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Impact of Mass Gathering Event on Water Quality of Holy Ganga River During Mahakumbh-2025 at Prayagraj, Uttar Pradesh, India

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Abstract

The present study investigates the impact of mass bathing during Mahakumbh 2025 on the water quality of the River Ganga at two key sampling points Sangam and Daraganj in Prayagraj. Water samples were collected and analyzed before (January 8), during (January 13 to February 26), and after (February 28) the Mahakumbh event. Parameters including water temperature (WT), transparency, total dissolved solids (TDS), pH, dissolved oxygen (DO), biological oxygen demand (BOD), total alkalinity (TA), total hardness (TH), chloride content, and electrical conductivity (EC) were monitored. The results revealed noticeable temporal variations across several parameters, particularly during peak bathing days. During Mahakumbh, transparency and TDS levels fluctuated significantly, indicating increased turbidity and pollutant load due to mass gatherings. DO levels generally decreased while BOD increased on key bathing days, especially on February 3 and 6, suggesting a decline in water quality due to organic load. A slight decrease in pH and increases in TH and chloride concentrations were also observed at both sites during the event. Post-Mahakumbh (Feb 28), some recovery in parameters like DO and transparency was evident, though not uniformly across all indicators.

Keywords: Water quality, Parameters, Ganga River, Mahakumbh, DO, BOD

Introduction

The holy river Ganga (known internationally as the Ganges) are an integral part of Indian culture and religious beliefs and hold special importance in India. It is one of the world's most prominent rivers, running from the Himalayas to the Bay of Bengal and supporting the livelihoods of more than 40% of Indian's 1.4 billion population. The Ganga River is regionally and globally supporting in agriculture and industry, yet faces potentially detrimental water quality challenges arising from runoff and discharge from increasing population during Maha-Kumbh events. The river has a length of 2,525 km. It is shared by Uttarakhand (110 km) and Uttar Pradesh (1,450 km), Bihar (445 km) and West Bengal (520 km). The Ganga basin covers about 8.6 lakh sq. km area in India alone. At Dev-Prayag the Bhagirathi meets the Alaknanda, and from this juncture onwards, it takes on the name Ganga. Dev-Prayag is one of the "PanchPrayag," or five sacred confluence, of the Alaknanda River. It's a significant pilgrimage site in River Ganges or Ganga source can be traced to a stream Bhagirathi, from the Glaceir Gangotri at Gaumukh at an elevation of 3,892 m in Himalayan range. Thereafter, many streams join Ganges on its way and the important ones being Alaknanda,

Dhauliganga, Pindar, Mandakini and Bhilangana. At Devprayag, where the Alaknanda meets Bhagirathi, the river is christened as Ganga. Further downstream at Prayagraj (earlier known as Allahabad), in Uttar Pradesh state of India, another river called Yamuna confluences Ganges and this point is called Sangam.

The River Ganga holds immense cultural, spiritual, and ecological significance in India. It supports the livelihoods of millions and is revered as a sacred river in Hinduism. Hence, thousands of people visit Ganges all through the year at various points like, Gangotri, Yamunotri, Rishi kesh, Haridwar, Prayagraj, Varanasi etc. This majestic River Ganges flows about 2,525 kilometers across northern India and Bangladesh before emptying into Bay of Bengal. Despite its cultural importance, the Ganges face serious pollution challenges due to high population dip in the river and domestic effluents discharged in to it. One of the largest gatherings associated with the Ganga is the Mahakumbh Mela, a mass Hindu pilgrimage held every 12 years, where millions of devotees participate in ritual bathing with the belief that it cleanses sins and purifies the soul (Trivedi et al., 2009). Mahakumbh event specifically celebrated at Sangam of Prayagraj, which is a great event of 45 days. In the year 2025, one such event took place from from13th January to 26th February. Official count by Government of Uttar Pradesh indicate that 662.1 million number of people took dip during this period in Ganges. It is worth noting, out of these number who took dip, maximum number of dips recorded were on six specific dates and they are 13th January 2025 (Paus Purnima), 14th January (Makar Sankranti), 29th January (Mauni Amavasya), 3rd February (Basant Panchami), 12th February (Maghi Purnima) and the last day of the event being 26th February (Maha Shivratri). According to the report of a leading New paper of India, Hindustan, 170 million day one, 120 million on Day two and 120 crore people on Mauni Amavasya, 125 million on Basant Panchami, 200 million crore people on Maghi Purnima and 153 million on Maha-shivaratri took dip at Sangam, Prayagraj. While spiritually enriching, such large congregations exert tremendous pressure on the river's water quality due to anthropogenic activities, including bathing, waste disposal, and temporary infrastructure development (Singh et al., 2010).

