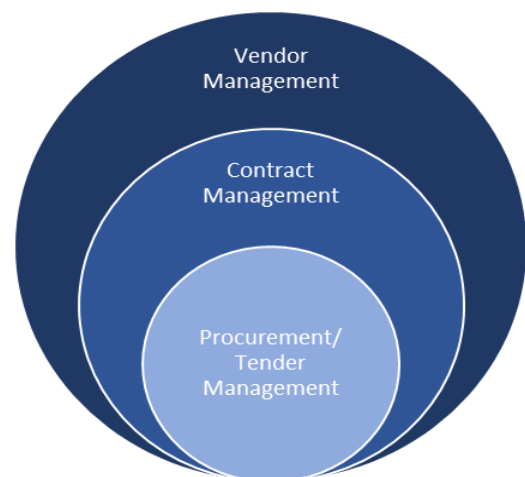
Vendor management refers to a set of activities ranging from sourcing vendors, negotiating contracts, managing relationships and monitoring performance. Effective vendor management methods can reduce costs, increase efficiency and bring more value to both the organization as well as the vendor.

Broadly speaking, vendor management consists of five steps:

1. Defining the objectives and understanding the requirements of the procurement on hand.
2. Identifying prospective vendors, sourcing quotations and selecting an appropriate vendor.
3. Negotiating terms of engagement.
4. Enabling progress of project and managing relationships.
5. Monitoring contract terms, providing feedback and evaluating performance.

In addition to increasing efficiency and reducing costs, sound vendor management practices can help reduce risks of vendor not complying with the required standards and deliverables, easing the process of monitoring compliance and assuring quality in the delivery of desired goods and services.

Figure 11.1. Levels of Vendor Management



Vendor management is a discipline widely used by private sector as well as multi-lateral agencies. Several organizations offer specialized vendor management solutions or software to clients. In fact, it is a common practice in the private sector for organizations to get into long-term engagements with vendors and assist them in optimizing their performance and quality assurance mechanisms. Multi-lateral organizations such as the World Bank have stringent vendor management and procurement guidelines. This relationship is symbiotic in that it allows the organization to receive compliant, cost-efficient and higher quality goods and services from vendors, while vendors benefit from support and long-term refinements to organizational performance. But, in a kumbh type scenario which is a one off short-term project, it is difficult to nurture vendors and the authority have to manage with available capabilities.

11.2. Vendor Management in the Public Sector

The public sector is bound by greater requirements of transparency and accountability than the private sector in the procurement of goods and services from vendors. In this context, the application of sound vendor management principles can have the following benefits for the public sector (Asher, Sharma, and Sheikh, 2015):

- Reduced costs and greater Value for Money (VfM)
- Reduction in time over-runs and delays
- Greater transparency and accountability to both vendors as well as public
- Quality assurance and risk mitigation
- Increasing fairness and reducing arbitrariness in procurement systems
- Process optimization and efficiency in business processes
- Promotion of competition and industry development

To give an example of the benefits of the importance of good public procurement processes, a study estimated that a 5% saving in expenditure through better procurement processes would yield 0.6% of Gross Domestic Income in savings, and this figure could rise to 1.2% of GDP if efficiency savings were 10%. This could have great ramifications for improving public expenditure management and boosting fiscal consolidation (Asher, Sharma, & Sheikh, 2015).

In the public sector, vendor management principles are primarily enshrined within the guidance documents surrounding public procurement. In most states these guidance documents take the form of legislation or regulation on transparency in public procurement.

Recognizing the benefits, the World Bank in 2016, has put in place a policy to assist governments in better vendor management for goods and services financed through borrowings from the Bank. The Bank has procurement staff in 72 countries to work with and support governments to achieve highest procurement and contract management standards and achieve higher development results (World Bank, 2016). The Bank provides a set of guidelines to be followed by borrowers in their procurement process. In this framework, four innovations are stressed:

- Needs and Risk Assessment of project through Project Procurement Strategy for Development, which equips borrowers to have strategies on engagement with bidders.
- Value for Money as a core procurement principle for all procurement financed by the Bank, so that there is a shift in focus from the lowest evaluated compliant bid to the bid that provides the highest VfM taking into account necessary factors.
- Improvements in resolving procurement-related complaints
- Direct involvement of the Bank in contract management of high-risk, high-value procurements.

The Bank seeks to build capacity of governments for better procurement processes, and in this regard has a series of manuals and guides to support borrowers in several parts of the vendor management process such as setting evaluation criteria, contract management, safety in procurement, etc. (World Bank, 2016).

The Bank's own vendor management processes are also stringent and are "guided by the principles of transparency, fairness, competition and best value" (World Bank, 2016). All parties dealing with the World Bank go through a Vendor Registration Process where they are reviewed for various risk considerations and checked for compliance to its vendor eligibility policies. Only upon completion of these processes and upon being found eligible can a vendor become qualified to receive a contract from the Bank. Subsequently as well Vendors need to abide by strict codes of conduct and integrity policies, alongside the general procurement and contract management processes.

11.3. Public Procurement Policy in Uttar Pradesh

In the state of Uttar Pradesh, public procurement is guided by the Uttar Pradesh Procurement Manual, 2016, which is applicable to procurement of goods by all government departments of UP. These rules guide the entire procurement process, "extending from the issue of invitation to pre-qualify or to register or to bid, as the case may be, till the award of the procurement contract." The general principles which are to be given due consideration while exercising procurement functions, as per the manual, are highlighted below:

- Best Value for Money
- Transparency, competition, fairness and elimination of arbitrariness
- Efficiency, economy and accountability
- Financial arrangements

The manual goes on to lay out the processes to be followed in detailing specifications of procured goods, methods for sourcing and selecting bidders, evaluation of bids, principles of contracting and other important aspects of the procurement process. It also provides certain standard formats which may be used during tendering and bid process. Thus, the manual standardizes certain procurement systems and addresses some steps within the vendor management process. However, as previously highlighted, as this manual primarily deals with the procurement process, it does not give adequate importance to the latter stages of the

vendor management value chain, such as negotiating contract terms, monitoring and evaluation, and relationship management.

Since this manual is applicable to procurement by all government departments and agencies, procurement by the PMA is also to follow the guidelines laid out. In the case of an event like Kumbh Mela with tight timelines, procurement have to be further streamlined as inefficiencies could lead to delays, and hamper quality and safety of the public. This section carries out an analysis of the vendor management processes followed in the run-up to and during the Kumbh Mela. The objective of this analysis is to identify the enabling factors and methods followed in the process, which ensured that for the large part, the procurement was successfully completed without too many inordinate delays and concerns.

11.4. Kumbh 2019 Contracts and Analysis

The PMA followed structured approach to designing the contracts, terms, and other features like payment structure, performance monitoring, levying penalties, etc. The consultants EY were helpful in designing the contract and listing the specifications and legal compliance structure. In this section we analyse select tenders on various parameters and finally have provided the analysis in the end.

This study has been conducted through an analysis of a sample of tender documents that were launched by the Prayagraj Mela Pradhikaran for the Kumbh Mela. For the purposes of the study, the universe consisted of the list of forty seven tenders (out of a total of 101) for which tender documents had been uploaded and were accessible on the Kumbh Mela website (<http://kumbh.gov.in/en/tenders>). These forty seven have been considered as the universe for the study.

These forty seven tenders were divided into nine categories, based on the nature of procurement, as follows:

- Waste Management
- Allotment of land/Stalls
- Advertising and Marketing
- Technology and Communications
- Supply of Goods
- Parking Services
- Tents and Accommodation
- Civil Works
- Miscellaneous

From this stratification, a total of thirteen tenders were purposively selected such that at least one tender was selected from each category and two being selected wherever possible. These were selected to reflect complexity in terms of scale, difficulty of defining specifications, and impact, and diversity of services. The selected tender documents are listed in the table below, along with their category:

Sl. No.	Tender Document for various Operations	Category
1	Selection of Agency to provide housekeeping (including waste management) for Kumbh 2019	Waste Management
2	Dustbin and liner bag	Supply of Items/ Waste Management
3	Request for Proposal (RFP) for allotment of food stalls in the Mela area for Kumbh Mela,2019	Stalls
4	Selection of Agency for Digital Media Planning & Buying for Kumbh 2019	Advertising
5	Selection of an agency for Request for Proposal for selection of an agency for Branding works at the Kumbh 2019 Mela Area	Advertising
6	Proposal for selection of System Integrator (SI) for automation of Public Distribution System (RFP) for Kumbh 2019	Tech
7	Selection of agency to provide analog centralized and standalone public address system for Kumbh 2019	Tech/ Communication
8	Selection of System Integrator (SI) for Design, Development, Implementation, Operation and Maintenance of Lost and Found System for Kumbh 2019	Tech
9	Selection of service provider to provide wireless internet services at Kumbh Mela 2019	Tech
10	Selection of agency for parking facility management at Kumbh Mela 2019	Parking
10	RFP for the Design, Supply, Installation, Testing and Commissioning of Facade Lighting at the Yamuna Bridge	Works
12	Provision of Tentage and Temporary Structures for Kumbh 2019 Convention Hall (Four) and PravachanPandal (One)	Tents & Accommodation
13	Selection of Consultant for Enhanced Pilgrim Experience and Documentation	Miscellaneous

Table 11.1. Tender Documents Selected for Analysis

In addition to these tenders floated by the Prayagraj Mela Adhikari, the study also included two tenders floated in connection with the Kumbh Mela for comparison and contrast. These were:

1. Request for Proposal for Selection of Master System Integrator (MSI) for Implementation of Integrated Command & Control Centre (ICCC) in Allahabad City
2. Request for Proposal for Appointment of Project Management Consultant (PMC) to Design, Develop, Manage and Implement Smart City Projects under Smart City Mission (SCM) in Allahabad, Uttar Pradesh

These documents were individually subjected to a qualitative analysis based on the following criteria:

- Selection methods
- Eligibility criteria
- Evaluation and scoring methods
- Detailing of Terms of Reference, Scope of Work and Service Levels
- Penalties and Enforceability
- Termination and Exit Clauses
- Dispute Resolution methods

Subsequently, some broad trends in these criteria across these tenders have also been compared for analysis. The following sections present the findings of the analysis.

11.5. Analysis of Select Tenders

For all the tenders covered in this section, the Bidder should not have been barred by any government authority from participating in any project and must be a legal entity to participate in the process.

1. Operation: Selection of Agency to provide housekeeping (including waste management) for Kumbh 2019.

Specifications: L1 process

Eligibility Criteria: Must have a minimum average turnover of Rs.1 Crore in the last 3 financial years. Must have minimum 3 years of experience of working in providing housekeeping services to Central/State Government or PSU or Private sector. Must have minimum 3 works of value ₹20 Lakh each. Should not have failed in execution of works in last 3 years.

Evaluation and Scoring Methods: L1 process

ToR, Scope and Service Levels: To plan, direct, control and deliver housekeeping services (including waste management) for all customer groups; housekeeping services (including waste management) that were consistent with the Client while working within agreed budgets. The details of 3 Sites were provided in the Financial Proposal format (with details such as size and number of rooms).

Penalties and Enforceability: In case of delay (no standard defined), an amount of 0.1% to 10% of value per day could be levied. There is clarity in the specification for levying penalty.

Dispute Resolution methods: The document prescribed attempts at amicable resolution followed by arbitration based on Arbitration and Conciliation Act, 1996 in Allahabad, Uttar Pradesh.

2. Operation: Dustbin and liner bag

Specifications: L1 process

Eligibility Criteria: GST registration details and deposit details. Should have an average annual turnover of Rs. 50 Lakh or above in the last 3 years. In case the firm is a Partnership, the necessary proof documents need to be submitted. Work order details from similar previous agreements.

Evaluation and Scoring Methods: L1 process

ToR, Scope and Service Levels: The scope simply involved provision of dustbin and liner bags of given specifications and numbers, mentioned in the document.

Penalties and Enforceability: In case the supply was not made within given time frame, all additional costs were to be borne by the supplier for alternate arrangements, in addition, a 15% fine may be imposed. The firm could also be blacklisted if the situation so requires. In case the supply was not as per given specifications, then the required items could be sourced from a new vendor, and the additional costs and 15% penalty were to be borne by the supplier, which could be recovered from the deposit or the pending payments.

Dispute Resolution methods: Arbitration was listed as the only means to resolve disputes. The document expressly prohibits any legal remedy from courts and declares arbitrator's decision to be final.

3. Operation: Request for Proposal (RFP) for allotment of food stalls in the Mela area for Kumbh Mela,2019.

Specifications: A BoQ with size of the stalls and the reserve price for lease rental for each stall was given in the tender document.

Eligibility Criteria: Zone A, B and C had different criteria. For example for Zone A, a bidder must have minimum annual turnover of ₹25 lakh in each of last three years, bidder must have experience of setting up and managing at least one food/coffee stall in any of the last three years. Ideally it could have been given to an food aggregator.

Evaluation and Scoring Methods: H1 process

ToR, Scope and Service Levels: Set up, operation, maintenance and management of the stall in the designated space, among other things. They were provided indicative list of cuisines and items that can be sold. The terminology used was vague when it comes to hygiene parameters and waste disposal. Objective service levels, such as conforming to FSSAI standards were not used, which may make penalties and enforcement difficult.

Penalties and Enforceability: No objective financial penalties were laid out for penalizing the Lessee for defects in service. The document empowered the authority to impose penalties that it feels just or expedient, for non-compliance. In certain cases, the authority may also cancel

the license and revoke possession. The penalty clauses are there but should define strictly the standards for service and quality checks. It is a good attempt still.

Dispute Resolution methods: The document prescribed attempts at amicable resolution followed by arbitration based on Arbitration and Conciliation Act, 1996 in Allahabad, Uttar Pradesh.

4. Operation: Selection of Agency for Digital Media Planning & Buying for Kumbh 2019.

Specifications: QCBS with 70% weightage to the technical criteria and 30% weightage to the financial criteria. The bidder with the highest total score would be selected to carry out the works.

Eligibility Criteria: Identifying oneself as a legal entity, registered with income tax department and GST network with minimum 5 years of experience. The Bidder shall be an agency / entity essentially involved in Creative & Artistic Production & Branding works. Bidder should not have been blacklisted by any Central/State Government/ PSU. Bidder should have an average annual turnover of Rs.10 crores from the previous 3 financial years. Bidder should be empanelled with at least 2 government entities. The bidder must have in-house Social/Digital Media Planning and Buying capabilities with a minimum of 10 employees. The specifications ensure the firm is a professional firm.

Evaluation and Scoring Methods: Each technical proposal would be assigned maximum 100 marks. The evaluation was divided into three parts:

- Past experience- 30 marks
- Average Annual Turnover of Last three years- 20 marks
- Technical Presentation- 50 marks

ToR, Scope and Service Levels: Scope of services primarily included preparation and execution of the digital media plans, campaigns, media planning and buying, account servicing and general account management. The Key Performance Indicator for the services was the increase in digital media presence of Kumbh.

Penalties and Enforceability: The client could impose a penalty of up to 20% of paid amount in case of failure to achieve the agreed KPIs as per the workplan.

Dispute Resolution methods: The document prescribed attempts at amicable resolution followed by arbitration based on Arbitration and Conciliation Act, 1996 in Allahabad, Uttar Pradesh.

5. Operation: Selection of an agency for Request for Proposal for selection of an agency for Branding works at the Kumbh 2019 Mela Area.

