BEFORE THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION NO. 483/2022

IN THE MATTER OF:

ASHISH KUMAR MISHRA & ORS.

…APPLICANT

VERSUS

STATE OF UP & ORS.

…RESPONDENT(s)

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THROUGH

BHANWAR PAL SINGH JADON
STANDING COUNSEL FOR THE STATE OF U.P. (NGT)
EMAIL- bhanwar09jadon@gmail.com

DATE: 12.12.2024

PLACE: NEW DELHI

BEFORE THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION NO. 483/2022

IN THE MATTER OF:

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ADDITIONAL AFFIDAVIT ON BEHALF OF THE RESPONDENT NO. 4, DISTRICT MAGISTRATE, VARANASI

I, S. Rajalingam, aged about 42 years, S/o Shri V. Subbiah, District Magistrate of Varanasi, Uttar Pradesh, do hereby solemnly state and affirm as under;

1. That I, the District Magistrate of Varanasi, Uttar Pradesh, am well conversant with the facts and circumstances of the present case and am competent to swear this affidavit. I affirm that this Affidavit is being filed by the Deponent in regards to the Original Application No. 483/2022.

2. That the core issues in the present matter are pertaining to demarcation of the Flood Plain Zone (hereinafter referred to as 'FPZ'), encroachment on the FPZ and the untreated sewage being discharged in both the rivers hence, causing pollution in both the above- mentioned rivers.

3. That for the delineation and demarcation of the Flood Plain Zone, the Irrigation Department has been directed to ensure the timely completion of the of action by the NIH, Roorkee, by the Deponent.

4. That it is submitted the Memorandum of Agreement (MOA) between the Irrigation and Water Resources Department, Uttar Pradesh, and NIH, Roorkee, was finalized and executed on 07.12.2024. Furthermore, financial approval of Rs. 29.50 lakh has been issued by the Government of Uttar Pradesh.

   A copy of MOA dated 07.12.2024 is annexed herewith and marked as **ANNEXURE- 1.**

5. That it is most humbly submitted that subsequent to the execution of the MOA, necessary action has been initiated by NIH, Roorkee, for the delineation of the flood plain zone of Varuna and Assi Rivers, in accordance with the provisions of the River Ganga (Conservation, Protection and Management) Authority Order, 2016. It is most humbly submitted that the delineation of the flood plain zone is being done as per the 100-year demarcation of the flood plain zone according to the River Ganga (Conservation,Protection and Management) Authority Order, 2016.

6. That it is humbly submitted before the Hon'ble Tribunal that with regards to untreated sewage being discharged in Varuna and Assi river in Varanasi, in the matter of *Rajendra Prasad Gupta vs State of U.P. & Ors. (O.A. No. 367/2022),* pending before the Hon'ble Tribunal, vide Order dated 04.11.2024 directed the Secretary, Environment, Forest and Climate Change Department, Government of Uttar Pradesh to prepare and submit State Plan to UPPCB within three months, with due approval from Chief

Secretary/Additional Chief Secretary, Environment. The implementation of the aforesaid action plan is to be done in respect of Varanasi as well. The preparation of the action plan is being executed by the Secretary and will further be implemented in Varanasi, including the Varuna and Assi Rivers in the present matter.

The directions issued by the Hon'ble Tribunal vide Order dated 04.11.2024 is as stated below:

> *" ...50. The Secretary, Environment, Forest and Climate Change Department, Government of Uttar Pradesh is directed to prepare and submit to UPPCB within three months State Plan, with due approval from Chief Secretary/Additional Chief Secretary, Environment and in consultation with Principal Secretaries, Urban and Panchayati Raj, Government of Uttar Pradesh, NMCG and State Ganga Committee and implement the same in respect of Varanasi in consultation and coordination and also with requisite superintendence and monitoring through State Ganga Committee, the District Ganga Committee, Varanasi and Chandauli, the District Magistrates, Varanasi and Chandauli, the Municipal Corporation, Varanasi, District Zila Panchayat Chandauli, Uttar Pradesh Jal Nigam (Urban) and Uttar Pradesh Jal Nigam (Rural) and Varanasi Development Authority and other local/municipal authorities. Municipal Corporation, Varanasi, District Zila Panchayat Chandauli, Uttar Pradesh Jal Nigam (Urban), Uttar Pradesh Jal Nigam (Rural) and Varanasi Development Authority are also directed to prepare and submit to UPPCB within three months Action Plan with components of (i) assessment of entire sewage and industrial effluent generated in Varanasi and flow in all drains originating or flowing through Varanasi carrying discharge to river*