Monitoring and assessing water quality during such events is essential to understand their environmental impacts and devise sustainable water management strategies. Parameters such as dissolved oxygen (DO)**,** biological oxygen demand (BOD)**,** total dissolved solids (TDS)**,** pH**,** andelectrical conductivity (EC) are critical indicators of water health (APHA, 2017). Previous studies have shown that mass bathing events lead to increased levels of BOD, microbial contamination, and turbidity, along with decreased DO, impacting aquatic life and human health (Bhardwaj et al., 2010; Tiwari et al., 2015).

This investigation aims to evaluate the temporal variation in water quality of the River Ganga at two sampling sites Sangam and Daraganj in Prayagraj during the Mahakumbh Mela 2025. The study includes a comparison of pre-Mahakumbh (January 8, 2025), during the event (January 13 to February 26, 2025), and post-Mahakumbh (February 28, 2025) water quality conditions. Through comprehensive physico-chemical analysis, the study seeks to understand the extent of environmental stress exerted by mass bathing and provide recommendations for future mitigation and policy action.

Materials and Methods

Study Area

Prayagraj is one of the biggest cities of the North Indian state of Uttar Pradesh. It is spread over an zone of 3424 km^2 and geographical location of Prayagraj is 25°28‘N latitude and 81°54‘E longitude. The city is famous in whole world for its magical convergence of religion history and culture. Prayagraj, known for the TriveniSangam (confluence of the Ganga, Yamuna, and Saraswati rivers), holds immense religious and spiritual significance for Hindus, particularly during the KumbhMela. Prayagraj is one of the four cities where the Kumbh Mela, the world's largest religious gathering, is held. We selected two important religious sites Sangam nose and Daraganjghat in Prayagraj.

Water samples of Ganges were collected from two locations viz, Sangam nose of Triveni Sangam (25.4498° N latitude and 81.8463° E longitude) and DaraganjGhat (25.4333^{0}N and 81.833^{0}E) at Prayagraj. Daraganj ghat also known as Dashashwamedh Ghat which is the oldest bathing ghat of Ganges at Prayagraj. The reason for selection of these two locations are due to the fact that maximum bathing in Ganges during Mahakumbh took place at these two designated locations (Fig.1)

