BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,
PRINCIPAL BENCH, NEW DELHI
ORIGINAL APPLICATION NO. 635/2024

IN THE MATTER OF:

News Item titled "2023 Delhi floods How govt. did not see Delhi's worst flood coming -even 24 hours before it" appearing in The Hindu dated 27.04.2024

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In the matter of:

News Item titled "2023 Delhi floods How govt. did not see Delhi's worst flood coming-even 24 hours before it" appearing in The Hindu dated 27.04.2024

PROGRESS REPORT ON BEHALF OF RESPONDENT NO. 4 IRRIGATION AND FLOOD CONTROL DEPARTMENT, GOVERNMENT OF NCT OF DELHI

MOST RESPECTFULLY SHOWETH:

1. That the present Original Application has been registered suo motu by this Hon'ble Tribunal concerning the issue highlighted in the news item regarding the purported failure of the Central Water Commission (CWC) and Delhi Government to correctly predict the rising water level of Yamuna during 2023 Delhi floods.

2. That vide order dated 02.09.2025, this Hon'ble Tribunal has impleaded the Irrigation and Flood Control Department, Government of NCT of Delhi as Respondent No. 4 for effective implementation of the recommendations made by the Joint Flood Management Committee (JFMC) constituted by the Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti vide order dated 06.08.2023.

3. That the Joint Flood Management Committee (JFMC) was constituted under the Chairmanship of Chairman, CWC to give a fresh look for flood management of river Yamuna in its reach between Hathnikund and Okhla Barrage following the extensive flooding in July 2023. The said committee, based on the studies, deliberations in the meetings of committee, site inspections of barrages, model studies, collection &

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analysis of data led to some conclusions and recommendations for effective flood management. The final report of the committee was circulated on 28.08.2024 containing detailed recommendations in paragraph 9 thereof.

4. That the Respondent No. 4 respectfully submits before this Hon'ble Tribunal the detailed action taken report and status of implementation of the recommendations made by the JFMC committee, recommendation-wise as under:

Action Taken Report on JFMC Recommendations

S No.	Recommendations of Joint Flood Management Committee (JFMC)	Concerned Agency	Reply/Response/ Action Taken report of I&FC Department	Time Lines
9.1	**Catchment Rainfall Analysis.** The analysis of catchment representative 5-day cumulative rainfall, shows that the catchment representative rainfall at Old Delhi Railway Bridge in 2023 is 23.8% more in comparison to rainfall of year 1978. From the Stage Hydrograph analysis at various Hydrological Observations (HO) sites on river Yamuna as well as from rainfall analysis in Yamuna catchment, it can be concluded that rainfall during 9th July, to 13th July, 2023 period was one of the major causative factor for extreme flooding in Delhi and other locations along the reach of river Yamuna.	All Stakeholders	It is part of analysis, to find the cause of 2023 flood. No specific action is required from I&FCD as it is a factual finding of the committee.	N/A
9.2	**Flood Frequency Analysis.** Flood frequency analysis of various return period at Hathnikund Barrage, Old Delhi Railway Bridges and Okhla Barrage has been carried out. It is concluded that, as Hathnikund discharge values have already been reconciled and discharge at Old Delhi Railway Bridge are observed, hence both are considered consistent.	All stakeholders	It is part of model study and Data of ORB has been used in model study.	N/A
	Further, discharge values at Okhla are to be reconciled by project authority. However, as far as the analysis of flood in Yamuna in Delhi is concerned, the discharge values at Old Delhi	UP Irrigation Deptt. for reconciliation of	**As stated at page-25 of report, "there is some error in computational**	Timelines to be given by UP Irrigation Department.