शपथ आयुक्त CC, VNS. 12.12.24 OATH COMMISSIONER

Ganga or its Tributaries in Varanasi, (ii) tapping of all drains and treatment of entire sewage and industrial effluent generated in Varanasi and (iii) abatement and control of pollution by discharge of any other pollutant in river ganga with (i) details of project, (ii) budgetary allocation, (iii) authority/agency for execution and (iv) interim measures to be taken for abatement and control of water pollution..."

7. That it is further submitted that a meeting of the District Ganga Committee chaired by the District Magistrate, Varanasi (hereinafter referred to as "the DM") was held on 19.11.2024. During the meeting the DM took the status report of the work being done by the respective departments for the treatment of waste being discharged in the Varuna and Assi Rivers, and further directed the appropriate authorities as required.

   The Minutes of Meeting dated 19.11.2024 is annexed herewith and marked as **ANNEXURE-2.**

8. That it is submitted before the Hon'ble Tribunal that the DM sought information regarding the drains discharging into the Varuna River. The Project Manager, U.P. Jal Nigam informed the DM that a total of 15 drains discharge into the Varuna River, 6 drains are fully tapped, 8 drains are partially tapped and 1 drain (Durga Nala) remains untapped. Regarding the untapped Durga Nala, DPR for the 55 MLD STP has been prepared and submitted to the National Mission for Clean Ganga (NMCG), New Delhi, for approval, which is currently under process. Upon being apprised of this status, the Chairperson instructed the Project Director to issue a reminder letter for expediting the process.

9. The Project Manager further apprised the committee that meetings were conducted on 28.02.2024, 09.04.2024, and 22.10.2024 under the chairmanship of the Chief Secretary, Uttar Pradesh, to address the functioning of the remaining partially tapped drains. During the meetings held by the Chief Secretary, responsibilities were allocated to the appropriate authorities and were directed to submit the compliance reports to the Chief Secretary.

10. That with regards to the treatment of discharges from Assi/Nagwa Drains into the Ganga River, the discharge volume through the Assi/Nagwa Drains is approximately 78 MLD, of which 50 MLD is being treated at the 50 MLD STP located at Ramna. For the remaining 28 MLD, treatment will be facilitated through the 55 MLD STP under construction at Bhagwanpur, scheduled for completion by 06.12.2025. The additional sewage from partially tapped drains is being treated with Advanced Oxidation Process (AOP).

11. That with regards to the Advanced Oxidation Process, the responsibility of AOP has been given to Ozone Research Application India Pvt. Ltd. by the NMCG. The acceptance of the tender bid was communicated to the company vide letter dated 01.12.2023. The aforementioned company is responsible for proper treatment of additional sewage for the period of two years.

The letter for acceptance by NMCG dated 01.12.2023 is annexed herewith and marked as **ANNEXURE-3.**

12. That subsequent to the acceptance of the bid made by Ozone Research Application India Pvt. Ltd. to the NMCG, the company prepared a detailed

report for the treatment process and the equipment being used in the said treatment of the additional sewage. The report has been sent to the NMCG and SMCG apprising them of the methodology and equipment being used for the treatment of the sewage before being discharges in the River Ganga.

The report by the Ozone Research Application India Pvt. Ltd. is annexed herewith and marked as **ANNEXURE-4.**

13. That furthermore, the Deponent has directed the Municipal Corporation, Varanasi, to ensure regular cleaning of the Varuna and Ganga Rivers and submit related reports, for the maintenance of Varuna and Ganga Rivers.

14. That it is submitted that the Deponent has directed the concerned authorities to complete the construction of STP and appropriate actions to ensure the compliance with the directions issued by the Hon'ble Tribunal.