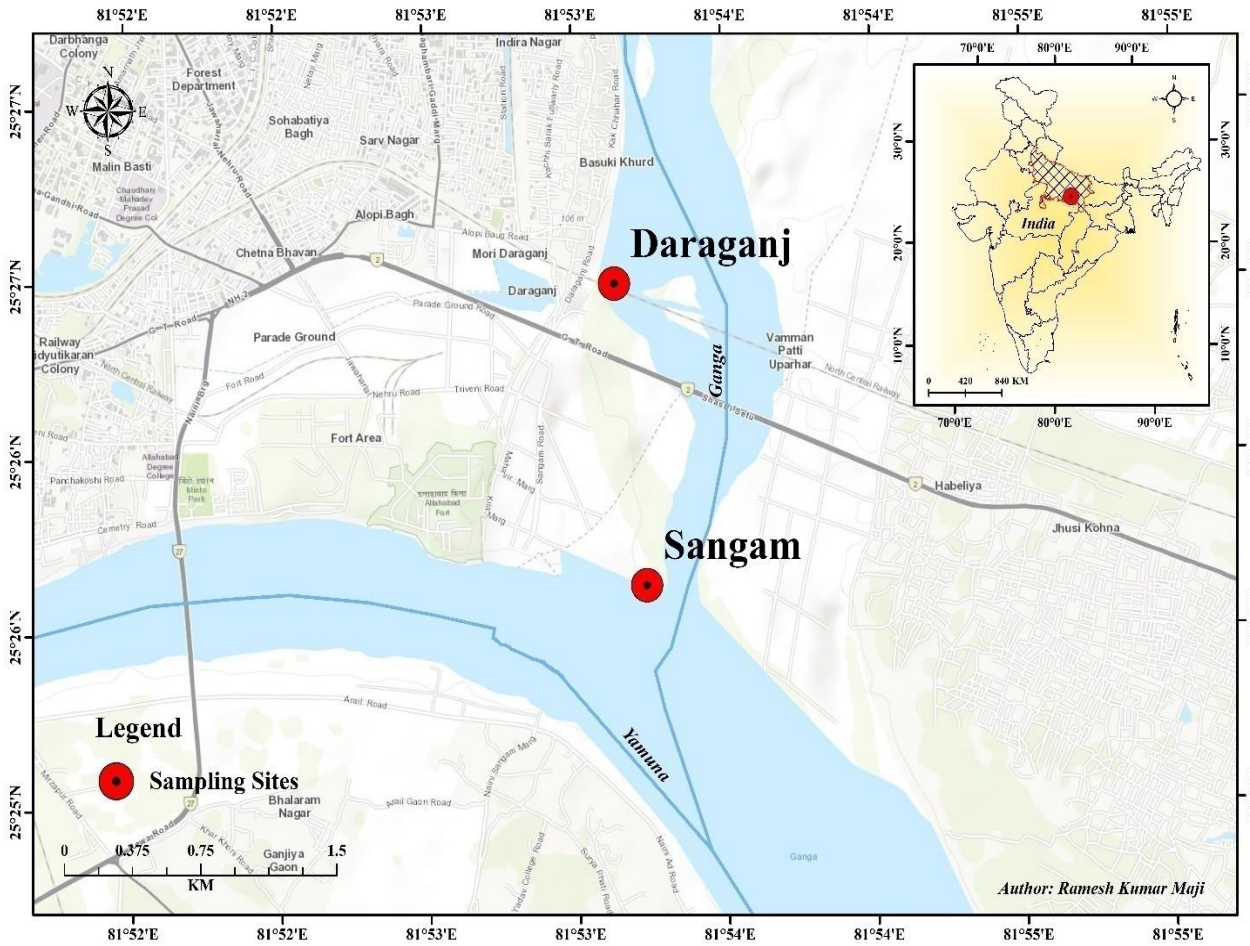

Fig.1: Map showing selected sampling sites of Prayagraj Mahkumbh 2025

Sample collection and methodology

Totally 108 water samples from both the locations were collected during 18 different dates starting from:

I. 8th January 2025 as control or normal ecosystem of Ganges (Pre-Mahakumbh)
II. 16 different dates (13, 14, 16, 20, 24, 28, 29 January 2025 and then on 02, 03, 06, 10, 12, 14, 20, 24, 26 February 2025) of the 45 day period of Mahakumbh to study the stressed ecosystem of Ganges
III. 28 February 2025 to study the after effect of Ganges ecosystem following MahaKumbh event (Post-Mahakumbh).

A total of ten-water quality prameters viz.Water temperature (WT), transparency (Transp.), total dissolved solids (TDS), pH, dissolved oxygen (DO), biochemical oxygen demand (BOD), total Alkalinity (TA), total hardness, chloride content, electric conductivity (EC)were analysed on-spot.

Collection of water samples done from mid-depth using a grab sampler and On-site parameters viz. pH, EC, TDS, temperature were recorded as standard APHA procedures (American Public Health Association 2017) Water Temperaturemeasured with digital thermometer.Water samples were collected in sterile HDPE plastic jars, closed air tight and taken to lab for other parameter studies. Methods employed for assay were listed in table 1.

Table 1: different methods of analysed water quality parameters

Parameters	Method/Instrument employed
Water Temperature (WT)	Eutech Cyber Scan Series 600
Transparency (Transp.)	Secchi disc
Total dissolved solids (TDS)	Eutech Cyber Scan Series 600
pH	Eutech Cyber Scan Series 600
Dissolved oxygen (DO)	Wrinkler's method
Biochemical oxygen demand (BOD)	Wrinkler's method
Total Alkalinity (TA)	Titrimetric (APHA 2017)
Total Hardness (TH)	Titrimetric (APHA 2017)
Chloride	Titrimetric (APHA 2017)
Electric conductivity (EC)	Eutech Cyber Scan Series 600

The obtained water quality results were compared with International (WHO) and National standards (CPCB) as given in table 2-