Specifications: L1 process

Eligibility Criteria: Must have average annual turnover of at least Rs. 3 Crore in the last three financial years. Must have completed at least one similar project with minimum amount of Rs. 1 crore over the preceding 3 years. Must have over the past 3 years have successfully

conceptualized, designed and executed at least 3 (three) similar projects with a municipal corporation, tourism department, development authority, PSUs or other government departments or private sector

Evaluation and Scoring Methods: Subcontracting was allowed in this project up to the tune of 25% of the bid value. The bidder was evaluated based on technical experience:

- Total number of years of experience- 15 marks.
- Relevant project experience in end to end management of branding works- 15 marks
- Portfolio of works undertaken- 35 marks
- Resource Deployment Profile- 20 marks

ToR, Scope and Service Levels: The scope primarily included installation and maintenance of branding material under 5 broad categories; Customised flags, Branding Flexes, LED spiral lighting, 3D cut outs and Selfie points, and Merchandise. The document explicitly detailed the service level benchmarks under each branding category.

Penalties and Enforceability: A performance security of 10% of the agreement value was collected from the bidder in the form of bank guarantee or cash deposit. The contract provided the authority the right to claim liquidated damages of up to 10% of contract amount, in case services were not as per prescribed norms.

Dispute Resolution methods: The document prescribed attempts at amicable resolution followed by arbitration based on Arbitration and Conciliation Act, 1996 in Allahabad, Uttar Pradesh.

6. Operation: Selection of agency for Selection of System Integrator (SI) for Automation of Public Distribution System

Specifications: The allotment was based on the QCBS with 70% to the technical and 30% to the financial criteria.

Eligibility Criteria: Must have an average annual turnover of Rs. 1 Crore or above in the last 3 years, should have provided carried out software implementation and provided roll out services for State/Central Government in last 5 years with minimum value of Rs. 10 Lakhs, should not have been barred or blacklisted by any Government/PSU.

Evaluation and Scoring Methods:

- Financial Capability-15
- Technical Capability- Experience of implementing software solution-15, Completed project/s of providing Public Distribution System-15
- Team-10
- Approach & Methodology-15
- Proof of Concept- 30

ToR, Scope and Service Levels: The scope included, issuance of Ration Cards/Permits to the Pilgrims, distribution of Civil Supplies to Fair Price Shops from Mela Godown, distribution

of Civil Supplies to Pilgrims from Fair Price Shops. The tasks of the SI included design and develop a Cloud based Kumbh Public Distribution System, deployment of the system, its operations and maintenance. This is a comprehensive standards.

Penalties and Enforceability: The SLA level ranged from 9 to 1, with penalties ranging from termination to 2% for the SLA level 1. Monitoring mechanisms and controls should have been indicated.

Dispute Resolution methods: The document prescribed attempts at amicable resolution followed by arbitration based on Arbitration and Conciliation Act, 1996 in Allahabad, Uttar Pradesh.

7. Operation: Selection of agency to provide Analog Centralized and standalone public address system for Kumbh 2019.

Specifications: L1 process

Eligibility Criteria: Bidder should have at least 3 years of experience in a similar kind of work, have done at least one government project like setting up public announcement systems in public functions; and an average annual turnover of Rs. 60 lakhs from the previous 3 financial years. The Bidder should have experience of implementing at least 1 Public address system projects for Mass gathering functions with minimum 800 Horns/other output device installation and maintenance in the last 6 years. Bidder should not have been barred any government entity before and in last 3 years. The specifications ensure the bidder have experience with managing large gathering.

Evaluation and Scoring Methods: L1 process

ToR, Scope and Service Levels: The scope of services was explained in requirements under two work streams,

- Under work stream 1, the bidder should be providing Model System Units for long stretch setup for Ghats/ Road-Side. Under work stream 2, the bidder should be providing Model System Units for long stretch setup for Naka/ Parking / Police Line/ Barrier etc.
- The document explicitly specified the expected quality of service from the vendor with a clear focus on efficiency, which is evident in the stipulation that all faults need to be rectified within one hour of notification.

Penalties and Enforceability: The document provided for imposition of penalties of up to Rs. 5000/-, in case of unsatisfactory work or inappropriate behaviour by the staff appointed by the vendor. In addition, the authority had discretionary power to treat other conditions as breach of the terms and conditions under the agreement, and accordingly impose a penalty depending upon the quantum of breach.

Dispute Resolution methods: The document prescribed attempts at amicable resolution followed by arbitration based on Arbitration and Conciliation Act, 1996 in Allahabad, Uttar Pradesh.

8. Operation: Selection of System Integrator (SI) for Design, Development, Implementation, Operation and Maintenance of Lost and Found System for Kumbh 2019.

Specifications: Quality cum Cost Based System (QCBS) with 70% weightage to the technical criteria and 30% weightage to the financial criteria.

Eligibility Criteria: Must have an average annual turnover of Rs.2 Crore or above in the last 3 years. Should have executed at least 5 system integration projects including application development, rollout services, network infrastructure and manpower deployment in India to the Government organizations/ departments, in the last 5 years. The Bidder must have experience of a Government project with value of Rs.1 Cr or above. Valid empanelment (on the date of proposal submission) with State/Central Government for system integration/ software service provider/ social media operations/ manpower supply. The Bidder, during the last three years, should not have failed to perform on any agreement.

Evaluation and Scoring Methods: Financial Capability- 20

Technical Capability-

- Experience of providing system integration services for mass gathering event to Government organizations/ departments in India in the past 10 years- 10
- Experience of providing system integration services including application development, rollout services, network infrastructure and manpower deployment in the past ten years- 20
- Team- 10
- Approach & Methodology- 20
- Solution Demonstration- 20

ToR, Scope and Service Levels: The tasks of the SI include Design, Development, Testing and Rollout of the Application. Deployment of System, operation and maintenance. In order to do so, the following features were to be made available:

- Lost persons (not carrying mobile phone) can call and connect with their family/ friends (if they are carrying mobile phone) through help of lost and found centres.
- Lost person's information will be displayed at every lost and found centre, to help people identify lost person and the name/ location of the centre where they are staying.
- Public address announcements at all lost and found centres for enabling family/ friends to re-unite with the lost persons.
- Utilizing social media (Facebook, Twitter, etc.) to post information of lost persons.
- Police intervention, if lost personnel are not claimed by their family/ friends in 12 hours.

Penalties and Enforceability: The document allowed the authority to impose two types of penalties on non-compliance with milestones and performance penalties.

Dispute Resolution methods: The document prescribed attempts at amicable resolution followed by arbitration based on Arbitration and Conciliation Act, 1996 in Allahabad, Uttar Pradesh.

9. Operation: Selection of service provider to provide wireless internet services at Kumbh Mela 2019.

Specifications: Quality Based Selection (QBS)

Eligibility Criteria: Must have average annual turnover of at least Rs.2 Crore in the last three financial years. Must be a “Class A” Internet Service Provider (ISP) approved by TRAI/DOT or any other relevant national level certification. Must have experience of providing wireless internet services for minimum three years. Must not be barred. Must not have failed to perform on any agreement.

Evaluation and Scoring Methods: Evaluation on the basis of technical experience-

- Average annual turnover during the last 3 years- 15 marks.
- Experience of Internet Service Provider- 10 marks
- Presentation on scope of work- 15 marks
- Cost of Service to end consumer- 10 marks

ToR, Scope and Service Levels: The scope primarily included installation and maintenance of quality wireless internet services. It also stipulated provision of power back up, maintenance of user records, bandwidth control, staffing, etc. The use of user authentication and OTP based registration, supported devices, encryption, etc. In addition, the contract also mentioned that the downtime should not be greater than 12 hours at any location, failing which penalty could be imposed. They should have set tracking mechanism for ensuring this.

Penalties and Enforceability: The contract provided the authority the right to claim liquidated damages of up to 10% of contract amount, in case services were not as per prescribed norms or delayed. Additionally, penalties could also be levied on the bidder for downtime beyond specified period, non-compliance to scope or breach of contract.

Dispute Resolution methods: The document prescribed attempts at amicable resolution followed by arbitration based on Arbitration and Conciliation Act, 1996 in Allahabad, Uttar Pradesh.

10. Operation: Selection of agency for parking facility management at Kumbh Mela 2019.

Specifications: A detailed list of parking areas was given in the document with each bidder allowed to bid for a maximum of 7 packages out of the 12 packages The allotment was to be made to the bidder quoting the highest amount rental (H1) for a particular package.

Eligibility Criteria: Must have an average annual turnover of ₹50 Lakh or above in the last 3 years, should have provided similar services covering a minimum of 1000 car parking spaces in the last 3 years, should not have failed to deliver on previous agreements. The document

also necessitated the bidder to set up a local office within a stipulated time if selected. The tender ensures that vendor will have certain minimum size and desirable experience.

Evaluation and Scoring Methods: H1 process

ToR, Scope and Service Levels: The scope was to manage the parking lot allocated, construct temporary vending zones along with cloak rooms and manage them. The service levels to be maintained covered aspects such as Traffic Management, Ticketing, Asset Security. The role of the authority included providing a Public Address System, basic land levelling, barricading of the parking area and Police deployment. The tariff charges for different categories of vehicles had been fixed by the authority. It is a comprehensive specs.

Penalties and Enforceability: The authority was empowered to impose a maximum liquidated damage of 10% (ten percent) of the accepted contract amount.

Dispute Resolution methods: The document prescribed attempts at amicable resolution followed by arbitration based on Arbitration and Conciliation Act, 1996 in Allahabad, Uttar Pradesh.

11. Operation: RFP for the Design, Supply, Installation, Testing and Commissioning of Facade Lighting at the Yamuna Bridge.

Specifications: A two stage bidding process was followed. The RFP laid out minimum eligibility and technical evaluation criteria. The financial proposal request was only to be launched to the qualifying bidders. The selection method was QCBS, with a weight of 70% to technical criteria and a weight of 30% to financial criteria.

Eligibility Criteria: Joint Ventures are permitted. Should have three similar completed works of Rs. 330 lakh or two similar completed works of Rs. 413 lakh or one similar completed works of Rs. 661 lakh. Must have average annual turnover of at least Rs. 248 lakh from civil/electrical work in the last three financial years. Should not have incurred loss in more than two years during the last five consecutive financial years. Should produce solvency certificate of ₹330 lakh.

Evaluation and Scoring Methods:

Technical experience-

- Specific experience related to similar works successfully executed in last 3 years- Maximum of 10 marks.
- Operation and Maintenance experience of similar works in last 3 years- Maximum of 10 marks
- Average annual turnover during last three years- Maximum of 10 marks
- Quality of equipment and brands offered- Maximum of 10 marks
- Approach & Methodology, Innovation and Presentation- Maximum of 20 marks
- CVs of Key Experts- Maximum of 20 marks
- Audio-Video Clips- Maximum of 20 marks.

ToR, Scope and Service Levels: The scope of work primarily included the design, supply, installation, testing and commissioning of a Laser Show at the Allahabad Fort. The bidder was also responsible for content development, script, artistic direction, etc. of the show as well as to provide all hardware and software, manpower necessary. The bidder was also responsible for operation and maintenance of the show for a period of five years after commissioning.

Penalties and Enforceability: The contractor was to provide a bank guarantee of 10% of the amount of contract price as performance security valid for a period of 6 months beyond the defect liability period of 12 months after completion of works. Costs for defects could be deducted from this security, if not rectified by the contractor, therefore increasing enforceability and accountability. In case of delay in work beyond agreed schedule, liquidated damages at 0.5% per week subject to a maximum of 5% of incomplete portion could be imposed. The authority could also impose a fine of up to Rs. 5000 for every show that was not held due to fault of the contractor. It had thus an enforceable system of penalties.

Dispute Resolution methods: The E-Tender document prescribes jurisdiction through courts for dispute resolution; however, no alternate dispute resolution methods are prescribed.

12. Operation: Provision of Tentage and Temporary Structures for Kumbh 2019 Convention Hall (Four) and PravachanPandal (One).

Specifications: L1 process, the document went a little further also allocating grade of L1, L2, L3 and so on to all bidders receiving a technical score of more than 60. In this case, L1 being the lowest quote.

Eligibility Criteria: Bidder should have at least 5 years of experience in the event management business and an average annual turnover of Rs. 2 crores from the previous 3 financial years. The bidder should have experience in doing government projects in the last 3 years with a total income of Rs. 1 crore. The bidder should have a bill of purchase/rent of aluminium structure with a profile of size of 20 m x 50 m. Bidder should not have been barred any government entity before and in last 3 years, have not failed to perform on any agreement.

Evaluation and Scoring Methods: The bidder was evaluated based on technical experience on the following parameters-

- Events with minimum value of Rs.1 crore- 25 marks
- Average annual turnover during the last 3 years- 25 marks.
- Experience in doing similar kind of work in the last 3 years- 10 marks
- Experience of working with the government organisations in the last 3 years- 15 marks
- Presentation of concept, state design and methodology- 25 marks

ToR, Scope and Service Levels: The services to be provided by the bidder included both erecting, as well as operations and maintenance for the allotted structures. In addition, these

clauses provided a detailed design and size measurements for each of the structures, including decorations, materials, furniture, barricading, etc. A detailed staffing plan is provided for management of the structures. All material shall conform to ISI codes or be approved by authority. It also mentioned that non-functional ports, fans, etc. should be replaced within one hour of notification to bidder. Specs have been comprehensively defined.

Penalties and Enforceability: The contract provided the authority the right to claim liquidated damages of up to 1% of bid value per day subject to a maximum of 10% in case of delays or issues. Penalties could also be levied on the bidder for unsatisfactory services, failure to meet the deadlines as per the work plan.

Dispute Resolution methods: The document prescribed attempts at amicable resolution followed by arbitration based on Arbitration and Conciliation Act, 1996 in Allahabad, Uttar Pradesh.

13. Operation: Selection of Consultant for Enhanced Pilgrim Experience and Documentation.
Specifications: The method of selection was Combined Quality Cum Cost Based Selection (QCBS) wherein the technical proposal had an 80% weightage and the financial proposal had a 20% weightage.

Eligibility Criteria: The bidder should have at least 10 years' experience in providing consulting services to government organisations/departments with a minimum annual turnover of Rs.500 crore during each of the last three (3) years from India operations. The bidder should have experience in doing minimum 2 government consulting projects in Uttar Pradesh and also have hands on experiences in raising CSR funds. ISO 9001 certification and ISO 27001 certification are mandatory. This is a qualitative area and difficult to define service level. One can ensure quality only by ensuring quality vendors.

Evaluation and Scoring Methods:

- Financial Capability- 5 marks
- Government Event Management Experience-10 marks
- Experience in advising religious trusts/organisations- 10 marks
- Experience in executing government projects in Uttar Pradesh- 20 marks
- Experience of working in designing and improving user-experience-5 marks
- Experience of raising CSR funds-5 marks
- Team composition- 20 marks
- Approach and Methodology- 25 marks

ToR, Scope and Service Levels: The tasks of the consultant were listed under six buckets with detailed list of deliverables and expected outcomes.

Task I: Define and design 'better pilgrim experiences'

Task II: Identification of stakeholders to implement the design

Task III: Identification of Communication and Coordination needs

Task IV: Mela Risk Management

Task V: Project documentation and legacy planning

Task VI: Comprehensive project/ programme management

The tender document mandates the consultant to setup a fulltime project implementation office at Allahabad close the Prayagraj Mela Authority and the office needs to be structured at two levels, Program management, domain expertise and Fulltime onsite implementation support.

Penalties and Enforceability: The document did not make explicit mention of penalties and enforceability.

Dispute Resolution methods: The document prescribed attempts at amicable resolution followed by arbitration based on Arbitration and Conciliation Act, 1996 in Allahabad, Uttar Pradesh.