15. Hence, the present affidavit is being filed for the kind consideration and perusal of this Hon'ble Tribunal.

16. I state that everything stated above has been stated by me in my official capacity on and derived from the official records and I state that nothing material has been concealed therefrom.

शपथ आयुक्त
CC,VNS.
17.12.24
OATH COMMISSIONER

DEPONENT

VERIFICATION

Verified at Civil Court Vad on this 12th day of December, 2024, that the contents of the above affidavit from paragraphs 1 to 16 are believed to be true and correct to the best of my knowledge and belief. No part of it is false and nothing material has been concealed therefrom.

DEPONENT

Verification
Registration
Sr.N. 37 Time 2:10 pm
Date 12.12.24
Delhi

Annexure-1

Memorandum of Agreement (MoA)

Between

National Institute of Hydrology (NIH),

(Roorkee)

And

Irrigation & Water Resources Department

Uttar Pradesh

Dated: Dec. 07, 2024

MoA for Flood Plain Zone (FPZ) betweenNational Institute of Hydrology (NIH), Roorkee and Irrigation & Water Resources Department (IWRD), Uttar Pradesh, Lucknow

1. INTRODUCTION

Flood Plain Zoning is a very compreshensive work uses modern technology like statistical hydrogy model, satellite imagery, LiDAR DEM, GIS, high end comping etc. The river reachesof Varuna and Assi (about 200 Km) has a relatively flat flood plain and passing through the Varanasi City and requires lot of precision and secondary verification in delineation of Flood Plain Zone (FPZ). The FPZ will be delineated following the Ganga delineated following the Ganga Rejuvenation Order 2016.

2. BACKGROUND

Compliance of the order passed by the Hon'ble NGT in the matter O.A. NO. 128/2021 (Saurabh Tiwari v/s Union of India and others), dated 23.11.2023, O.A. No. 483/2022 (Ashish Kumar Mishra v/s State of U.P and others), dated 04.12.2023 and P.I.L. No 221/2023 (Jayram Kumar Sharan v/s State of U.P. and others) for the restoration, rejuvenation and Flood Pain Zone delineation and demarcation from Prayagraj (Maillahan Jhil) to Varanasi (Adi-Keshavghat) of River Varuna and River Assi (about 200 Km) hase to done by the Water and Resources Department of Uttar Pradesh (Tributary of River Ganga).

As per direction issued by The Engineer in Chief & Head of the Department Irrigation and Water Resources Department, Uttar Pradesh , Lucknow Office Order No 773/CE(WR)/INPC-1 /INPD-3/dated 07.11.2024 that "Nature of FPZ determination work and necessary infrastructure for its implementation, gauge-descharge data, satellite imaging, LiDAR data and experts and experience of work of similar nature, FPZ delineation (Determination of co-ordinates for different zones) will be carried out by Flood Management Information System Center (FMISC), Information System Organisation (ISO), Lucknow.

3. PURPOSE

The main purpose of the MoA between Nation Institue of Hydrology (NIH) and Irrigation & Water Resources Department (IWRD), Uttar Pradesh is the study of Flood Plain Zone (FPZ) at both bank Varuna and Assi river by carrying out demarcation and delineation.

4. SCOPE OF THE WORK

The scope of the proposed work includes:

a) Identify and demarcate the flood plains of Varuna and Assi river on one in hundred year's cycle or appropriately.
b) Identify prohibitedzone, regulatory zone, Regulatory Zone and Waring Zone as per requirement.

c) Digital Elevation Model (DEM)

In the previous study by NIH, in the river Ganga from Unao to Balia 1m grid size DEM from Survey of India (SOI) is used with available measured river cross-sections. Same approach will be used. In addition, the FABDEM (Forest and Buildings removed Copernicus DEM) will also be compared/used where the SOI data is not available. It is a global elevation map that removes building and tree height biases from the Copernicus GLO 30 Digital Elevation Model (DEM).