Table 2: WHO and CPCB standards of different water quality parameters

Parameters	WHO Standards		CPCB Standards
	HDL	MPL	
TDS (mg/L)	500	2000	500
pH	6.5 – 8.5	No relaxation	6.5 – 8.5
DO (mg/L)	2.0	6.0	6.0
BOD (mg/L)	–	6.0	3.0
TA (mg/L)	200	600	200
TH (mg/L)	300	600	300
Chloride (mg/L)	250	1000	250

(HDL: Highest Desirable Limit; MPL: Maximum Permissible Limit)

Result and Discussion

A total of tenphysico-chemical parameters were analysed during Mahakumbh 2025 from Sangam and DaraganjGhat. The obtained water quality results after analysis of the samples are depicted in the given table 3. The average value of each parameter is shown in table. The parameter wise elaboration are given below-

Water Temperature

The average value of water temperature (WT) was found minimum (14.8 ^{0}C) at Sangam and maximum (28.7^{0}C) at Daraganj. The minimum temperature was recorded during Makar Sankranti and maximum during normal bathing date i.e. 24th February 2025 (table 3). The temperature of the water increases with the progress of the Mahakumbh, which is due to shifting from winter season to summer season. The range of WT at Sagam and Daraganj were recorded as 14.8–27.6 ^{0}C and 15.53–28.7^{0}C respectively. Similar WT range were recorded by Tyagi et al., (2013) while studying mass ritualistic bathing in river Ganga. Sharma et al., (2014) reported a quite higher range of WT in Sagar island beach during the Ganga-Sagar Mela.

Table 3: Average values of different water quality parameters of river Ganga during PrayagrajMaha-Kumbh 2025

	Month	Jan-25								Feb-25									
Parameters	**Dates**	**8**	**13**	**14**	**16**	**20**	**24**	**28**	**29**	**2**	**3**	**6**	**10**	**12**	**14**	**20**	**24**	**26**	**28**
WT (^{0}C)	Sangam	15.5	15.5	14.8	16.4	15.7	18.8	20.4	18.9	16.3	19.5	21.8	23.4	22.4	23.6	23.6	26.6	26.5	27.6
	Daraganj	16.37	16.57	15.53	17.77	17.83	18.83	21.53	19.73	18.8	19.73	21.7	24.57	21.53	23.53	25.6	28.7	27.73	28.53
Trans. (cm)	Sangam	22.83	28.23	51.5	60.93	55.8	58.47	96.4	132.33	58.17	64.53	36.5	58.8	60.57	62.2	66.77	60.37	47.81	46.73
	Daraganj	22.8	26.53	39.43	55.6	47.83	43.97	54.87	96.1	54.63	60.87	39.87	45.63	39.93	40.6	64.8	39.9	36.77	59.77
TDS (mg/L)	Sangam	155	159	182	235	148	173	275	204	206	146	102	176	212	261	214	233	198	182
	Daraganj	218	187	196	225	222	211	296	205	195	175	184	177	188	181	176	272	198	196
pH	Sangam	8.66	8.33	8.62	8.8	8.71	8.86	8.35	8.75	8.28	8.73	8.42	8.92	8.52	8.43	8.5	7.61	7.28	8.46
	Daraganj	8.55	8.58	8.43	8.36	8.44	8.63	8.5	8.74	8.6	8.17	8.38	8.7	9.44	8.61	8.66	7.73	9.5	8.64
DO (mg/L)	Sangam	8.5	8.4	8.9	8.9	8.5	8.5	7.5	7.4	9.6	10.5	10.8	9.3	7.6	7.5	7.4	7.7	8.4	7.4
	Daraganj	8.5	8.3	8.6	8.5	8.8	7.3	7.5	6.7	9.2	9.3	9.1	7.6	6.6	6.6	7.2	6.5	7	7.6
BOD (mg/L)	Sangam	2.7	2.6	6.4	5.3	3.1	2.5	2.9	3.9	2.5	9.5	5.4	3.1	7	6.7	2.5	2.8	6.6	2.9
	Daraganj	2.7	2.6	4.1	5.3	3	2.6	4.2	5.4	3.7	8.9	5.4	4.9	8.9	5.9	2.6	3.4	7	4
TA (mg/L)	Sangam	183.33	204.67	207.33	184	140	162	143.33	262.67	154	182.67	134	214	184.67	160.67	156	146.67	163.33	184
	Daraganj	190.67	214	204	204	157.67	181.33	162	264	164	207.33	156.67	244.67	186.67	204	164	150.67	158	186
TH (mg/L)	Sangam	184	202	242	190	148	207.33	174.67	188.67	146.67	163.33	242	168	202.67	152	160.67	182.33	206.67	247.33
	Daraganj	189.33	206.67	260.67	203.33	174	232.67	202.67	173.33	232.67	204.67	206.67	166	172	188.67	243.33	192	170	263.33
Chloride (mg/L)	Sangam	30.67	73	63	70	88.33	63.33	20.33	26	20	20.67	22	24	23	36	34.67	26	44.17	44
	Daraganj	31.67	65.33	66.67	65	35.88	65.33	17.87	36	23	21.33	23.33	12.67	17.28	15.2	24	30.59	41.33	38
EC (µs/cm)	Sangam	481.33	463.67	442	422.67	447	414.67	404.67	392.67	426	392.67	216.33	355.33	375	487.33	374.67	340	362.67	364
	Daraganj	407	393.33	395	437.33	444	426	410	402.67	434	386.67	215	342	356	342.67	415.33	384	357	356.67