14. Operation: Selection of Master System Integrator (MSI) for Implementation of Integrated Command & Control Center (ICCC) in Allahabad City

Specifications: The method of selection was Quality Cum Cost based selection (QCBS) with 70% weightage being given to technical score and 30% to financial score.

Eligibility Criteria: Bidder may be either a single entity or a consortium with a maximum of four parties. Should be registered as a company and in operation in India for at least 5 years. Should have annual average turnover of Rs. 500 Crore in the last 5 years. Should possess relevant ISO certifications. Should have office in Allahabad or establish office within 45 days. Compliance to PAN, GST, etc. This was an important part of the mela and a critical tender. This tender was comprehensively dealt with by the Consultant.

Should have completed below mentioned projects in India with cumulative value of INR 50 crore in last five years-

- Data Center/Servers-Storage
- Infrastructure establishment
- Surveillance projects
- Command and control center/ City Control Room/ Communication Center
- Intelligent traffic management.

Evaluation and Scoring Methods: Technical experience-

- Experience of executing large systems integration projects in India in last five years: 10 marks.
- Experience of implementing surveillance system with at least 500 outdoor cameras in India during last five years: 10 marks
- Experience of implementing road traffic enforcement/ management system or traffic signals system in India during last five years: 5 marks
- Experience of implementing AVLS/PIS/AFCS system in India during last five years: 5 marks

- Experience in integration of specified smart features with a centralized system: 10 Marks
- Experience of setting up or O&M of specified project categories: 10 Marks
- Resource Deployment Plan & Governance structure: 20 Marks
- Understanding of Scope of Work, Detailed Approach & Methodology and Presentation: 15 Marks
- Presentation and Demonstration of Proof of Concept: 15 marks

ToR, Scope and Service Levels: The scope was detailed in volume 2 of the RFP, a document running into nearly 500 pages. The overall scope for the bidder included-

- 1) Assessment, Scoping and Survey Study
- 2) Design, Supply, Installation, Commissioning and Testing
- 3) Establishment of network based on Lease line/MPLS connectivity and Internet connectivity for operations of ICCC & Kumbh Mela Surveillance system project
- 4) Provisioning Hardware and Software Infrastructure
- 5) Phase wise Integration of the ICT systems with ICCC
- 6) Capacity Building for ASCL and other end user departments
- 7) One Time dismantling, transportation and Re-Installation of select field Infrastructure and Viewing Centers/CCC for post Kumbh Mela
- 8) Preparation of system documents, user manuals, etc.
- 9) Identification of Revenue generation opportunities by various smart solutions, planning and roll out of strategy
- 10) Operations and Maintenance services

The SLAs have been broken up into pre-implementation SLA and post-implementation SLA. In each case, the expected service level is mentioned, the unit of measure, as well as the penalty for non-achievement of SLA.

Penalties and Enforceability: A performance security of 10% of the agreement value was collected from the bidder in the form of bank guarantee. Liquidated damages based on the achievement of SLAs as detailed earlier could be appropriated from this deposit.

Dispute Resolution methods: The document prescribed attempts at conciliation or mediation followed by arbitration based on Arbitration and Conciliation Act, 1996 in Allahabad, Uttar Pradesh.

15. Operation: Appointment of Project Management Consultant (PMC) to Design, Develop, Manage and Implement Smart City Projects under Smart City Mission (SCM) in Allahabad, Uttar Pradesh

Specifications: Quality Cum Cost based selection (QCBS) with 80% weightage being given to technical score and 20% to financial score. This is again an important Tender which was one of the key component of kumbh administration.

Eligibility Criteria: Bidder may be either a single entity or a consortium. Must have valid GST registration. Must have at least one office in India operational for at least 10 years or more. Should not be blacklisted in last 10 years. Should have minimum average annual turnover of ₹100 crores during last 3 years. Should have experience of at least five assignments as consultants for urban infrastructure projects in the public sector.

Evaluation and Scoring Methods: Technical experience-

- Experience of various kinds of consulting projects- Maximum of 30 marks.
- Proposed Methodology and workplan- Maximum of 40 marks
- Profiles of Key Professional Staff- Maximum of 30 marks

ToR, Scope and Service Levels: The detailed scope was given in the form of tasks and activities.

Task 1: Project Management which involved assisting the client in various activities such as engaging professionals, capacity building, reviewing financing, etc.

Task 2: Project Design & Development which included a Situation Analysis Report, Feasibility Report, Preliminary Detailed Project Report and Bid Process Management

Task 3: Project Implementation and Supervision

Penalties and Enforceability: The bidder was to pay 1% of total cost of services as liquidated damages for delay of each week in submission of deliverables. Similarly, if deliverables were not rectified to satisfaction of client within 30 days of receipt of notice, the bidder would be liable to pay liquidated damages to the tune of 0.05% of total cost of services for every week of delay. Provided that the liquidated damages could not exceed 10% of total contract value.

Dispute Resolution methods: The document prescribed attempts at conciliation or mediation followed by arbitration based on Arbitration and Conciliation Act, 1996.

11.6. Synthesis of Findings

The previous sections carried out an analysis of the tenders individually. This section looks at the documents in comparison to each other and also contrasts them with other tenders which were not launched for the Kumbh Mela. The table below summarises the various tenders, the authority that launched them as well as the method of selection employed.

Name of Tender	Tender Authority	Method of Selection
Selection of Agency to provide housekeeping (including waste management) for Kumbh 2019	Prayagraj Mela Pradhikaran	LCS
Dustbin and liner bag	Office of AD, Medical Health and Family Welfare, Allahabad Mandal	LCS
Allotment of food stalls in the Mela area for Kumbh Mela, 2019	Prayagraj Mela Pradhikaran	HBS

Selection of Agency for Digital Media Planning & Buying for Kumbh 2019	Prayagraj Mela Pradhikaran	QCBS (70:30)
Selection of an agency for Branding works at the Kumbh 2019 Mela Area	Prayagraj Mela Pradhikaran	LCS
Selection of System Integrator (SI) for automation of Public Distribution System (RFP) for Kumbh 2019	Prayagraj Mela Pradhikaran	QCBS (70:30)
Selection of agency to provide analog centralized and standalone public address system for Kumbh 2019	Prayagraj Mela Pradhikaran	LCS
Selection of System Integrator (SI) for Design, Development, Implementation, Operation and Maintenance of Lost and Found System for Kumbh 2019	Office of Senior Superintendent of Police, Kumbh Mela	QCBS (70:30)
Selection of service provider to provide wireless internet services at Kumbh Mela 2019	Prayagraj Mela Pradhikaran	QBS
Selection of agency for parking facility management at Kumbh Mela 2019	Prayagraj Mela Pradhikaran	HBS
Provision of Tentage and Temporary Structures for Kumbh 2019 Convention Hall (Four) and PravachanPandal (One)	Prayagraj Mela Pradhikaran	LCS
Selection of Consultant for Enhanced Pilgrim Experience and Documentation	Prayagraj Mela Pradhikaran	QCBS (80:20)
Design, Supply, Installation, Testing, Commissioning (S.I.T.C) Laser Show at Kumbh Mela (Allahabad Fort)	Office of the General Manager, Uttar Pradesh Rajakeey Nirman Nigam Ltd	QCBS (70:30)
Appointment of Project Management Consultant (PMC) to Design, Develop, Manage and Implement Smart City Projects under Smart City Mission (SCM) in Allahabad, Uttar Pradesh	Allahabad Smart City Limited	QCBS (80:20)
Selection of Master System Integrator (MSI) for Implementation of Integrated Command & Control Centre (ICCC) in Allahabad City	Allahabad Smart City Limited	QCBS (70:30)

Table 11.2. Categorization of Tenders based on authority and method of selection

Out of the tenders selected from the Kumbh website, majority of them (10 out of 13) were tendered out by the Prayagraj Mela Pradhikaran while the rest were from different authorities.

Among the thirteen tenders, there were significant differences in the number of days provided for bidders to submit bids. While differences could depend on various factors such as urgency, nature of procurement, complexity of bids, etc., this variation was wide, ranging from 6 days to 23. In some cases, this could raise concerns about whether sufficient time was provided for bidders to go through tenders and prepare responsive & competitive bids. In

contrast, the bids launched for the Smart City programme, were given three weeks to a month in both cases.

In terms of the method chosen for selecting the best bidder for carrying out a given project, four different methods were utilized:

- 1) Least Cost Selection (LCS)
- 2) Highest Bid Selection (HBS)
- 3) Quality Based Selection (QBS)
- 4) Quality cum Cost Based Selection (QCBS)

Largely speaking, the method of selection used was appropriate for the nature of procurement sought. Among the sample, the number of documents using least cost (LCS) was 5 and Quality cum Cost Based Selection (QCBS) was 7, and these two emerged as the most preferred methods. HBS was applied in 2 tenders and QBS in 1 tender. The criteria set for both minimum eligibility as well as technical evaluation were also found to be comprehensive in most cases. The figure below summarizes the various selection methods used.

The scope of services was detailed well in almost all the sampled documents. However, in certain cases, the service levels could have been detailed better. In many cases, the service levels used qualitative adjectives, subjective measures and were non-specific. This can lead to difficulties in monitoring performance and enforcing contract. Moreover, the definition of service levels and linking of service levels to penalties can improve contract management, increase accountability and transparency, with better outcomes for both parties as well as improved vendor relationships. Linking of penalties to defined service levels was found in three documents namely - Proposal for selection of System Integrator (SI) for automation of Public Distribution System (RFP) for Kumbh 2019, Selection of System Integrator (SI) for Design, Development, Implementation, Operation and Maintenance of Lost and Found System for Kumbh 2019 and Selection of Agency for Digital Media Planning & Buying for Kumbh 2019. In other cases, while some service level benchmarks were set, they were not adequately linked to payment terms or the penalty for non-compliance was based on the discretion of the authority. The tender for “Request for Proposal for Selection of Master System Integrator (MSI) for Implementation of Integrated Command & Control Centre (ICCC) in Allahabad City” launched by the Allahabad Smart City Limited is a good reference point in this case, with clearly detailed service level benchmarks, defined measures and defined penalties.

Performance Monitoring and feedback is an important part of the vendor management process and is critical to ensure better value for money and better outcomes. Significantly, in three out of thirteen tenders, no explicit performance monitoring mechanism was prescribed. In most other cases, the monitoring mechanism was left to reporting by the bidder and inspection by the client. This process being simpler, and sufficient in case of procurement of lower technical nature, gives the authority agility and can speed up decision making. In few

cases of the larger tenders, setting up of steering committees or appointment of third party auditors was part of the process. Monitoring mechanisms, barring the tenders in which they were completely absent, were found to be adequate given the nature of work.

An encouraging trend was the prescription of alternate dispute resolution (ADR) methods such as mediation, conciliation and arbitration, before subjecting disputes to jurisdiction of courts. These seemed to form a part of the standard contract formats and is a positive move as these methods can offer speedier resolution, reduce pendency in courts and also improve vendor relationships through the use of amicable, participative and non-adversarial means. The graph below shows the numbers of sampled documents prescribing ADR methods.

The Table on the following page rates each of the evaluated tenders on a five point scale against the following five parameters:

- **Eligibility & Evaluation Criteria:** It ranks the tenders based on the level of detail provided in these criteria.
- **Scope of Services:** It rates the tenders based on the level of detail within the scope to see if only a basic scope is provided or whether the scope clearly details the roles and responsibilities of the bidder, along with timelines, in a comprehensive manner.
- **Service Levels/Specifications:** It rates each tender based on the level of detail provided to the service level benchmarks to be adhered to by the bidder as well as the specifications of systems/items to be delivered. The lowest score is provided if no such specifications or service levels are laid out, and they are ranked higher if these are objective, lay out objective standards, provide metrics and values.
- **Penalties:** Similarly, a tender gets lowest score on this parameter if no penalties are laid out or vague, but is higher if the conditions of default, penalty amounts are listed and ranked highest if the penalties are linked objectively to service levels or service standards.
- **Monitoring & Evaluation:** A tender is rated lowest if no details are provided on the process, and ranks higher based on the level of detail and specification of the process to be adopted for monitoring & evaluation.

	Name of Tender	Tendering Authority	Eligibility/ Evaluation on Criteria	Scope of Services	Service Levels / Specifications	Penalties	Monitoring & Evaluation
1	Request for Proposal (RFP) for allotment of food stalls in the Mela area for Kumbh Mela, 2019	Prayagraj Mela Pradhikaran	3	4	2	2	2
2	Request for Proposal (RFP) for selection of agency for Parking Facility Management at Kumbh Mela 2019	Prayagraj Mela Pradhikaran	4	3	3	3	3

3	Request for Proposal (RFP) for selection of agency for Selection of System Integrator (SI) for Automation of Public Distribution System for Kumbh 2019	Prayagraj Mela Pradhikaran	4	4	4	5	4
4	Request for Proposal (RFP) for Design, Development, Implementation, Operation and Maintenance of Lost and Found System for Kumbh 2019	Office of Senior Superintendent of Police, Kumbh Mela	3	4	4	5	4
5	Request for Proposal (RFP) for Selection of Agency to provide housekeeping services (including waste management) in Kumbh 2019	Prayagraj Mela Pradhikaran	3	2	2	1	1
6	Request for Proposal (RFP) for Dustbins and Liner Bag at Kumbh Mela 2019	Office of Addl. Director, Medical Health and Family Welfare	2	3	4	3	3
7	Request for Proposal (RFP) for Selection of Agency for Digital Media Planning & Buying for Kumbh 2019	Prayagraj Mela Pradhikaran	4	4	4	4	4
8	Request for Proposal (RFP) for Appointment of Agency to Provide Analog Centralized and Standalone Public Address Systems for Kumbh 2019	Prayagraj Mela Pradhikaran	4	4	4	3	4
9	Request for Proposal (RFP) for Provision of Tentage and Temporary structures for Kumbh 2019 - Convention halls (four) and Pravachan Pandal (one)	Prayagraj Mela Pradhikaran	4	4	3	2	3
10	Selection of Service Provider for Providing Wireless Internet Services in Kumbh Mela 2019	Prayagraj Mela Pradhikaran	4	4	4	3	1
11	Request for Proposal (RFP) for Selection of Consultant for Enhanced Pilgrim Experience and Documentation for Kumbh 2019	Prayagraj Mela Pradhikaran	4	4	NA	1	3
12	Request for Proposal for Selection of an Agency for Branding works at the Kumbh 2019 Mela Area	Prayagraj Mela Pradhikaran	4	4	4	2	1

13	RFP for the Design, Supply, Installation, Testing and Commissioning of Laser Show at Kumbh Mela	Uttar Pradesh Rajkiya Nirman Nigam Limited	4	4	3	3	3
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Table 11.3. Rating of Sampled Tenders on Select Parameters

In general, it was found that the documents were well-structured and employed good vendor management principles across the evaluated parameters. A few areas for improvement may be as follows:

- Provision of adequate time both for preparation and submission of bids, as well as for evaluation of bids and contracting formalities
- In cases of larger procurement values or technical tenders, better detailing of service level benchmarks with a quantitative measure and defined penalties
- Clear detailing of performance monitoring and feedback mechanisms
- In most of the cases third party monitoring was employed.

Chapter 12

Communications and Information Technology

12.1. Introduction

A mega event like the Kumbh Mela depends heavily on high quality communications for its success. There are various purposes served by communications that come into play: communications needed for smooth planning, coordination and implementation, communications aimed at publicity and information dissemination related to the event itself, communications that are critical in preventing and managing disasters, and communications that help pilgrims and visitors have a comfortable and enjoyable experience.