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	Railway Bridge are most important which are consistent.	discharge values at Okhla Barrage	**methodology at Okhla Barrage"**, hence action to be taken by UP Irrigation Department.	
9.3	**Discharge carrying capacity of River Yamuna up to Delhi Border.** With an objective to find out discharge carrying capacity of river Yamuna, 1D water profile simulation studies were carried out in HEC-RAS, based on the water profile simulations using surveyed cross sections of river Yamuna from Hathikund barrage up to Delhi-Haryana border for a reach of about 202km has been carried out by CWC. This study is based on cross-sectional data provided by the Irrigation & Water Resource Department, Government of Haryana. **As limited data of cross-section has been provided, the result looks like erratic.** Therefore, HEC RAS Model used for the study has been shared with the Irrigation and Water Resources Department, Government of Haryana, for refinement as per proper cross-sections and validation to arrive at realistic carrying capacity in various reaches. **The carrying capacity of river Yamuna in various divisions spread across 202 Km varies from 1000 cumecs (in Karnal Division between RD 6976m to 15979m) to 30000 cumec (Delhi Division between RD 500m to 3500m) reach between RD0 to RD 3500m of Delhi division.** However, at some places embankments has been provided to protect certain areas. Further, spilling beyond banks also happen during heavy flood and managed by Govt. of Haryana as per their procedures.	Haryana I&WR Department	Action to be taken by Haryana I&WR Department	Timelines to be given by Haryana I&WR Department.
9.4	**Monsoon Peak Discharge and Submergence Area in Delhi.** The total and net submergence areas has been calculated for various return periods floods.	All stakeholders	It is part of analysis. No specific actions recommended in this para.	-N/A-
9.5	**Embankment Overtopping.** The 2D Model studies was simulated with different return period floods, which shows that during floods of 2023 (with discharge 6999 cumec)	**I&FCD Delhi** (for L/B Chauhan Patti to Chilla	Short-Term measures as listed on page-96 to 119 of JFMC report have already been taken. Further	Already implemented.

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	overtopping at Nili Chhatri area is observed and the same was verified on ground by the I&FCD during July, 2023 floods. Max water level of 208.66m was reached at Delhi Railway Bridge which is above the existing bund level (at that time) in that area. No overtopping at any other location shown by the model which has also been confirmed by Government of Uttar Pradesh and I&FCD, Delhi. However, for floods of magnitude 1 in 50 years and above, the Nili Chatri Area gets flooded therefore, it is recommended to adopt appropriate structural measures to avoid flooding in this area.	regulator, for R/B from Palla to Jaitpur). **UP Irrigation Deptt.** (U/S of Chauhan Patti L/B)	work of raising the level of right bank consisting of area of ORB and Nili Chatri, the proposal "Construction of RCC Retaining wall from Magazine drain upto Old Railway Bridge along Ring Road (City side)" has already been framed and expected to be completed before next monsoon season. One more scheme of "Construction of RCC Retaining wall on the right side along embankment from Hathi Ghat to Drain No. 12 regulator." has been completed and in operation. For assessing long term measures, work of, "Scientific assessment of River Yamuna by application of hybrid model", has been assigned to CWPRS Pune. Based on the outcome of study, measures shall be taken after receipt of CWPRS report. CWPRS has encountered technical limitations during preparing the 1:100-year floodplain map with 1-meter contour lines, that the data provided by Survey of India as supplied to CWPRS was found to be inadequate for the required analysis. To address this gap, as	➢ Timelines of receiving of CWPRS study report –August 2026. ➢ Circulation to stakeholder for comments/ suggestion - September 2026. ➢ Approval by the Oversight Committee – October 2026. ➢ Implementation timelines shall depend on the nature and quantum of the work recommended in CWPRS report.