(Where 8th January was considered Pre-Mahakumbh; 13th January 2025-Paus Purnima; 14th January-Makar Sankranti; 29th January Mauni Amavasya; 3rd February-Basant Panchami; 12th February-Maghi Purnima; 26th February-Maha Shivratri, 28th February was Post-Mahakumbh and rest of the other dates were normal bathing dates)

Transparency (cm.)

Transparency of water represents clarity and visibility of the water. The minimum and maximum transparency recorded at Sangam were 22.80 cm (pre-Mahakumbh) and 132.33 cm. (Mauni Amavasya) respectively (table 3). The range of transparency recorded at Daraganj was 22.80 (pre-Mahakumbh) to 96.10 cm. (Mauni Amawasya). No clear-cut trends were seen in transparency, it was found low at the beginning, high during the middle and once again goes down after Mahakumbh. The increase in the transparency during middle of the Mahakumbh may be due to more water availability. Lower transparency range of 14-47 cm. was reported in river Ganga by Sharma et al., (2012) during Mahakumbh 2010: a mass bathing ritual event. The observed transparency in this study was found higher than other rivers like Yamuna (Kumar et al., 2024) and Ganga (Mishra et al., 2025).

Total dissolve solid (mg/L)

TDS is the measure of the combined content of all organic and inorganic substances contained in a liquid in molecular, ionized or micro-granular suspended form. Results show that Sangam site contains maximum TDS value of 275 mg/L and minimum 102 mg/L during normal bathing dates. The TDS range of 175–296 mg/L was obtained at Daraganj with minimum value fall at Basant Panchami and Maximum during normal bathing date (table 3). Irregular trend in TDS values were observed with the passes of Mahakumbh. Mass bathing did not have potential impact on TDS values. Tyagi et al. (2013) and Sharma et al (2012) reported the lower TDS values during mass ritualistic bathing in river Ganga. Similar Range of TDS were reported by Kar et al., (2017) in different ghats of river Ganga during mass bathing. The reported TDS values were found below the recommended standard limits (500 mg/L) of CPCB and WHO.

pH value

The present investigation reveals that highest value of pH (9.5) was found during Mahashivratri whereas lowest (7.73) during normal bathing date at Daraganj. The Sangam site noticed the following pH range 7.28 – 8.92 where minimum value was recorded during Mahashivratri and maximum during normal bathing date (table 3). The pH was found mostly alkaline except few cases. The values of pH increases form January-February may be due to sewage influx of organic waste and from the large no.of people bathing in the river. Most of the times the observed pH values were found higher as compared to recommended WHO and CPCB standards i.e. 6.5–8.5. Kanaujiya and Tiwari (2024) in river Ganga and Yamuna, Bhatnagar and Sangwan (2009) in Brahm sarovar and Sinha et al., (2018) in Sagar Island noted the matching results.