All these types of communication require high-end technology and systems that allow seamless flow of information and data. This chapter describes the type and scale of infrastructure and communications systems that were established at Kumbh 2019 to enable smooth communications. They are covered under the following headings:

- Integrated Command and Control Centre (ICCC)
- Telecommunications
- Internet and Wi-Fi Services
- Wireless Priority Service (WPS)
- Social Media Coverage
- Social Media

12.2. Integrated Command and Control Centre (ICCC)

Prayagraj was one of the 100 cities selected under the Smart Cities Mission. One of the key elements of the Smart City proposal was the implementation of an Integrated Command and Control Centre (ICCC). This entailed the utilization of information technology to modernize key functions of city operations including traffic management, traffic control, traffic law enforcement, security and safety, e-governance, municipal operations and information dissemination, to make the operations smooth for the benefit of citizens. The administration used this opportunity to speed up its implementation to facilitate Kumbh management. It got implemented at breakneck speed and was put to use effectively during Kumbh.

The key objective of the ICCC project was to establish a collaborative framework where inputs from different functional departments such as transport, water, fire, police, meteorology, e-governance, etc. could be assimilated and analysed on a single platform, resulting in aggregated city-level information. It had two components – ICCC for the pan city area from the smart city perspective, and ICCC for Kumbh-specific operations.

The ICCC system for Kumbh 2019 had the following objectives in mind:

- Safety and security of pilgrims, tourists and citizens
- Support to police to maintain law and order situations
- Improving crowd management
- Effective traffic management
- Dissemination of advisory information
- Support for disaster management
- Analysis of data for quicker decision making
- Real time information and response

Several initiatives were undertaken in the area of adoption of Information technology in the context of smart city. The scope of the Smart City Project includes:

- Installation of Surveillance Cameras
- Installation of Variable Message Boards
- Setting up of Data Center and Disaster Recovery Center
- Integrated Command and Control Center
- Last mile network connectivity
- Smart elements like SWM (Solid Waste Management) with 500 bins, 100 Aadhar based biometric devices
- Contact center 24/7 operating contact center with 90 operators and technical trainers
- Training, Helpdesk and FMS – traffic police personnel training (functional/administrative/senior management)
- Smart Parking System is introduced (Day Parking and Night Markets)
- Development of Smart Public Toilets and Smart Roads
- Construction and installation of water ATMs
- Open Air Gyms in certain identified parks

ICCC sought to cover factors services of:

- Intelligent Traffic Management System (ITMS)
- City Surveillance System
- Transit Management System for city buses
- Solid Waste Management
- Environmental Sensors
- Smart Parking System
- Network Connectivity
- Data Centre (DC)
- Disaster Recovery Centre (DRC)
- Viewing Centres

ICCC aims to assimilate information and collaborate with different departments like Police, Traffic, Fire, Sanitation, Sewage, Water and E-Governance. It enables monitoring and

analysis of data for aiding a quick response system and enhances administrative efficiency with intelligent operation capability for real time collaboration.

These integrated command control centers provide an overview of various smart features highlighting key performance indicators, situational awareness, incident management, integrated systems monitoring, facilitating generation of user centric charts and data drill downs. The ICCC was integrated with Dial 100 and Helpdesk solution that enabled crucial decision making, providing timely alerts and actionable insights with configurable SOPs. These are discussed under the section on crowd management later.

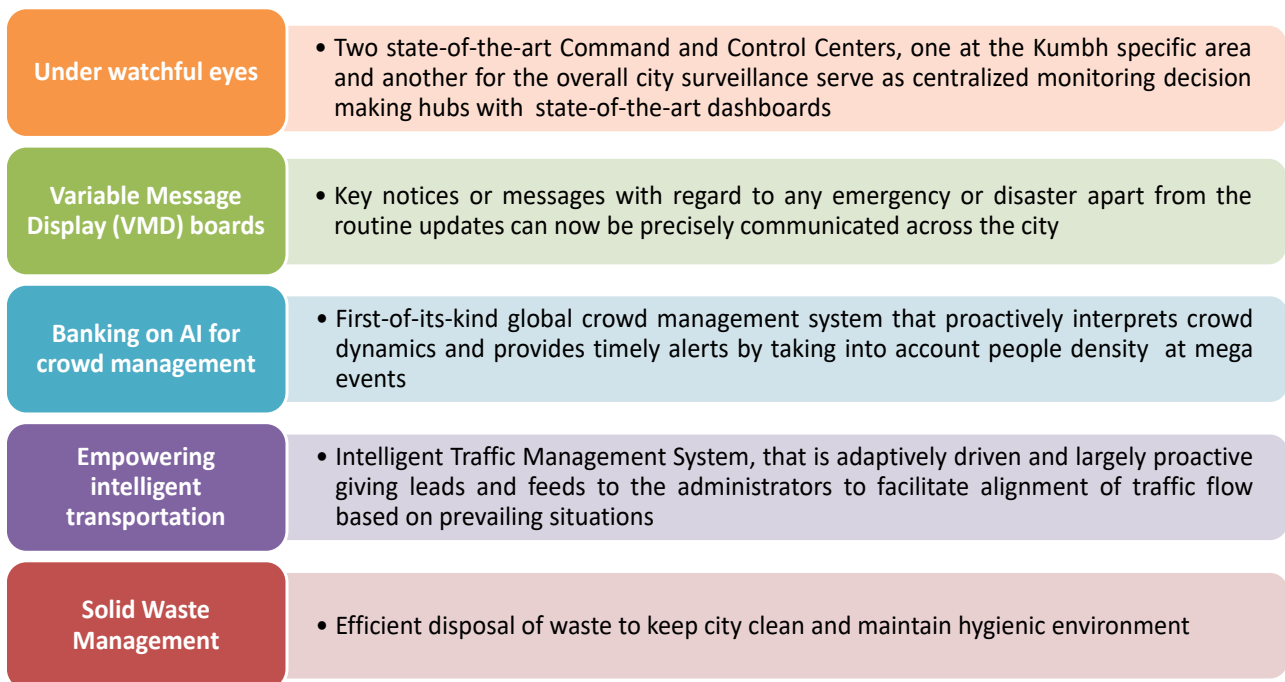


Figure 12.1. Benefits of ICCC to Prayagraj Smart City

More than 1100 CCTV Cameras were have installed that are spread across 268 locations using 350 Km of *Optical Fiber Cable Network* support which aids the Police to discourage, detect and deal with criminal activities. Adaptive Traffic Management System (S) were incorporated with 23 Adaptive Traffic Control Signals to facilitate alignment of traffic flow based on prevailing situations. 40 Variable Message Display Boards for communicating regular, important and emergency notices were installed. 500 GPS devices for implementation of Solid Waste Management were introduced. A 24/7 Kumbh Helpdesk 1920 was provided.

Some of the specific components envisaged to achieve the above objectives were:

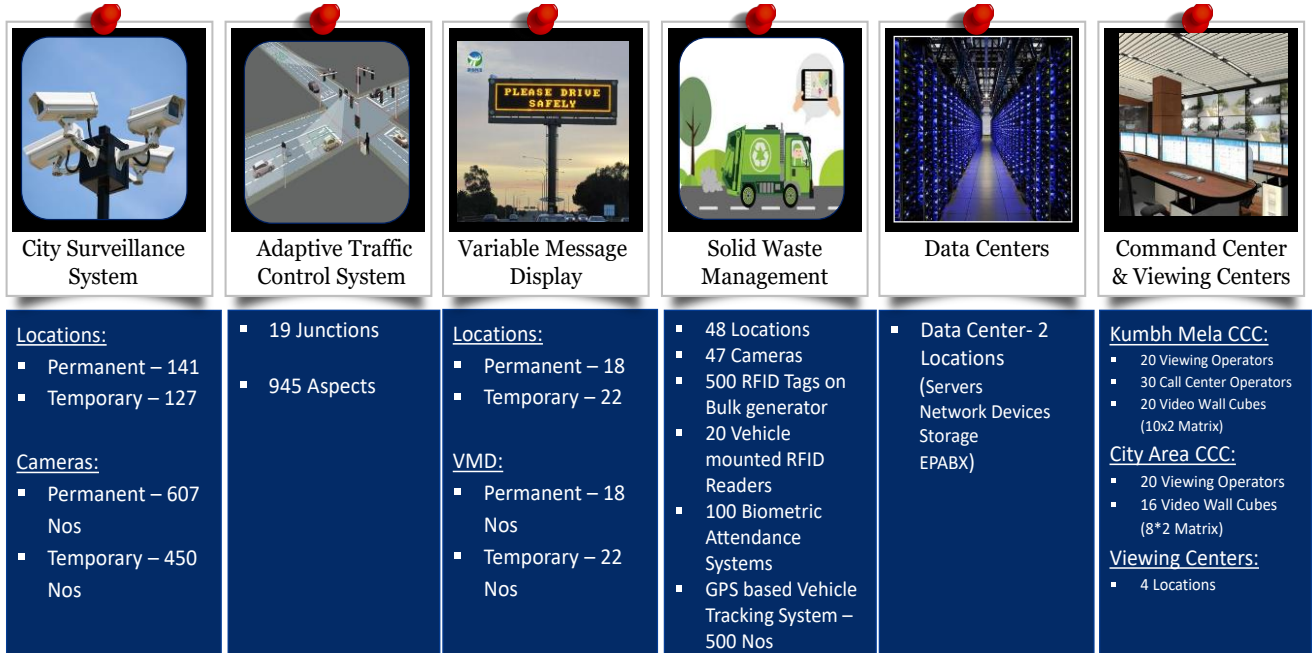


Figure 12.2. Scope of Coverage

The RFP that was put out for a Master System Integrator to implement the above mentioned project outlined at various geographical locations:

#	System Description	Locations
1.	Intelligent Traffic Signals/Blinkers	43 Locations
2.	Surveillance System (Fixed and PTZ Cameras)	363 Locations
3.	ANPR Cameras	23 Locations
4.	Red Light Violation Detection System at Intersection	18 Locations
5.	Variable Message Display (VMD) Boards	40 Locations
6.	CCTV Cameras for ACTSL Buses	250 Buses
7.	Passenger Information System (PIS) for Bus Shelters	20 Locations
8.	Surveillance System & Passenger Information System (PIS) for Bus Terminals	3 Locations
9.	Surveillance System for Bus Depots	4 Locations
10.	Smart Parking System for Multi-Level Car Parking (MLCP)	1 Location
11.	Environmental Sensors	28 Locations
12.	RFID Tags for Bulk Generators	1000 Locations
13.	Surveillance System for Secondary Collection Centres, SWM Plant and Vulnerable Garbage Points	97 Locations
14.	Viewing Centres	4 Locations

15.	Data Centre (DC)	One DC at Prayagraj Municipal Corporation
16.	Disaster Recovery (DR) Centre	Cloud
17.	Command & Control Centres (CCC)	Two CCCs: Kumbh Mela CCC and Modern Control Room CCC
18.	Integrated Command & Control Centre (ICCC)	One ICCC at Prayagraj Municipal Corporation

The scope of services to be executed by the successful bidder was further described as follows:

1. Assessment, Scoping and Survey Study: Conduct a detailed assessment, scoping study and develop a comprehensive project plan, including:
 - Assess existing systems, street infrastructure and connectivity within the city for the scope items mentioned in the RFP
 - Conduct site survey for finalisation of detailed technical architecture, gap analysis and project plan
 - Conduct site surveys to identify need for site preparation activities
 - Obtain site clearance obligations and other relevant permissions
2. Design, Supply, Installation, Commissioning and Testing which includes the following components:
 - Intelligent Traffic Management System (ITMS)
 - City Surveillance System
 - Transit Management System for city buses
 - Solid Waste Management
 - Environmental Sensors
 - Smart Parking System
3. Establishment of network based on lease line/MPLS connectivity and Internet connectivity for operations of ICCC & Kumbh Mela surveillance system project
4. Provisioning hardware and software infrastructure which includes design, supply, installation, and commissioning of IT Infrastructure at Data Centre (DC), Disaster Recovery Centre (DRC), Viewing Centres, Command & Control Centre (CCC) and Integrated Command & Control Centre (ICCC). This includes:
 - Basic site preparation services
 - IT Infrastructure including server, storage, other required hardware, application portfolio, licenses
 - Command Centre infrastructure including operator workstations, IP phones, joystick controller etc.
 - Establishment of LAN and WAN connectivity at command centres and DC limited to scope of infrastructure procured for the project

5. Phase-wise integration of the ICT systems with Integrated Command & Control Centre (ICCC):
 - City Surveillance System
 - Intelligent Traffic Management System
 - Solid waste management
 - Smart Parking
 - Transit Management System for City Buses
 - Panic Button/Emergency Call Box
 - Public Address System
 - Environmental sensors
 - Smart Poles
 - Smart Lighting
 - Smart Governance
 - City Network
 - City Wi-Fi
 - Water SCADA & Smart Meters
 - Sewerage
 - Storm water Drainage
 - Electrical SCADA and Smart Meters
 - E-Medicine/Health
 - E-Education
 - Disaster Management
 - Grievance Management
 - Geographical Information System
 - Public Bike Sharing System
 - Prayagraj City Card/Wallet/Smart Payment
 - Fire
 - GIS based Property Tax Management

6. Capacity building for PSCL and other end user department which includes preparation of operational manuals, training documents and capacity building support, including:
 - Training of the city authorities, police personnel and operators on operationalisation of the system
 - Support during execution of acceptance testing
 - Preparation and implementation of the information security policy, including policies on backup and redundancy plan
 - Preparation of KPIs for performance monitoring of various urban utilities monitored through the system envisaged to be implemented as per the project requirements
 - Developing standard operating procedures for operations management and other services to be rendered by ICCC

7. One time dismantling, transportation and reinstallation of select field infrastructure and Viewing Centres/CCC for post Kumbh Mela 2019
8. Preparation of system documents, user manuals, performance manuals, operations manual etc.
9. Identification of revenue generation opportunities by various smart solutions, planning and roll out of strategy
10. Operations and maintenance services for the software, hardware and other IT and non-IT infrastructure installed as part of the project after phase-wise go-live and for a period of 6 years from the date of phase wise go-live.

It was thus a comprehensive and well conceptualized tender, and the services were quite well spelt out.

12.3. ICCC in Kumbh 2019



Figure 12.3. ICCC at Work

The ICCC was quickly established to be in place for Kumbh 2019. A two story building was built especially for this. Based on the selection process as mentioned in the RFP, M/s Larsen & Toubro Limited was selected as the successful bidder and Master Systems Integrator (MSI) through a competitive bidding process. The Letter of Intent (LoI) was issued to the MSI on 1st June 2018, Master Service Agreement (MSA) was signed on 1st August 2018 and Request Order-1 for implementation of Phase-1 project systems/components was issued on 17th August 2018.

As part of this project, a CCTV surveillance system was established with 1,103 CCTV cameras at 310 strategic location. Of these cameras, 127 were placed in the Kumbh Mela area and 183 in Prayagraj City. The video feed from the cameras was analysed and used for multiple interventions including crowd management and preventing any security threats to the visitors.



