Kumbh Mela at Prayagraj’19

CSE TEAM’S KUMBH VISIT FEB’19 AND ANALYSIS OF THE EVENT
Background: Significance of Kumbh ‘Intangible Cultural Heritage of Humanity’

- Kumbh held every 12 years; Ardh Kumbh every 6 years
- **Religious significance** - Bathing during Kumbh ‘Clean all Sins’
- World’s Largest Religious Gathering.
- **120 mn** people had visited previous Kumbh (2013).
- This year **240 mn** people visited over a period of **55 days**. (~18% of country population)
- **Av 2 – 2.5 million** people bathed every day.
- During **6 main bathing days** crowd reached around **20 - 40 mn**. (*i.e. almost 40 times the existing population of Pryagraj or Allahabad*)
Kumbh - Challenges for Management

Sudden Increase population density
(average daily floating population ~2-3 times the city population)

In addition to Crowd Management, Safety, Security etc, Sanitation / Public Health is a big challenge:

• Facilitating Water, Sanitation & Hygienic
• Controlling - Open Defecation & Urination
• Controlling - Stagnant water (including waste water) causing mosquito breeding Indiscriminate garbage disposal, choking drains & nullahs
• Increase in River Pollution.
• Threat of outbreaks like Cholera.
Past Outbreaks in Kumbh

• **First ever Cholera Epidemic** in 1817 believed by some to have started at Kumbh Mela.

• Various Instances public health issues reported in past Kumbh Melas:

  **Reasons attributed**

  - Reduced *Hygienic conditions and exposure to pathogens due to* exceptionally larger proportion of Bathers in the River

  - Drinking of water from polluted sources (*People not able to distinguish between potable and non-potable water*)

  - Traditional beliefs regarding drinking Ganga water / include storing of water for relatives back home.
Prayagraj Kumbh 2019 - *Swachh Kumbh!*

- ‘**Kumbh Mela**’ a prestige event for the Country.
- One of the most hyped and promoted Kumbh (even though it’s an ardh Kumbh)
- ‘**Most Expensive Kumbh ever**’ – budget inc. from INR 1300Cr to INR 4200Cr *(INR 42 Billion)*
- Rs 234 crores (~6%) has been allocated for *sanitation*.
- SDG-6 ‘Clean Water & Sanitation’ by 2030 – efforts reflected in the Kumbh Mela
Kumbh ‘Tented City’

- City of ‘Prayagraj’ or ‘Allahabad’
- **32 sq km** area along the Confluence of **Yamuna and Ganga river**.
- Divided into **20 sectors**.
- Sectors 1 to 4 – permanent structures with sewer lines
- Other 16 sectors:
  - Located on **Flood Plains**
  - **Temporary facilities** which are **commissioned and decommissioned** for every event.
Kumbh Mela - Arrangements

- **Shuttle buses to venue**: 500
- **Length of streets inside mela campus**: 247 km
- **Total Sectors**: 20
- **Total Akharas**: 13
- **71 Cranes deployed**
- **137 Watch towers to keep vigil**
- **20 Hi-Tech lost & found camps**
- **58 Total police outposts**

- **1,176 Signages in and around venue**
- **11,000 Sanitary workers**
- **1,22,500 Toilets at venue**
- **20,000 Artists to perform during Kumbh**

- **Total Number of Pontoon Bridges**: 22
- **100 bedded central hospital with all facilities**

- **11 Sector Hospitals**
- **10 Out Health Posts**
- **25 First Aid Posts**

**Call of the Sangam**
The sprawling tent city on the banks of Ganga, Yamuna and mythical Saraswati emulates a self-sufficient, self-governed city that caters to every need of the pilgrim with an inherent civic infrastructure, a security shield and canopies that range from deluxe to middle class. But the underlying fibre is very spiritual.

**Kumbh Venue Total Area**: 32 sq km

- **Number of parking sites**: 95
- **Satellite Parking**: 18

- **Police Strength**
  - Police personal: 12,000
  - Home Guards: 8,000
  - PAC companies: 20
  - CPMF companies: 34

- **UPSRTC buses plying to Kumbh from across the state**: 5,000

**Total Medical & Paramedical Staff**: 2,132

- **Dental Surgeons**: 15
- **Specialists**: 150
- **Doctors**: 210
- **Other**: 1,757

**Total parking capacity**: 5.63 lakh

- **Number of holding areas (buffer zones to control crowd swell)**: 72

- Largest Crowd Management
- Largest Sanitation Drive – 20,000
- Largest Painting Exercise of Public Site
- “Longest Parade of Buses” – 500 buses to ferry pilgrims to Kumbh
SANITATION AT PRAYAGRAJ KUMBH (2019): HITS AND MISSES
1. “No Open Defecation” the motto of this year’s Kumbh

- 1.2 lakh toilets made available spread across Kumbh.
  - 62,500 public toilets + 20,000 urinals along site bus stops, parking area, along roads etc.
  - 40,000 for residential users inside the tented city.
- Toilets connected to FRP containment units which were being emptied regularly. (~daily)
2. Monitoring & Maintenance of Toilets with use of ICT

- Services of 10 Private Vendors hired to operate 250 cesspool vehicles 24x7 service – on demand.