Dissolved Oxygen (mg/L)

The measurement of dissolve oxygen (DO) gives an assessment of purity of water. Dissolved oxygen is the most essential parameter in water quality assessment. It is essential to maintain a variety of forms of life in the water and effect of water discharged in a water body largely determined by the oxygen balance of the system. It can be rapidly removed from waste water by the discharge of oxygen demanding waste (Desai et al., 2022). Inorganic reducing agent such as H_2S, ammonia, nitride, ferrous iron and certain oxidizable material also tent to decrease dissolved oxygen in the water. The amount of DO is a measure of the biological activity of the water masses and is widely used in water quality studies and routine operation of water reclamation facilities. Results reveal that Sangam has maximum DO (10.8 mg/L) and Daraganj minimum (6.5 mg/L) during normal bathing dates. The values of DO range between 7.4–10.8 and 6.5–9.3 mg/L respectively at Sangam and Daraganj (table 3). The Daraganj site has comparatively lower DO values while Sangam higher. It may be due to the better water availability due to confluence of Ganga and Yamuna River at Sangam. The amount of DO was found higher as compared to WHO (6 mg/L) and CPCB (5 mg/L) recommended standards which is a good sign for aquatic life and make it suitable for bathing. Raghav et al., (2020), Sharma et al., (2012), and Tyagi et al. (2013) reported similar findings, in Ganga River during mass bathing events. However Bhatnagar et al., (2016) in prominent water bodies of Haryana, Rathore et al., (2023) in river Narmada, Sinha et al., (2018) and Sharma et al., (2014) in Sagra island reported the lower DO range during mass bathing events.

Biochemical oxygen demand (mg/L)

Biochemical oxygen demand (BOD) is the quantity of oxygen required by bacteria and other microorganisms during the biochemical degradation and transformation of organic matter present in waste water under aerobic condition. It is valuable parameter for the assessment of water quality. Results shown that Sangam site has high BOD value of 9.5 mg/L during Basant Panchami and low of 2.5 mg/L during normal bathing dates. Daraganj site has a BOD range of 2.6 – 8.9 mg/L where lowest value fall during normal bathing date and highest during Basant Panchami and Maghi Purnima (table 3). Mass bathing impact on BOD values were

seen with the progress of Mahakumbh. Many times BOD crosses the limit of 3 mg/L, which is not suitable for drinking and bathing as per CPCB and WHO. Tyagi et al., (2013) observed three fold increase in BOD values during the mass ritualistic bathing as compared to non-bathing days in river Ganga. Lower BOD values were observed by Sharma et al., (2014) in Sagar island, Bhatnagar and Sangwan (2009) in Brahmsarovar, Raghav et al., (2020) in river Ganga and Yamuna, Kar et al., (2017) in river Ganga during mass bathing impact studies.

Total alkalinity (mg/L)

It is the quantitative capacity of water sample to neutralize the strong acid. The present investigation reveals that Sangam site has the highest and lowest alkalinity values (262.67 and 134.0 mg/L) respectively during Mauni amavasya and normal bathing day (table 3). Daraganj site reported the highest value of 264 mg/L (Mauni amavasya) and lowest 150.67 mg/L (normal bathing day). Patil et al. (1984) and Kulshrestha et al. (1989) both claim that high alkalinity is a sign of water pollution. Additionally, the presence of CO_2 imparts higher alkalinity, indicating the decomposition of organic matter (Sujitha et al. 2012). As per the Central pollution control board (CPCB) the permissible limit of total alkalinity should be less than 200 mg/L. Sinha et al., (2018) reported the total alkalinity range of 159.62 – 276.85 mg/L during the Ganga sagar mass bathing. Philipose (1960), categorized the indian water bodies as low alkalinity range (4 – 50 mg/L), moderate alkalinity range (50 – 100 mg/L) and high alkalinity range (100 –600 mg/L). Following this, categorization both the sampling sites were kept in “high alkalinity” type during pre-Mahakumbh, post-Mahakumbh and Mahakumbh.

Total Hardness (mg/L)

The hardness of water is due to the high mineral content. The hard water is formed where water percolates through deposit of limestone chalk or gypsum, which is largely made up of calcium and magnesium carbonate, bicarbonate and sulphate. Hard water contains high levels of dissolved calcium, magnesium and other mineral salt such as iron. Hardness of water is due to the concentration of multivalent metallic ions of calcium and magnesium. Results shows that water of Sangam site is highly hard compare to Daraganj site. The hardness values were found minimum 146.67 mg/L (Sangam), 166 mg/L (Daraganj) and maximum 247.33 mg/L (Sangam), 263.33 mg/L (Daraganj) on normal bathing days (table 3). The obtained hardness values are having lower concentrations as compared to WHO and CPCB recommended standards.The reported hardness range was found lower than Sagar island (Sinha et al. 2018) and Narmada river (Rathore et al., 2023).