Figure 12.4. CCTV Surveillance System Highlights

The ICCC was used effectively during the Kumbh. The police administration synchronized its crowd management system with ICCC. The ICCC was backed with a team of police officers who monitored all important junctions and arrival points. They also kept track of the sangam point was the focal point. They experimented with AI to estimate congestion at sangam point and used it to regulate inflow of crowd. They took the help of a Research Team from MNNIT headed by Prof Mayank Pandey to adopt AI for image processing, and to estimate and monitor crowd. The police applied different contingency plans depending on congestion and were rerouted to reach sangam point. This was especially critical on mauni amavasya day. At the control center each area was earmarked to a policeman and he kept tracking his area. Anything unusual were immediately communicated to the policemen at the site immediately. These images are stored and these are useful repository for image processing. It was also useful in regulation the flow of traffic. The police gained valuable experience in using ICCC from this mela.

12.4. Telecommunications

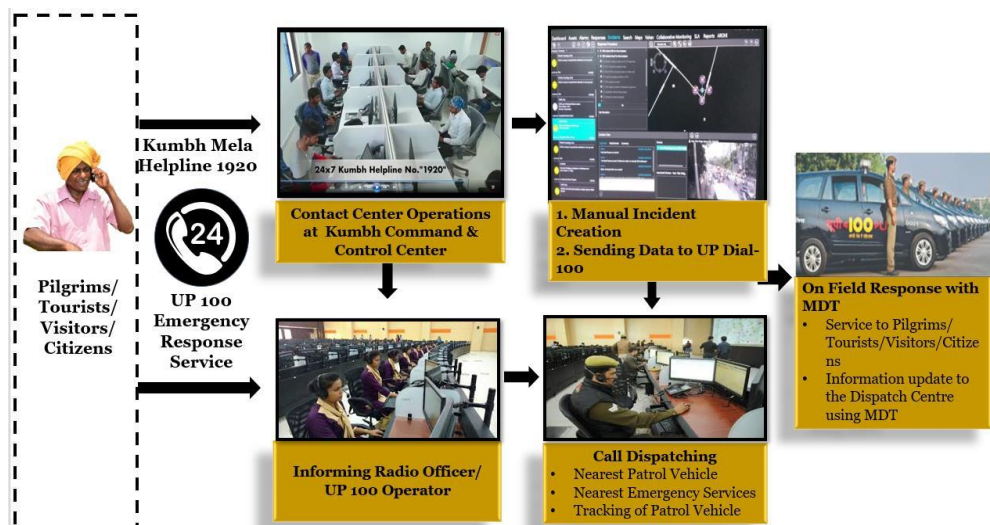
The authorities recognized the importance of ensuring a congestion-free telecommunications network for pilgrims and visitors, as part of their stated vision of an enhanced pilgrim experience. In previous Kumbhs, especially on peak days, pilgrims and visitors experienced choked network, call drops and loss of communication with their family and friends. This time, it was planned such that these do not recur. This was also particularly important in the event of any mishap.

The PMA decided to establish high quality telecommunications infrastructure to cater to the needs of the huge influx of visitors, and also the needs of the mela operations. To this end, they put in motion the following services:

- Fibre-based network connectivity for the entire mela area and all offices of the PMA and other government offices

- A reliable and robust network connectivity that would take care of not just Kumbh 2019 needs but also future needs
- 4,000 hotspots with high speed Wi-Fi across the mela area for all pilgrims and visitors
- 34 Cell on Wheels (CoWs) towers to offer network coverage for the entire mela area
- Offering the CoW platform to several service providers who would offer both voice and data services
- Establishing a dedicated helpline with the number 1920, integrated with the ICCCC, for addressing emergency and grievance redressal calls

Select Use Case – Contact Centre Operations



Prayagraj Smart City

Figure 12.5. Operating Procedure of 1920 Contact Centre Helpline

They decided to bring on board a third-party infrastructure provider to set up Cell on Wheels (CoWs) towers in the mela area. These towers were made available to different telecommunications service providers like Airtel, RJIO, Vodafone etc. who were invited to install their equipment on these CoWs.

Indus Towers won exclusive tender for all sites and deployed 34 CoWs with more than 150 tenancies. There were initial hurdles in relation to finalization of locations and ensuring 24x7 connectivity, but these were overcome through collaboration with all authorities concerned. All the telecom service providers took this massive opportunity to provide best customer experience by setting up not only traditional technologies such as 2G+3G+4G but also integrated Massive MIMO for the first time.

This was the first event where different service providers such as Airtel, RJIO, Vodafone, Idea and BSNL utilized a common third-party infrastructure. It was also considered a first in

India where all operators were able to manage huge communications traffic without the problem of call drops. In the previous mela each provider had their own towers which was sub optimal arrangement. This time they opted for shared services model of towers.



Figure 12.6. Mobile Tower

12.4.1. Internet and Wi-Fi Services

Internet Services in KUMBH 2019 were provided by Greentech & BSNL:

- Total number of connections - 259
- Internet bandwidth - 10 GBPS (multiple operators)
- Topology - 100% optical fibre with ring connectivity
- Total dedicated work force - 147 employees (technical and non-technical)
- 24/7 support
- Internet and fibre connectivity to Hulsberg (Wi-Fi), Larsen & Toubro (Prayagraj Smart City), and Kumbh (security surveillance)

Hulsberg Enterprises partnered with India's Ozone Networks to provide broadband Wi-Fi covering the entire Kumbh Mela area. The high speed (10 Mbps) Wi-Fi service was provided free to all pilgrims for one hour, and subsequently for the entire day for a small fee of Rs. 10. Hulsberg Enterprises put up 20,000 posters all over the area to spread awareness of this service, and also employed 200 personnel to assist pilgrims connect to the service. Free Wi-Fi was provided to all policemen and volunteers for the entire mela period.

Setting up this Wi-Fi network was an enormous challenge given that it had to be in place in a short span of time. A dedicated technical team worked for 16 hours a day to make this a reality. The network was powered by 1,225 outdoor routers with access points spread over all 20 sectors. More than 150 km of optical fibre was laid to ensure seamless connectivity with redundancy built in. During the mela period, a dedicated team of 30 technical staff worked 24/7 to keep the network going.

More than 75 lakh pilgrims made use of this network to talk to their family members and friends and share photographs and videos of the event. It was considered the world's single largest Wi-Fi network catering to a very high density of visitors over a small area.



Figure 12.7. Kumbh Free Wifi

12.4.2. Wireless Priority Service (WPS)

Wireless Priority Service (WPS) is a dedicated service for the use of leaders, officials and other authorised personnel during emergency situations. It is intended to be used only when there are security concerns, and during a crisis situation, when a wireless network gets congested and normal calls become difficult to make.

During emergencies, cellular networks can experience congestion due to increased call volumes and/or damage to network facilities, hindering public safety. During such times, it becomes critical to ensure the ability of personnel tasked with national security and emergency preparedness (NS/EP) to make emergency calls. The Wireless Priority Service (WPS) provides these key personnel priority access and prioritized processing in all nationwide and several regional cellular networks, greatly increasing the probability of call completion. WPS is an easy-to-use, add-on feature subscribed to on a per-cell phone basis. WPS calls receive priority over normal cellular calls; however, WPS calls do not pre-empt calls in progress or deny the general public's use of cellular networks. WPS is in a constant state of readiness.

Eligibility criteria, as follows, were applied for obtaining WPS:

- Priority A - Executive Leadership and Policy Makers
- Priority B - Disaster Response/Military Command and Control, Public Health, Safety and Law Enforcement Command
- Priority C - Public Services/Utilities and Public Welfare, Disaster Recovery

In all, 1,500 SIM cards were issued with WPS during Kumbh 2019. The following emergency helpline numbers were issued:

Kumbh Helpline Number - 1920
Police - 100
Ambulance - 108
Fire - 101
Women and Child helpline – 1091

12.5. Social Media Coverage

The Mela Administration ensured adequate facilities for good coverage of the event by traditional media. A Media Centre was set up in Sector 2 with separate offices for international media, national media, and local media. The Centre was provided with an editing room and all necessary equipment including 100 computers with high speed internet. There was also a soundproof conference hall equipped with projectors which was often used for meetings and briefings. Media towers were set up to ensure that media persons had no difficulty in giving coverage to the activities. The Media Centre had a dedicated parking lot, a food court and ATM services.

In order to promote the Kumbh Mela, it was understood that social media had a huge role to play. In today's context, the success of such a large event requires a strategic digital promotion plan to reach existing and new visitors. Therefore Ernst and Young (EY) was invited to devise and implement a strong social media strategy for Kumbh 2019. It was seen as a huge opportunity to turn the regular attendees into brand ambassadors and reach previously untapped audiences. All three types of digital media – paid, owned, and earned – were employed to spread awareness about the Kumbh brand.

Social media could facilitate the sharing of regular updates, news, and visuals of the Kumbh with prospective attendees. It would thus help to boost the reach, maximize message retention, and bring in more attendees than in the past.

The social media strategy that was developed aimed at the following outcomes:

- Raising awareness about the event
- Increasing brand awareness and perception
- Generating new visitors and increasing repeat visitors
- Boosting brand engagement
- Engaging communities around the Kumbh Mela
- Increasing mentions in media/press
- Strengthening social media governance and crisis management
- Providing insights and research
- Categorising target audiences (pilgrims, Indian and foreign travellers, subject matter experts, locals and NRIs)

To cater to diverse audiences and their interests, the following social media platforms were chosen:

- Facebook – To build the community, engage them with event updates, relevant content, and highlight important dates through event pages. It could also target messaging to identified specific groups for their contribution in Kumbh Mela.
- Instagram – To bring to light the aesthetic value of the city and Kumbh through a visual journey of Kumbh
- Twitter – To use posts and an event hashtag to build excitement before and during the event with latest news/updates on the same
- Youtube – To share videos on Kumbh values, journey, and experience

12.6. IIMB Study

Between January and March 2019, IIMB research faculty and the Student Media Cell (SMC) carried out a study of online audiences on the theme of the Kumbh Mela, using IIMB's social media platforms. The objective was to gain insights on the 2019 Kumbh Mela, for the IIMB research study.

The target audience for the study was IIMB's social media followers who showed an interest in the Kumbh Mela. Posts were put out on social media introducing the Kumbh Mela prior to the start of the mela, during the mela, and after the event.

The opening posts included the official press release announcing the collaboration of IIMB with Kumbh 2019, a sneak peek into the preparation for Kumbh 2019 and some information about the research study. These were sourced from the faculty and research assistants that the SMC team was regularly in touch with, who in turn posted the relevant content on the social media platforms.

The study was carried out as three campaign themes spread over 50 days.

- **Sense of Unity:** This was undertaken for 15 days wherein people were asked to send in pictures depicting the emotion of unity at Kumbh 2019 by tagging the IIMB pages. This theme was picked given that Republic Day was around the corner, and to understand if such a large gathering fostered any sense of unity among the citizens.
- **Spirituality:** This was undertaken for 20 days wherein people were asked to share pictures, videos and tweets about the snapshots of spirituality they saw at Kumbh by tagging the IIMB pages. This theme was picked as Kumbh Mela itself is a spiritual destination for crores of devotees that come for the event.
- **Best Experiences at Kumbh:** The last campaign was undertaken for 10 days wherein people were polled on what they liked the most from Kumbh 2019 – Civil Administration, People of the Festival, Events Conducted and Facilities Provided. This theme was picked to understand what their major takeaway from Kumbh 2019 was.

Taking into consideration the kind of content, strength of the IIMB digital brand and target audience, the campaigns were run on Facebook, Twitter and Instagram. The promotion of the posts was done in three ways – organically through the page reach of IIMB platforms, inorganically by boosting certain campaign posts, and through the support of the research assistants, volunteer teams and SMC team members who shared the post link through WhatsApp conversations. The posts were also duly sent to the social media team of Kumbh Mela 2019 to help with amplified reach. At the culmination of the event, a closing note was posted by the team to signal the end of the campaigns.

However, the study did not reveal a great level of engagement with the event.