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			decided during committee meeting wherein the progress of the study in reference is being monitored, under the chairmanship of Member (RM), CWC on dated 14.11.2025 IFCD will procure the data from Airbus, In this regard, work has already been awarded to M/s Micronet Spacetech LLP and data is shared with CWPRS Pune. CWPRS will require an additional five months time to prepare the final map with 1-meter contour lines. In this regard, the timelines for completion of the said task by 31/08/2026	
9.6	**Implications with floods of various return period in River Yamuna in Delhi** i) Flood upto 1-in-25-year flood (6587cumec):- No overtopping of embankments is shown in the 2D model along the entire Delhi reach. ii) Flood corresponding to discharge of 6700 cumecs:- The discharge of 6700 cumec and above at Delhi Rail Bridge may cause overtopping of embankment at Nili Chatri area on the right bank of river Yamuna. iii) Flood of year 2023 (6999 cumecs) :- Simulated water level for 2023 flood at DRB is found to be 208.6m against the observed 208.66m. iv) Flood of 1-in-50 years (7648 cumec):- The water may rise up to 208.75m at DRB. v) Flood of 1-in-100-year flood (8701 cumec):- This magnitude of flood, may cause embankment overtopping at Metcalf house to Nili Chhatri/ Yamuna Bazar Ring Road area on right bank of river Yamuna with max water level reaching up to 209.55m at Delhi Railway Bridge.	**I&FCD Delhi** (for L/B Chauhan Patti to Chilla regulator, for R/B from Palla to Jaitpur). **UP Irrigation Deptt.** (U/S of Chauhan Patti L/B)	As above, as per recommendation at S.No. 9.5 Action to be taken by UP Irrigation Deptt.	As above, as per recommendation at S.No. 9.5 Timelines to be given by UP Irrigation Department.

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9.7	**Identification of Drainage congestion:-** The committee observed that the drainage network within the Delhi NCR region is being maintained by different agencies and there is no coordination among various agencies for operation of these drains. A SoP for operation of these drains in Delhi NCR region may be prepared with clear guidelines defining the procedures to be followed for operating these drains depending upon the water level in river Yamuna. The overall coordinating agency should be made responsible for enforcing uniform SoP of drains in Delhi NCR region. Further, the capacity for pumping the water of each drain and passing it over embankment during flood may be reviewed and appropriately enhanced, if required.	I&FCD PWD MCD	All Outfall drains taken over by I&FCD for de-silting and maintenance. As far coordination among the agencies is concerned, it is submitted that IDMC has been framed, headed by Worthy Chief Secretary, GNCTD for ensuring seamless work on drains in Delhi. As far as SoP for operation of regulators on drains depending on water level in river is concerned out of 18 out falling drains, 14 drains have regulators and operation levels are clearly defined in Flood Control orders, being issued annually before the monsoon season. In respect of balance major drains regulators are placed on incoming drains with well defined operation levels. De-silting of 77 I&FC drains are carried out , more than 20 lakh MT (approx) is being de-silted before onset of monsoon season 2026. De-silting of all other drains falling under the jurisdiction of MCD and PWD shall be carried out by them. Further, consultancy of Master Plan	De-silting will be completed by 15.06.2026. Timelines for desilting shall be given by MCD and PWD for the drains. Basin wise timelines to be