- **20,000 Sanitation Workers**, in addition 1500 **Swachh Grihi** specially for monitoring of toilets was done by Mobile app / WhatsApp used for monitoring Toilets: included uploading photos and filling out questionnaire online

- Use of Jet Spray Machines for cleaning of toilets
KUMBH (2019) - HITS

3. Nullah / Drains tapping and Wastewater management

Total Nullahs in Pryagraj – 82
- Tapped to STP : 26
- Treated in-situ : 56

<table>
<thead>
<tr>
<th>Executing Agency</th>
<th>Method of Treatment</th>
<th>No of drains</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPJN</td>
<td>Bioremediation</td>
<td>30</td>
</tr>
<tr>
<td>UPJN</td>
<td>Geo-tubes</td>
<td>5</td>
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<tr>
<td>NEERI</td>
<td>In-situ Method</td>
<td>6</td>
</tr>
<tr>
<td>NPCC</td>
<td>Bio-remediation</td>
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</tr>
<tr>
<td>NMCG</td>
<td>Bio-remediation</td>
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</tr>
<tr>
<td>UPJN</td>
<td>Filtration – up-flow Filter</td>
<td>10</td>
</tr>
</tbody>
</table>
4. Preparedness for Public Health Emergencies at Kumbh

- 72 Quick medical response team of 5 member each.
- 86 Ambulance (24x7) Available through
- 1 Central Hospital (100 beds) & 11 Circles Hospitals (20 beds).
- 25 First Aid Posts spread across the Kumbh Area
5. Provision of Clean Water

• 300 Kms of drinking water pipeline laid for 24x7 supply with taps across the 20 sectors.
• Source – Borewells (67 no.)
• Water Kiosks were set-up with private companies chipping-in (HUL, LG).
• 2 police officers were stationed 24*7 to ensure safety of the source water and avoid any contamination.
KUMBH (2019) - MISSES

1. Clean Ganga ‘Only Temporary’

What made the Ganga Clean during this short period of time?
• Release of extra water upstream at the Tehri dam around 6000-7000 cusec
• Temporary shut down of heavily polluting industries like tanneries in Kanpur

Is it sustainable in the Long Run?
• The impact of nullah / drain tapping & insitu bioremediation on cleaning Ganga River is debatable .?
2. Critical Gaps Sanitation Value Chain

Portable toilets with FRP containment units (120,000)

Designated Cesspool vehicles in each sector for emptying

- Effectiveness of 2 no. temporary treatment facilities
- Co-Treatment at 2 no. existing STPs
KUMBH (2019) - MISSES

3. Effectiveness of Temporary Treatment Facilities Established

- 2 Temporary Facilities established to treat wastewater transported by cesspool vehicles.
- Geo-bags for Solid-Liquid Separation
  - As per officials, not a single Geo-Bag completely filled with Solids.
  - separated liquid is simply stored in an unlined pond in a secluded area
KUMBH (2019) - MISSES

4. Overloading existing STPs

- Co-Treatment at Naini and Salori STPs of Kumbh PTs wastewater transported by cesspool vehicles.
- Bio-remediation unit added at the inlet step at Rajapur and Salori STP.
- STPs normally running under design capacity (~50%). However during Kumbh it was overloaded.

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Name of STP</th>
<th>Designed Capacity (MLD)</th>
<th>Flow during Kumbh (MLD)</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Naini</td>
<td>80</td>
<td>78.82</td>
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<tr>
<td>2</td>
<td>Numayadahi</td>
<td>50</td>
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<td>3</td>
<td>Salori</td>
<td>43</td>
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<td>6</td>
<td>Kodra</td>
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<td>33.70</td>
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KUMBH (2019) - MISSES

5. Disposal / Reuse **Compromised ??**

- Disposal / further treatment of Bio-Solids – not planned
- when all the glory of the event will be finished, these solids will probably be dumped in a landfill or an open drain.
- Disposal of Geo-bags also an issue.
Challenges and learnings from Kumbh’19

What about other significant but less hyped events ??

• All the facilities were temporary either a hire basis or commissioned & Decommissioned every year.
• Smaller but significant Events like (Annual Magh Mela - 10 million attendance) may not get this kind of attention.
• A more permanent approach to ensure safe and sanitized environment for all events is needed.
Conclusion: Learnings for ULBs from Kumbh’19

• Organizing Sanitation Workers for maintaining a sanitized environment.
• Monitoring of toilets using mobile Apps.
• Promoting Water Kiosks at public spaces by leveraging corporate sector.
• Treatment & monitoring of drains