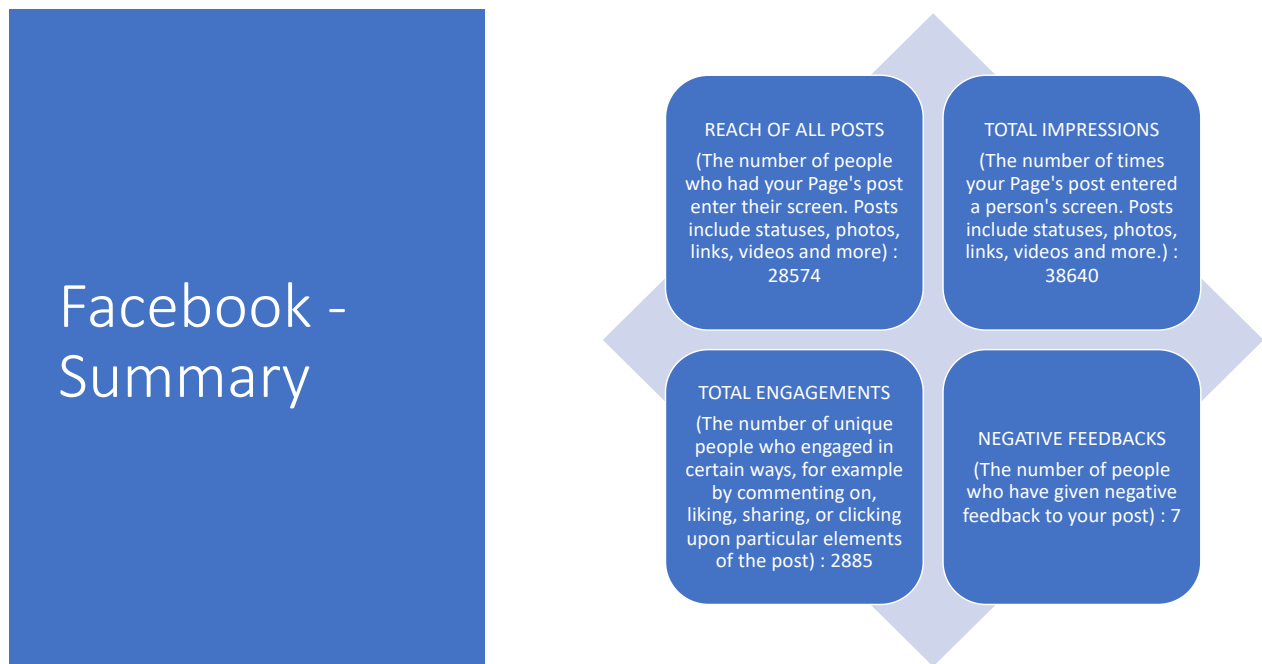


Figure 12.8. Facebook Summary

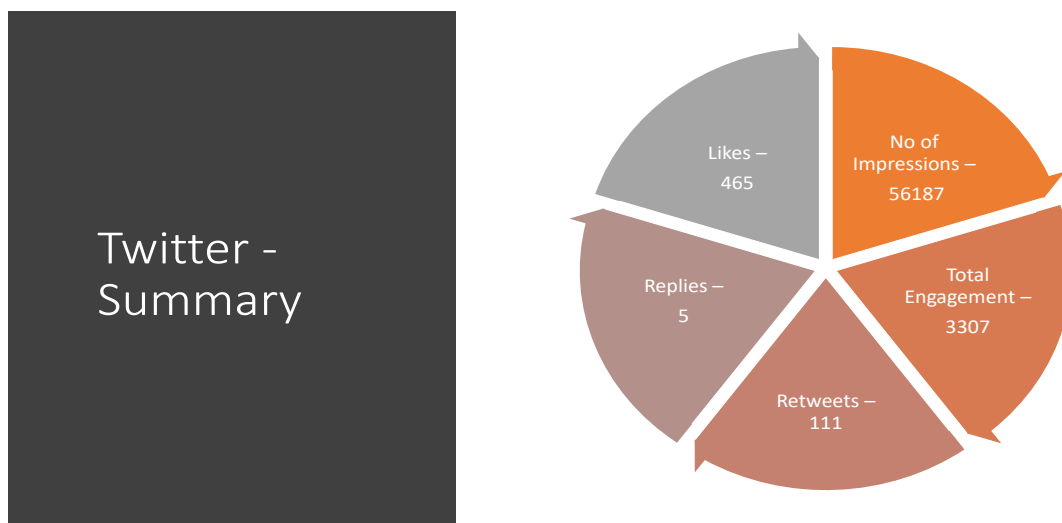


Figure 12.9. Twitter Summary

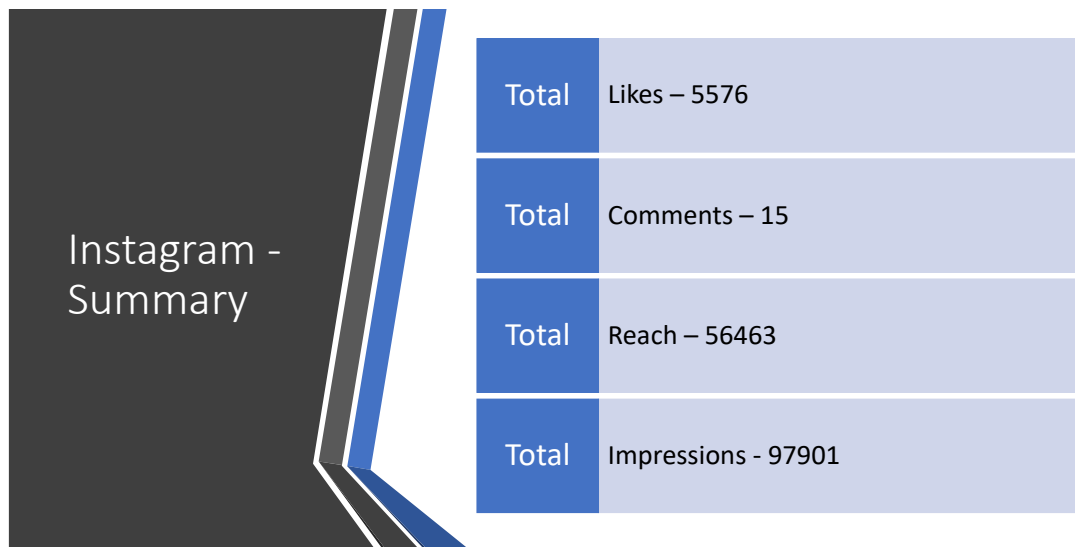
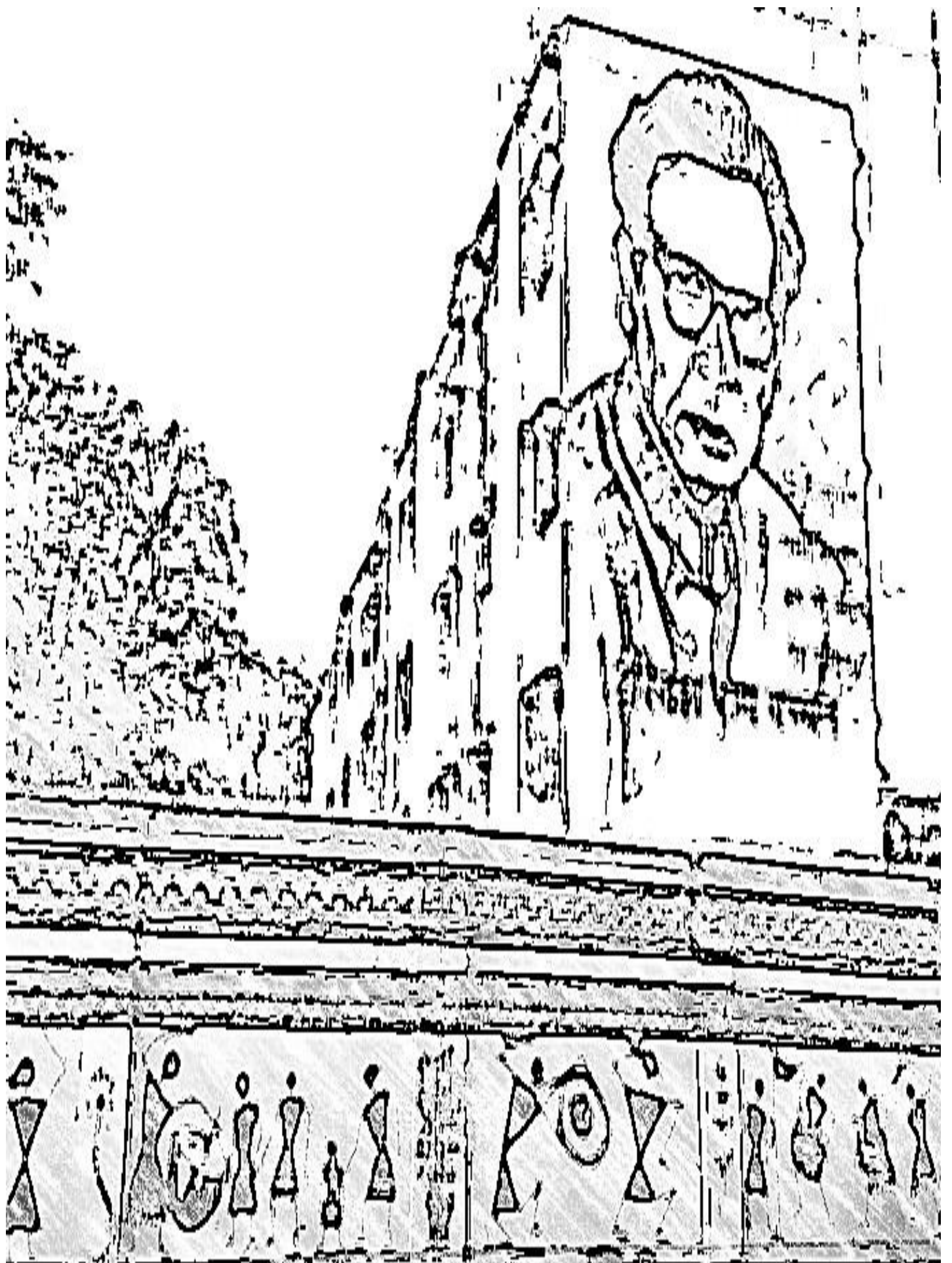


Figure 12.10. Instagram Summary

Possible reasons were:

- Considering that the usual target audience of IIMB platforms (CAT aspirants, business enthusiasts, education-orientated people, students, etc., mainly from southern regions of India) did not naturally overlap with that of Kumbh Mela audience (devotional and spiritual people from the northern regions of India), it was seen that the response to the campaigns was lukewarm.
- Additionally, as the campaigns in themselves did not have materialistic incentives like cash prizes or benefits to the winner, it may have been a possible deterrent to engaging with the posts.
- It may also be noted that the campaigns were conducted by the Student Media Cell team with limited resources and access to the on-ground activities, and hence this may have impacted the effectiveness of the undertaking.



Chapter 13

Tourism, Culture and Aesthetics

The Government of Uttar Pradesh gave high importance to enriching the experience of pilgrims and tourists, in addition to ensuring their comfort and safety. This was mainly done by creating a visually pleasing environment not just in the Kumbh Mela area but also in Prayagraj and surrounding areas. Structural changes to the city and mela area were made in such a way that the country's cultural heritage was depicted using all opportunities. The government also went out of its way to ensure that tourists coming from other countries, both foreigners and the Indian diaspora, had a memorable visit.

The State Government worked closely with the Department of Tourism and the Department of Culture to undertake these changes and activities. This chapter describes the various initiatives undertaken jointly by them.

13.1. Paint My City Campaign

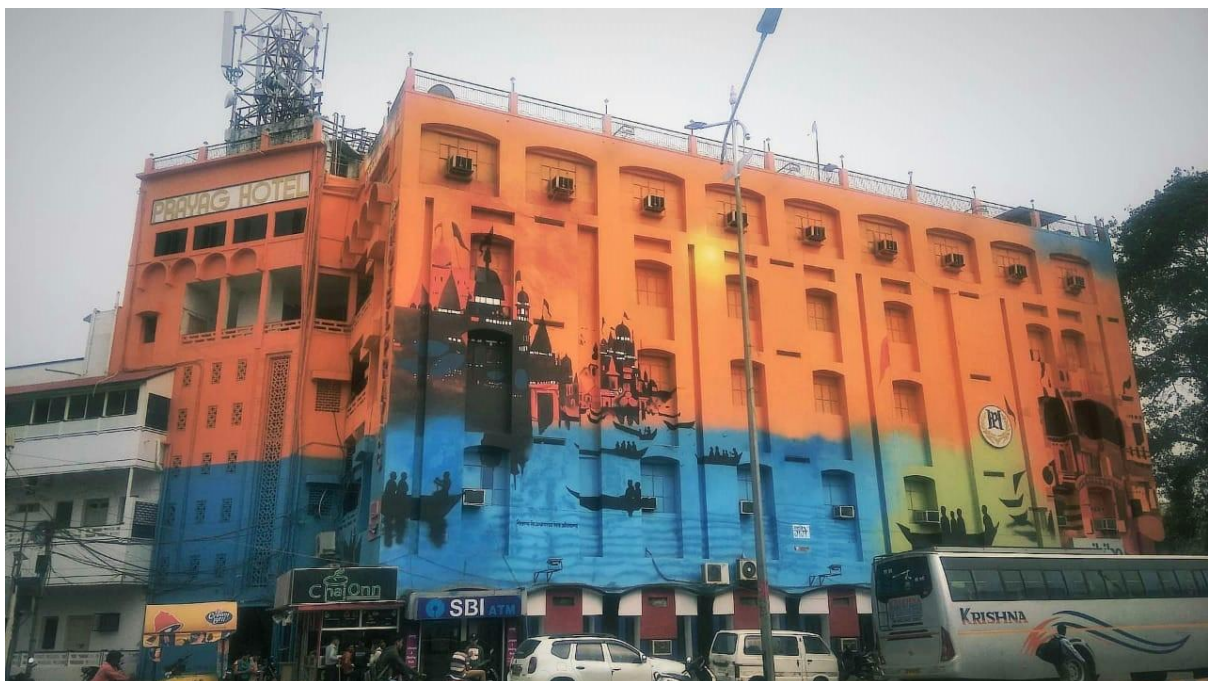


Figure 13.1. Painting Work undertaken through the Paint My City Campaign

In line with the Chief Minister's vision of 'Divya Kumbh, Bhavya Kumbh,' and to support the ongoing city beautification and revitalisation works, the Government of Uttar Pradesh conceptualised a large-scale street art project, the Paint My City Campaign. The primary objective of the campaign was to beautify publicly visible locations in Prayagraj with high quality street art projects which would capture and depict the rich culture, history and heritage of Prayagraj, with specific emphasis on the themes surrounding the Kumbh – its

mythological, religious and historical background, and its scientific and astrological connotations. It was expected that the projects would add aesthetic value to the city to create a positive visual impact to the large influx of population. The Uttar Pradesh Government's vision for the campaign was to undertake street art projects covering over 10 lakh square feet of surface area in public spaces.

In order to give concrete form to the concept, market survey and research was undertaken to formulate specific plans and processes. It included looking at best practices, timelines, standards and specifications to be adopted and costs involved, based on several such projects taken up in other parts of the country in the past. The Prayagraj Mela Authority (PMA) then followed this exercise with a compilation of locations and potential project sites in Prayagraj, in conjunction with several government departments.

Numerous proposals were submitted for sanctioning of funds for the Paint My City Campaign. The campaign received financial sponsorship and support from numerous Government Departments.

- Department of Tourism
- NMCG
- SBM Rural and Urban
- Nagar Nigam. Smart Cities Project

After undertaking the required due diligence, it was revealed that appointment of a single agency to conceptualise and design the artworks, mobilise artist teams and material for works to be undertaken in over 10 lakh square feet would not be feasible in the given timeline to ensure completion of the works before the start of the Kumbh Mela. It was therefore agreed that the most feasible means to implement such a large-scale campaign was to empanel multiple competent agencies for undertaking the works in the city.

External agencies were then empanelled to carry out the exercise. They were responsible for undertaking street art projects at numerous public and visible locations which would be chosen by the PMA, in conjunction with the Allahabad Municipal Corporation, Allahabad Development Authority and Department of Tourism, while also seeking strategic inputs from the successful applicants (Annexure 2). The sample list of works of art were to be produced by professional artists is available in Annexure 1. It was stipulated that the created works should cultivate a sense of local community history and civic pride. The empanelled agencies were required to incorporate local artists from Allahabad and Uttar Pradesh in the development and creation of the art pieces, as much as possible.

The street art design was expected to take into consideration the following themes:

- Pictorial depiction of the rich cultural heritage of Uttar Pradesh, Allahabad and India.
- Religious aspects of the Kumbh
- Spiritual and scientific connotations of the Kumbh
- Mythological background of the Kumbh
- Social awareness messages and public service messages

- Promotion of Indian national icons
- Daily life at the Kumbh
- Promotion of government schemes

In order to ensure smooth implementation, the selected agencies were expected independently discharge the following functions, while keeping the administration fully informed:

- Paint largescale wall paintings on highly visible landscapes such as flyovers, piers, underbellies, sidewalls, building facades, water tanks, public building walls, tarmac roads, bus stops, railway stations, railway coaches, public transport vehicles, garbage collection units, temporary construction sites, foot over bridges etc.
- Select the sites jointly with the PMA, Nagar Nigam, Allahabad Development Authority, PWD.
- Conduct daily project monitoring of the nominated sites and report progress to authorised personnel.
- Provide all necessary consultancy and assistance to allied departments to ensure maintenance of the executed art work, and monitor repair and touch ups as necessary.
- Review safety and environment management measures.
- Verify and report to authorities on compliance of artists with all applicable laws and rules.
- Engage communities (including art students, NGOs and volunteers), mobilise local talent and include local artists from Allahabad to conceptualise, design and execute street art.

They were also expected to undertake works such as scraping of old paint, cleaning and smoothening of surface, priming and application of sealers and wiping of dust prior to commencing works. Strict standards were laid down to be followed in all the works. There were also restrictions imposed. For example, business names/logos, branded tags, acronyms, trademarks, and any commercial advertising were prohibited in artwork.

Additionally, the following service level benchmarks were laid down:

- The works should embody the culture, heritage and rich character of Allahabad, the state of Uttar Pradesh and India.
- The works developed should be artistically engaging and sufficiently stimulating to ignite conversation, foster interaction and evoke appreciation by the general public.
- The works should be designed considering the real time dimensions and scaling of the areas and locations identified.
- The works should be developed with the highest quality material and high quality paint to ensure the minimum life of the street art sites is 6 years.
- The works must be durable and suitable for outdoors with the ability to withstand the elements of the local climate as well as interaction with the public.
- A maintenance plan must be submitted at the time of application. The plan must be

specific as to schedules and actions needed to ensure the street art project remains in good condition and that at no time the street art surface and components become degraded.

- Any site which may be a heritage site or part of the vicinity of a heritage site or of significant value should be maintained as directed by the PMA. The agency should not damage anything of historical or other interest in the area.

The PMA deputed 17 SDMs and a third-party inspection agency to undertake verifications of the completed works prior to the release of payments.