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			Drainage of Delhi, work is assigned to PWD.	given by PWD.
9.8	Afflux in River Yamuna and Review of Warning and Danger Level at Delhi Railway Bridge.	I&FCD	Covered in the Scope of Study assigned to CWPRS, Pune.	Timelines : - ➢ As above in Para 9.5.
9.9	**Barrages on river Yamuna:-** The committee observed that there are various agencies of State Government which are involved in operation of barrages on river Yamuna and there is a lack of coordination among various agencies. The effective communication system between all stake holders may be established for operation of all barrages in a coordinated and integrated manner. I& FCD, Govt. of NCT Delhi, may act as nodal agency, which should be responsible of operation of various barrages on river Yamuna during flood time. There should be well established mechanism of measuring discharge through modern automatic equipment like SCADA etc. • It may be ensured that rainfall & discharge measuring equipment (rain gauges, gauges, current meters, stop watches, boats, O. B. Engines, bridge outfits, cable tower & trolleys etc) are working properly. All gauge posts/markings are properly painted, marked and connected with GTS Bench mark any uprooted/damaged gauge posts may be re-erected/ replaced as the case may be, properly. Communication systems such as wireless networks, internet facilities, video conferencing, phones, mobile phones, telemetry systems, are to be in readiness for the transmission of various data in real time.	CWC/DJB, Haryana I&WRD, UP Irrigation Deptt.,	➢ As per existing practice IFCD is assigned with responsibility of Coordination with barrage owning agencies during flood. ➢ Further, since barrages are owned, maintained, and operated by 3 states, so it is suggested that coordination committee headed by Member Secretary (UYRB) with officers of I&FCD and barrage owning agency as members be formed.	The issue discussed in over sight committee, meeting held on 27/01/2025, headed by Member (RM) CWC and all other stakeholder departments/agencies as its members. As decided in meeting comments has been sought from all barrage owning agencies.
		I&FCD GNCTD,	➢ Action for measuring discharge through modern automatic equipment like SCADA, and to ensure that all rainfall and discharge measuring equipment at Barrages are working properly. ➢ Painting and marking of gauges with GTS Benchmark on structures of I&FC department along river and drains for the monsoon season 2026.	Timelines to be provided by DJB, Haryana and UP Irrigation, being barrage owning agencies. 15.06.2026.

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			➢ Also discharge measuring systems in drains is being install and maintained by DPCC.	
9.10	**ITO Barrage:-** It is recommended to operate ITO barrage with all gates open during floods in coordination with operation of Wazirabad barrage and Okhla barrage. It is also recommended that regular maintenance of all hydromechanical equipment of barrage be conducted as per the operation and maintenance manual of the barrage/codal provisions. The matter of handing over of the ITO barrage to Government of Delhi can be taken up separately by appropriate authority.	Haryana I&WRD	All gates open. ➢ Issue of regular maintenance of all hydro mechanical equipment of barrage be conducted as per the operation and maintenance manual of the barrage/codal provisions pertains to Haryana I&WRD. ➢ Haryana Irrigation department vide letter dated 16.05.2024, conveyed that ITO barrage needs to be retained by Haryana for discharge measurement amongst UP, Haryana and Rajasthan and Okhla.	Timelines to be provided by Haryana Irrigation.
9.11	**Encroachments in the river Yamuna:-** The committee recommends that an integrated approach by a Nodal Agency by involving all agencies like Delhi Metro, DDA, Delhi PWD, IFCD, Delhi Jal Board and other Government agencies carrying out construction activities in river Yamuna should be adopted to make river Yamuna free from such encroachments.	DDA, Concerned Bridge/Infrastructure providing agencies (i.e. DMRC, DTIIDC, Railway, PWD, NHAI)	Being Coordinated by DDA being land owning agency for flood plain, in compliance of Hon'ble High Court directions in this regards.	Timelines to be given by DDA and concerned Bridge/Infrastructure providing agencies.
9.12	**Storage of flood water:-** Keeping in view the above concerns a separate studies may be undertaken by Govt. of Delhi for underground reservoirs created for flood moderation purpose like in Japan or other countries for flood water diversion facility may be technically feasible. **However, considering the issues in context to Indian rivers like high magnitude of flooding, excessive silt load of rivers and huge financial**	All stakeholders	➢ Due to not availability of the sufficient land, and due to excessive silt load of rivers and huge financial investments this may not be feasible in Delhi area.	N/A

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	investments, prime facie the same may not be techno- economically viable in mitigation of high quantum of floods.		➢ However there are proposal for construction of dams in upstream areas like Renuka Ji, Kishau, Lakshay-Vyasi, and Hathnikund.	The details to be provided by the Central Water Commission, (Ministry Of Jal Shakti, Govt. of India).

This Hon'ble Tribunal may be pleased to note the progress made by the I&FCD, Government of NCT of Delhi in implementing short-term structural measures and commissioning long-term scientific studies for flood management and take the Action Taken Report on the recommendations of the Joint Flood Management Committee (JFMC) on record.

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