Chloride (mg/L)

Chloride ion is one of the major anions found in water and are generally combined with calcium, magnesium or sodium. Chlorides are leached from various rocks into soil and ground water by weathering. The chloride ion is highly mobile and is transported to closed basins. Results show that maximum chloride concentration found at Sangam in comparison to Daraganj. During Mahakumbh-2025 the minimum value of chloride found to be 20 mg/L and 12.67 mg/L at Sangam and Daraganj site respectively. The maximum value was noted to be 88.33 mg/L on Sangam and 66.67 mg/L at Daraganj (table 3). All the minimum and maximum values of chloride were noted during normal bathing dates except the maximum value of Daraganj, which was noted during Makar Sankranti bathing festival. Because of the high number of people, take dip in the river Ganga at Sangam ghat there are high value of chloride ions noted. Chloride content certainly goes higher on many days of this Kumbh, suggesting human bathing and throwing of flowers and other organic debris do cause chloride content to be high (Kiran et al., 2006 and Gupta et al., 2011). According to Munawar et al. (1970), a high chloride content denotes a significant level of organic contamination. Still the factor that water pH always was in alkaline range shows that some other alkaline materials in much higher levels are being released into water that had negated the chloride level impact. Average value of chloride was far lesser than the maximum permissible limit (250 mg/l) according to the WHO and CPCB. Bhatnagar et al. (2016) while working on prominent water bodies of Haryana reported similar chloride range. The range of chloride observed by Sharma et al., (2012) in river Ganga during Mahakumbh was 17.36 – 38.90 mg/L.

Electrical conductivity (µS/cm)

Electrical conductivity (EC) represents the total concentration of soluble salts/mineral salts in water thereby making it sour and unsuitable for drinking. The present investigation reveals that at Sangam, has maximum value of 487.33µS/cm, and Daraganj 444.0µS/cm during normal bathing dates. The minimum values of EC were noted 216.33µS/cm (Sangam) and 215.0µS/cm (Daraganj) during the normal bathing dates (table

3).The narrow decrement of EC can be due to the unexisting lithology of the region of the holy Ganga River.Very high conductivity indicates high levels of dissolved salt and minerals, which can be detrimental to health. Conductivity of water seems largely unaffected during these 45 days period. The reported conductivity range in the present study was found higher than mass ritualistic bathing in river Ganga (Tyagi et al., 2013). The EC values reported in the present work were found similar to mass bathing in river Ganga at different ghats of west Bengal (Kar et al., 2017). An increase in the Total Dissolved Solids (TDS) directly influences conductivity, as a rise in ion concentration subsequently enhances conductivity due to the elevated pollution load; comparable findings were also documented by Gupta et al., (2011).

Conclusion

The Mahakumbh 2025 event had a measurable impact on the water quality of the River Ganga at both Sangam and Daraganj. Increased human activity, including ritual bathing and associated practices, led to:

- Higher BOD and lower DO, especially during peak bathing days (e.g., February 3 and 6, 2025), indicating increased organic pollution.
- Increased turbidity and TDS during the event, with reduced water transparency.
- Slight acidification (lower pH) and a rise in chloride and hardness levels, suggesting anthropogenic influences.
- Post-event (February 28, 2025), some indicators showed signs of recovery (e.g., improved DO at Daraganj), though water quality remained below pre-event levels in many aspects.

The water quality of the Ganga River based on primary water quality criteria was only for bathing purposes during the Maha- Kumbh-2025 in Prayagraj. According to Central Pollution Control Board (CPCB) the water quality of the the Ganga River was within permissible limits and fit for bathing. The government's interventional plans helped to restore the deteriorated water quality and contain any major spread of diseases during and after the Maha-Kumbh-2025, Prayagraj. The study highlights the need for real-time monitoring and robust environmental management strategies during large-scale religious events to minimize ecological impacts on vital water bodies like the Ganga.

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