Figure 13.2. Artists painting a scene from Indian Mythology

Upon completion, it was stipulated that the PMA would retain all rights of ownership to the artwork, including the right to alter, repair or remove the work as needed. A good faith effort would be made to consult the artist about repairs, if needed, but the Authority would not be obliged to work with the artist to make repairs. The Uttar Pradesh Government retained the copyright license for educational and promotional purposes while the artists who complete a street art project may be featured in digital and traditional promotional materials and media.

The Uttar Pradesh government departments, for their part, had the responsibility to undertake major civil works at identified sites such as structural repair, leakages repair, repair of tarmac roads, and application of fresh paint on old and worn out surfaces.

Numerous challenges were faced in the planning and implementation of the Paint My City Campaign, namely:

- Empanelment of competent agencies with the bandwidth to mobilise the required material, equipment, artist teams without the release of any advance payments was an issue. Art and creative agencies generically are firms/proprietorships/companies with limited annual turnover. The same was addressed by the PMA by issuing collective work orders so that the agencies were able to apply for the required bank loans.
- Acquisition of the required NOCs and permissions from the respective property owners (government and private properties) was difficult. Initially the respective site owners did not permit undertaking the street art projects with pre-approved designs at their properties. After much correspondence by the PMA requesting for permission, permissions for sites were accorded.
- Multiple stakeholder management for the campaign was critical and often involved coordination with numerous stakeholders such as sponsoring government departments, property owners, established committee members, empanelled agencies, etc. Weekly meetings were organised to discuss and resolve issues.



Figure 13.3. Building painted as a part of Paint My City Campaign

No of project sites	201
Total area painted under the Paint My City Campaign	17,27,528.40 sq ft
No of artists involved	500+

13.1.1. Guinness World Record: Most contributions to a handprint painting in 8 hours, 1st March 2019

The Prayagraj Mela Authority launched Paint My City Campaign under which 15 lakh sq. ft. of surface was painted through street art projects all over Prayagraj. The painted Murals depict the rich history and diversity of Uttar Pradesh, providing insights into the mythology behind Kumbh. To celebrate the success of Paint My City Campaign, Prayagraj Mela Authority organized and got awarded Guinness World Record on March 1, 2019 for “Most contributions to handprint painting in 8 hours” with an entry of 7664 contributions. It was previously held by South Korea wherein 4,675 people contributed to the record. This Note is based on the Commissioner’ Report of 2019.

For Count Validation, hard barricades were used to create a controlled section around the canvas. Access was only through 12 ticketed lanes to maintain a count of participants. Each lane had two control points to regulate the flow of participants. Pairs of stewards in two shifts were deployed at the end of each lane to verify participant performance. The EY Consultants were deployed with each team of stewards as supervisors. Stewards received training to monitor the execution of the record.

Barcoded ticket stubs were issued to participants to obtain a manual count. The barcoded segment of the ticket was ripped and kept in a sealed box. These barcoded segments were scanned after the attempt to obtain an electronic count. Subtraction of the participants marked as non-performers by stewards from the electronic count gave the total participants. Artists associated with Paint My City Campaign were asked to make designs that would be easier to put on the canvas by amateurs. The final design was simple and easily implementable on the ground. Even during the attempt, the artists were crucial as they helped ensure the participants put their imprint with the right colour in the right place, they also touched up the artwork periodically.

Key Statistics:

- 7664 participants successfully performed the task
- 50 stewards in two shifts to assess participant contribution



Figure 13.4. Commissioner Participating in the Guinness World Record

13.2. Pravasi Bharatiya Divas

Pravasi Bharatiya Divas is celebrated in January every two years and is sponsored by the Ministry of External Affairs and the Federation of Indian Chambers of Commerce and Industry (FICCI). It is intended to mark the contribution of the overseas Indian community to the development of India. It is also seen as a forum to address issues that concern the Indian diaspora.

2019 saw the celebration of the 15th Pravasi Bharatiya Divas. It spread over several days, beginning in Varanasi on the 21st of January, and ending with a tour for the NRI visitors to Prayagraj and the Kumbh on the 24th of January. The event was inaugurated on the 22nd by the Prime Minister of India, Narendra Modi, and the Chief Guest was the Prime Minister of Mauritius, Pravind Jugnauth.

Availing of this opportunity, overseas Indians came from many different countries of the world to see Prayagraj and the Kumbh. Special arrangements were made in the area of Indraprastha in Sector 19 to receive them. Traffic restrictions and security protocols were imposed to make their movements easier. Senior officials like the DIG and DM supervised the arrangements. The visitors came directly from Prayagraj and after their visit to the Kumbh, a special train was organised to take them to Delhi to participate in the Republic Day celebrations.

13.3 Initiatives by Department of Tourism

The Tourism Department played a key role in promoting and giving publicity to the 2019 Kumbh Mela. The main objective of the Tourism Department was to attract visitors to the mela and to offer a pleasant and memorable experience. The publicity gained by Kumbh 2019 was much greater than that of previous Kumbh Melas. Preparatory work related to tourism and culture, and to making the Kumbh a visually memorable experience, began as early as June 2017. The Tourism Department aimed to provide good quality services and support whether the visitors were coming to bathe or just to visit.

One of the main interventions was to ensure decent accommodation given that there were not enough hotels in the city to cater to the huge influx. Several types of accommodation were provided and they are described below:

A Tent City was set up in Sector 20 of the Kumbh Mela area and was executed on a public-private partnership model. 1770 Swiss-style cottages were constructed with amenities meeting international standards. The names of the tent city segments and the firms that built them are shown in the table below. Several firms were hired to construct the cottages.

Firm	Name of the tent city segment	Number of cottages
Hitakari Production and Creations	Indraprastham	1200
Labh Decorators and Gandhi Corporation, Ahmedabad	Vedic	300
Kumbh Village, Prayagraj	Kumbh Village	150
Aagaman India, New Delhi	Aagaman	120

Table 13.1. Firms and Tent City Segments

The Uttar Pradesh Tourism Development Corporation also set up the Sangam Tent Colony in the Parade Grounds in the Kumbh Mela area, at a cost of Rs. 2 crore. 50 tents (20 Maharaja and 30 Deluxe) were constructed in this colony. Arrangements included superior level stay with breakfast, lunch and dinner facilities.

In addition to the accommodation, temporary Tourism Information and Help Centres were set up by the Tourism Department for the benefit of devotees, pilgrims and tourists visiting the Kumbh Mela. These centres were set up in 9 locations: Jhusi Railway Station, Jhusi Bus Station, Prayag Ghat Station, Prayag Railway Station, Naini Railway Station, Chivki Railway Station, Allahabad City Railway Station, Airport New Terminal, and Chinese Mill Parking. Department staff were present at these locations to offer guidance and help to the visitors. Tourism Department counters were opened at 9 airports, bus stations and railway stations to offer information on the Kumbh Mela and all its facilities.

The Kumbh Mela event was publicised using various channels including electronic media, print media and digital screen. The Kumbh Mela logo was designed by the Department of Tourism. Souvenirs, posters, billboards and banners were created to spread the Kumbh message. A publicity campaign was launched on national and international media called “Chalo Kumbh Chale”, which also became the tag line of the Kumbh Mela. Jingles were created for local and national radio. The Tourism Department also promoted advertisements on PVR screens. Officers from the Tourism Department even went to different states in the country to carry out promotional activities which included providing information on all the facilities that would be available to make the visit and stay of tourists a safe, comfortable and enjoyable one.

To create an impressive first impression, 29 temporary entry gates to Prayagraj District were constructed at a cost of Rs. 3.98 crore, depicting various mythological themes. These gates were called Kacchap Dwar, Rudraksh, Devdal, Gada, Kalpavruksh, Ganga, Samudra Manthan, Ashva, Airavat, Trishul, Shankh, Lotus, Dhanush, Kamadhenu, Lakshmi, Om, Nandi, Sangam, Nagavasuki, Shivling, Chandra, Kalash, Sudarshan Chakra, Ratna Katha, Kumbh Logo 2019, Damru, Kaustubha Mani, Surya and Swastik.

The Tourism Department also organised a laser light show at a cost of Rs. 9.56 crores. This was shown in Sector 3 at Kila Ghat on the banks of the Yamuna. Between 6.30 and 9.30 pm every evening, 4 laser shows were projected, for free, on the wall of the fort, three in Hindi and one in English.

To enhance pilgrim experience, the Tourism Department arranged for façade lighting of the Yamuna Bridge at Naini, at a cost of Rs. 5.82 crores. The bridge is famous as one of the longest bridges in the country, built using unique technology. Visitors flocked to the area every day to view the bridge and its lighting.

At a cost of 30 lakh, the Tourism Department designed 4 tourist walks. These were the Heritage Walk, Sangam Walk, Spiritual Parikrama and the Kumbh Walk. Trained guides were stationed along these walks.

A Cultural Village was set up at a cost Rs. 7 crores in Sector 19. This village hosted an exhibition depicting a systematic journey into Indian civilisation and culture. The entry gate into the Cultural Village was made of an exhibit of Samudra Manthan (churning of the ocean). The Village hosted 21 galleries of which 17 galleries showed the chronological development of Indian civilisation and culture, and 4 galleries were used as exits. Entry to the Village was kept free, but free entry tickets were handed out to visitors to keep track of the visitor count.

The Tourism Department operated 4 package tours for the benefit of the visitors. These were:

- Prayagraj – Chitrakoot – Khajuraho – Prayagraj
- Prayagraj – Varanasi – Sarnath – Prayagraj
- Prayagraj – Vindhyachal – Seetamadhi – Prayagraj
- Prayagraj – Chitrakoot – Prayagraj

Reservations for the above package tours could be made online from the U.P. Tourism Department website at www.uptourism.gov.in

To give devotees, pilgrims and tourists an experience of adventure tourism, the Tourism Department also arranged for adventure tourism activities in Sector 18 of the Kumbh Mela area. The activities included paramotoring, bungee jumping, hot air ballooning, jet ski, body zorbing wall, wall climbing, archery, Burma Bridge and speed motor boats.

600 guides were trained who could assist visitors. Training was also given to 600 boatmen, 600 vendors, and 600 drivers. All of them were trained not just in their jobs but also in providing first aid services. They were also given gender sensitisation training. They were coached in how to behave with women, how to be courteous, and how to remain calm in any situation. All guides were given uniforms so that visitors could easily identify them.

Much of the training was provided by the faculty of Valmiki Kashi Ram Institute. First aid training was given by doctors and faculty of Motilal Nehru Medical College. Others involved in providing training were retired officers of the Navy, Allahabad University, Awadh University (Ayodhya), Kashi Vidyapeeth (Varanasi), and Agara University (Mathura). Other entities that offered training were India Foundation, the Think Council.

13.4 Initiatives by Department of Culture

The Department of Culture played a very important role in highlighting the country's history, classical arts and traditions at the 2019 Kumbh Mela. The Department made arrangements for around 20,000 artists from different parts of the country to exhibit their talents, thereby offering a huge platform to showcase the rich cultural heritage of the country.

The previous 2013 Kumbh had made very limited arrangements for showcasing cultural events. There was just a single pandal which had to be shared by everyone, and as it was located in one sector and many visitors were unable to see the programmes. Kumbh 2019, however, made ambitious plans to give very extensive coverage and visibility to cultural events and programmes.

The Department worked in close collaboration with the Government of India. The Principal Secretary set the entire policy for all cultural activities, and the Director took responsibility at the Department of Culture level.

Various premier institutes in the country and at state level took part in organising and implementing cultural activities. They included the National School of Drama, Sahitya Academy, Lalit Kala Academy, Sangeet Natak Academy, Kalakshetra Foundation, Indira Gandhi National Centre for the Arts, the Centre for Cultural Research and Training, National Kathak Institute, Indian Drama Academy, State Academy of Fine Arts, and State Archives.

A Selection Committee was set up to take decisions on which genres should be represented and which artists should perform. The Director of All India Radio was also on this committee. It was understood that the culture of the entire country should be on display. The Committee also took decisions of the honorarium to be paid to the artists.

National and international level artists were contacted directly by the Department of Culture. Complete transparency was ensured in contacting artists by setting up an e-directory portal. Applications were received on this portal. Any artist could apply, and selection was made on the basis of past level of performance of the artist. There was also no duplication in selection – if one institution invited an artist, other institutions did not call the same artist. Similarly, if the Indian government invited an artist, the same person was not invited by the state government. It was also ensured that the same artist did not perform in several places.

A detailed action plan for the works to be undertaken was prepared by the Department of Culture in April 2018. Implementation of the works started in May 2018, and work on the ground (construction of structures) began in December 2018. The Department held weekly meetings with the Commissioner to review progress. Often, joint meetings were held with the Tourism Department, for better coordination. Performances were of two types – big stage performances within the mela, and small stage performances in the city.

The Department of Culture had originally decided in May that it would set up 6 pandals, with 5 pandals having a capacity of 1,000 and the sixth pandal having a capacity of 10,000. One of

the pandals was meant for religious discourse. However, as no organisation came forward to use the pandal for religious discourse (all religious groups had their own pandals), all the pandals were eventually used for cultural activities.

SPICMACAY, an organisation that promotes, conducts, and produces classical programmes, was also included in organising activities. They continued receiving late applications from many artists, which they felt they could not refuse. There were artists who were even willing to perform for free. Therefore, in order to cater to such an enthusiastic response, an additional pandal was set up at short notice, following the Chief Minister's orders.

Finally, seven pandals were erected for cultural performances:

- Akshayvat Pandal (seating capacity 2,000)
- Ganga Pandal (seating capacity 10,000)
- Rishi Bharadwaj Pandal (seating capacity 1,000)
- Saraswati Pandal (seating capacity 1,000)
- Yamuna Pandal (seating capacity 1,000)
- Triveni Manch (seating capacity 1,000)
- Western and Southern Regional Cultural Platform (seating capacity 1,000)

These pandals were located in different sectors of the mela area so that everyone had a chance to see the programmes. In all, more than 500 programmes were organised during the mela period between 10th January and 4th March.

Additionally, within the city, 20 small platforms were set up where cultural programmes were continuously held. City residents, commuters and visitors attended these programmes even if it was while just passing by. Given the scale of the programmes organised, a large number of artists from all over the country got an opportunity to display their talents. Often, elements of culture which were slipping into oblivion got a chance to make a revival.

An exhibition called Kala Kumbh was organised in Arrial. Here, the history of the Kumbh Mela was explained and the cultural heritage of Uttar Pradesh was displayed. A museum was also built in Kala Kumbh, in which archives and manuscripts were put on display. The Art Academy of the state also exhibited its works at Kala Kumbh. A workshop on painting, making masks, etc. was conducted in the arts section. In Sector 19, a crafts mela called Kala Gram was organised by various institutes of the Government of India.

A coffee table book and a documentary film (<https://youtu.be/44AnD11CdA8>) were produced by the Department of Culture.

For the first time, in Kumbh 2019, Ram Leela was staged by artists from 12 different countries. Earlier, Ram Leela was organised by 3-4 countries in cooperation with the Ministry of External Affairs. This time, 20,000 artists performed at the Kumbh Mela. It was ensured that this diversity did not in any way hurt the religious sentiments of pilgrims.

Technology was used well to share information and coordinate by all the participating institutes and artists. Technology was also used to monitor attendance at all the pandals. The Department of Culture also used social media to promote its programmes. For the first time, programmes were also broadcast live on national TV. Religious TV channels made live broadcasts of the programmes. All India Radio also broadcast all major programmes on a new channel named Kumbh Vani (103.1 MHz).

Six types of vendors were hired for the Kala Kumbh exhibition, for the following tasks.

- Preparation of audience galleries
- Making artifacts such as masks
- Branding
- Setting up convention centres
- Lighting and sound equipment
- Logistics

Consultants were hired as necessary to ensure that implementing agencies received the right type of technical advice and knowledge. Some of the key consultants hired were Ernst and Young, Concept Communications, UP Tours, etc. The Department of Culture also employed 35 volunteers, mainly local artists from different theatre and art groups. They took care of the 20,000 visiting artists, supporting them with their logistical needs.



Figure 13.5. Woman selling Bangles at Kumbh

13.5 Advertising, Sale of Products, and Social Awareness

The Kumbh Mela was seen a great opportunity for showcasing and advertising various brands of merchandise. Some of the brands were traditional products that were seen as worthy of promotion, and some were large commercial brands having a utilitarian value to the visitors of the Kumbh. The commercial brands also brought in revenue to the government. Simultaneously, these brands were also required to promote social awareness through environmental and health-related messaging.

Four key geographical areas were identified for advertising – the mela area, Prayagraj City, parking areas, and approach roads to the mela area. In order to manage the commercial advertisements, the PMA appointed 3 agencies after a process of e-bidding. The agencies appointed and the area packages allocated to them were as follows:

Package Details	Agency
Prayagraj City area hoardings (300 hoardings); Parking Areas (400 hoardings)	Crayons Advertisement Pvt Ltd.
Light pole kiosks in mela area (8000); Watch tower, media tower, fire tower (100); public accommodation (90)	Infinity Advertisement Services
S. Block in activation zones (30 ft.x30 ft.)	Impact Communications

Source: Official website of Kumbh 2019

Table 13.2. Agencies Appointed and Area Packages Allocated

Advertisements were placed on hoardings, kiosks, LED screens, public toilets, dustbins etc. 25% of the sites were reserved for advertising government schemes. The agencies were responsible for creating the structures, for their stability, maintenance of the structures and the site, restoration of the sites to their original condition after the event and payment of electricity charges, among other things.

Some of the private companies who advertised and sold their products were Maggi, Lifebuoy, Dabur, Dettol and Coffee Day.

Maggi set up stalls across the mela grounds and sold their Masala Cuppa noodles through innovative vending machines that allowed for minimal waste, and proper disposal of waste. In addition, they also offered buyers a free sapling for planting, with an environmental message.



Source: IIMB team

Figure 13.6. Stalls set up

Lifebuoy set up hand wash dispensers near food courts and promoted the habit of handwashing before meals. They also provided red stamps pasted on visitors' hands before they visited toilets, and when the visitors washed their hands, the stamps dissolved and produced lather with germ protection.



Figure 13.7. Hand Cleaning Station by Lifebuoy

Dabur Amla, in addition to selling their products, provided identity cards to children with emergency contact details. This was helpful in searching for lost children. Similarly, Dettol set up frames where photographs could be taken, and as an incentive, free Dettol soap bars were given. They also organised street plays to promote sanitation.

13.6 One District One Product

In addition to the sale of commercial products, an exhibition named 'One District One Product' was organised in Sector 1 where stalls from 75 districts displayed a key product from each of the districts. These products were mainly locally produced goods such as food items or handicrafts. The Government of India spent Rs. 4 crores on this venture. Traders selling their products at these stalls were given travelling allowance to travel from their districts. Sellers were selected after filling in an application form giving details of the kind of products they wished to sell, with the stipulation that the products must originate from that district. A committee was set up to select the sellers and products that could be sold in their stalls. Stalls generating the highest sales were given awards by the government.

Annexure

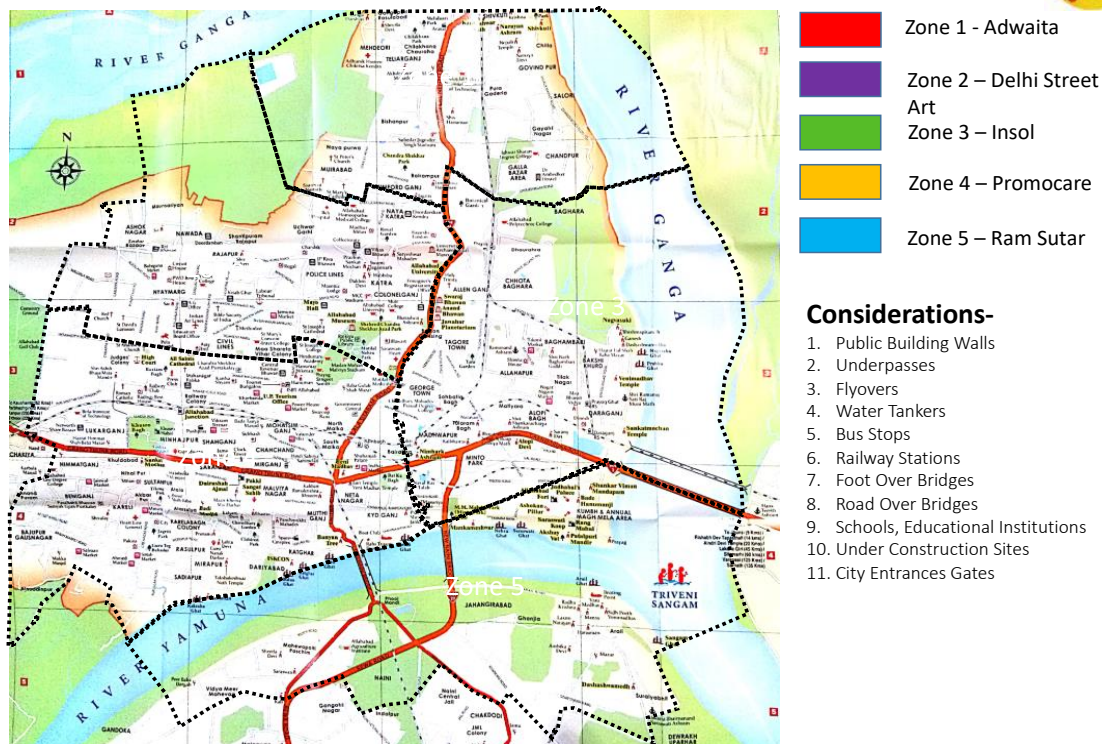
Annexure 1: Some of the works conducted under Paint my City:

1. Horse with wings sculpture installed at Balson square near petrol pump
2. An artistic Shankh on the Bai ki Bhag Tiraha.
3. Statue of Samundramanthen at crossing adjacent to NR Sohbatiyabhag
4. Sculpture of Lotus Flowers and 4 Swans at Andava crossroads
5. Sculpture of Nest with Giraffe at trijunction of Awaas Vikas colony Jhunsi
6. Sculptures of Indian Dancing Art at Bangad Tri-junction.
7. Dahi-Handi sculpture on the CMP Crossing.
8. Sculpture of Butterflies at UPPSC crossing.
9. Sculpture of Turai Dance at Fire Brigade Intersection.
10. Gajamukh sculpture installed at MNNIT tri-junction.
11. Cat and Monkey sculpture at Rambhag crossing.
12. Seep, Moti and Hans sculpture at Bairana crossing
13. Globe/Big Ball sculpture at Sohbatiyabagh
14. Musical instrument sculpture at Dhobi ghat crossing
15. V shaped sculpture at Kamadhenu crossing
16. Sculpture of a Saint at GT Jawahar crossing
17. "Girl Drawing a Sun" sculpture installed in front of CMP square.
18. Metal Balls sculpture at Lukarganj crossing.
19. "Five leaf with thirty flowers" sculpture installed at Hot Stuff Square.
20. "2 Peacock" sculpture installed on CMP dot bridge walls.
21. "3 fish" sculpture installed at Dosa Plaza/ShreeRam Mandir crossing.
22. "4 Faces" sculpture installed at Walmiki square.
23. "2 Kalash" sculpture installed on Sohbatiyabagh dot bridge walls.
24. "Scrap Metal Bull" sculpture installed at Rajrooppur trijunction.
25. "Scrap Metal Astronaut" sculpture installed at ICICI square.
26. "Three Rings" sculpture installed at Tanishq square.
27. "Drop Shape" sculpture installed at Mishra Bhavan Petrol Pump square.
28. "8 Shape" sculpture installed at Chauraha between Niranjana dot bridge and fire brigade office (near 132 KVA substation)
29. Murals installed at Niranjana dot bridge.
30. "Y shape" sculpture installed at Khuldabad square.
31. "Tabla Paajeb" sculpture installed at IOC Jhulwa trijunction.
32. "Krishna Leela" sculpture installed at left side of Niranjana Dot Bridge.
33. "Krishna Leela" sculpture installed at right side of Niranjana Dot Bridge.
34. "Bharat with Lion" "Krishna Leela" sculpture installed at old GT Road tri junction (railway crossing Bairahana).
35. "2 Handis" "Krishna Leela" sculpture installed near Alopi Mandir.
36. Murals installed at Niranjana dot bridge.
37. Murals installed at CMP dot bridge.
38. Murals installed at Sohbatiyabagh dot bridge.
39. Murals installed at Bharadwaaj Rishi statue platform near Balson square.

40. “Goddess of Law” artistic statue installed at Nyay Marg crossing near High Court.
41. Artistic “Golf Balls” sculpture installed at Trivenipuram trijunction.
42. SS Lilly Flowers sculpture installed at Jhonstonganj square.
43. Artistic Sun sculpture installed at GHS crossing.
44. Konark Wheel sculpture installed at Jhunsi road & old GT road crossing.
45. Metal Fish sculpture installed at Sardar Patel Marg footpath.
46. Jack Sparrow sculpture installed at Sardar Patel Marg footpath.
47. Ghost Rider sculpture installed at Sardar Patel Marg footpath.
48. At Baba crossing a creative revert flag sculpture was fitted.
49. Conch and Lotus flower sculpture installed at traffic square
50. Artistic Kamdhenu Cow sculpture installed near Alopibagh Chungi.
51. Alopibagh near Chungi “saint sitting in yogic posture” sculptor has been fitted.
52. The work of planting “Peacock feathers” sculpture on Madhwapur crossing.
53. Flying Birds sculpture installed near Phaphamau crossing.
54. Artistic statue of Ganga River sculpture installed at Sangam Bandh / Daraganj crossing.
55. Creative rings sculptor was installed at Parvati Hospital intersection
56. At Rajasva Parishad crossing “Meditating person’s constructive face” sculptor has been fitted.
57. Postures of Surya Namaskar sculptures installed at Patrika crossing
58. At Saligram statue crossing “welcoming Women” sculpture was installed

Annexure 2: Paint my City

Reconnaissance Zones Allotment



Considerations-

1. Public Building Walls
2. Underpasses
3. Flyovers
4. Water Tankers
5. Bus Stops
6. Railway Stations
7. Foot Over Bridges
8. Road Over Bridges
9. Schools, Educational Institutions
10. Under Construction Sites
11. City Entrances Gates

Annexure 4: Work undertaken by PMA for beautification and promoting tourism

- The Paint My City Campaign
- Tent City
- Cruise Services
- Laser Light Shows
- Murals and Installations
- Façade Lighting at the New Yamuna Bridge
- Installation of 30 Temporary Thematic Gates
- Setting up of an Amusement Park
- Devising attractive Tourist Packages
- Developing attractive tourist walks
- Branding and Merchandising
- Convention Halls (Cultural Pandaals – Cultural Programmes)
- Sanskriti Gram
- Kala Gram
- NCZCC
- Vending Zones
- Akshayavat
- Exhibitions
- Bhandaras
- Medical Camps
- Netra Kumbh
- Chidanand events
- Avdeshanand ji camp description
- Improving Mela aesthetics - Boat Painting and canopies, Flex, Flags,changing rooms

References

- Allahabad Nagar Nigam Report.
<http://allahabadmc.gov.in/documentslist/MAP80WARDALLAHABAD.jpg>
- Asher, M. G., Sharma, T., & Sheikh, S. (2015). Public Procurement Legislation Essential for Improving Public Financial Management in India. The Takshashila Institution.
- CAG.
https://cag.gov.in/sites/default/files/audit_report_files/Uttar_Pradesh_3_2014_chap_5.pdf
- CBR, report-railways ppt of the department
- Chaturvedi, Devesh, The Holy Dip, Stadium Press (India) Pvt, Ltd, New Delhi, 2017
- Divisional Commissioner's Report, Kumbh Mela 2019
http://www.allahabadmc.gov.in/documentslist/City_sanitation_Plan_Allahabad.pdf
- Divya and Bhavya Kumbh. (n.d.). Retrieved from
<https://kumbh.gov.in/en/prayagraj>
- <http://allahabadmc.gov.in/cdp.html>
- <https://cag.gov.in/content/report-no39-2017-performance-audit-rejuvenation-river-ganganamami-gange>
- <https://gangatoday.com/en/articles/221-stp-at-prayagraj.html>
- <http://kumbh.gov.in/Content/pdf/Prayagraj%20Mela%20Pradhikaran%20Bye%20Laws%20English%20February.pdf>
- <http://mpcb.gov.in/images/pdf/MSWrules2000.pdf>
- <http://mohua.gov.in/cms/smart-cities.php>
- <https://nmcg.nic.in/NamamiGanga.aspx>
- <https://swachhbharatmission.gov.in/SBMCMS/about-us.htm>

- Indian Yoga Association. (2019). Yog-Kumbh. Retrieved 2019, from Indian Yoga Association: <https://www.yogaiya.in/yog-kumbh/>
- [Indiawaterportal.org](http://indiawaterportal.org)
- Jal Nigam for Kumbh Mela water supply and drainage works
- Mehrotra, R., & Vera, F. (Eds.). (2015). Kumbh Mela: mapping the ephemeral megacity. Niyogi Books.
- Mishra, Nithyananda, Kumbh: The Traditionally Modern Mela, Bloomberg, Feb 2019.
- SEWA International. (2019, February). Sewa Sandesh – January 2019. Retrieved 2019, from SEWA International: <https://sewainternational.org/sewa-sandesh-january-2019/>
- Sinha Anil K, and Amit Prakash, Mass Gathering Event Management A Case Study of MahaKumbh, 2013, Allahabad, Bihar State Disaster Management Authority, <http://bsdma.org/images/publication/Kumbh%20Mela%20Case%20Study%20Full.pdf>
- World Bank. (2016). New Procurement Framework and Regulations After July 1, 2016. Retrieved October 12, 2019, from World Bank Web Site, <https://projects.worldbank.org/en/projects-operations/products-and-services/brief/procurement-new-framework>
- World Bank. (n.d.). Vendors. Retrieved October 12, 2019, from World Bank Web Site: <https://www.worldbank.org/en/about/corporate-procurement/vendors>

Kumbh 2019 held in Prayagraj, Uttar Pradesh from January 15th to March 4th, 2019 attracted about 25 crores pilgrims and visitors making it a landmark event. An integrated temporary township with all infrastructural facilities came up on a 3200 acres floodplain left by the receding Ganges, to be dismantled at the end of the mela. The administration built a Brand around Divya and Bhavya kumbh promising spiritual as well as user experience. Technology and Innovations were the mantra. The administration successfully implemented various projects of ICCC, Lost and Found centers, paint my city, tent city, etc, and received three Guinness World Records. An important feature was its goal of ensuring swachh kumbh promising garbage free, open defecation free, odour free mela which it indeed fulfilled. Above all, foremost concern was security and safety which governed every activity and the mela ended incident free which is no mean achievement. It was thus a rich research site which the faculty team from IIM Bangalore seized and studied it from the public management perspective, looking for take aways for future melas, routine bureaucracy, crisis management, etc.