d) Hydraulic Modelling

Using the corrected DEM and the outputs of flood frequency analysis, the hydrodynamic Model Coupled 1-D & 2Dor full 2D will be setup using HEC-RAS. Steady state analysis will be performed to model the extent of floodplain for various return period floods. The HEC-RAS model will be setup using:

- Upstream branch to provide constant flood magnitude equal to the given return period at upstream boundary and additional intermediate catchment flow as internal boundary condition.
- Downstream boundary as water level at River ganga corresponding to 100-year return period flood.
- Flood plain bathymetry for routing the flows for Varuna and Assi.

e) Hybrid Approach

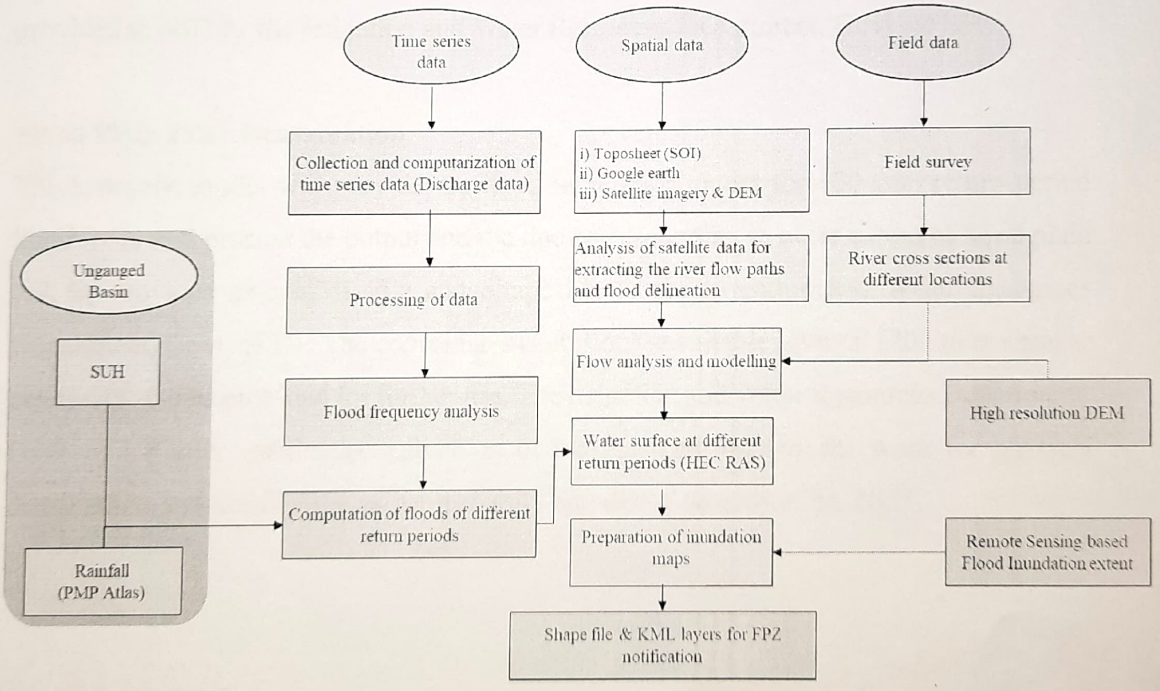
The results of satellite analysis and hydraulic modelling have their own limitation. Satellite may not cover the full flood event and model results are subjected to DEM quality. Therefore, hybrid approach will combine both the results by taking union of the areas obtained from both the results.

5. STUDY AREA

The study area for the present study is the both Assi and Varuna river. Assi river is a very small tributary of the Ganga river about 08 km in length, mainly flowing within the city limit of Varanasi. Whereas, Varuna river is about 202 km long originating near Prayagraj and joins the Ganga river at Varanasi.

6. METHODOLOGY

As per National Institute of Hydrology (NIH) proposal, the said study will be carried out with the similar methodology as used by NIH and Central Water Commission (CWC) in the previous studies for river Ganga and Yamuna. According to given National Institute of Hydrology (NIH) proposal, a brief methodology is proposed along with flow chart described below:



(Flow chart showing steps for flood plain delineation)

Catchment Delineation

The catchment area of the Assi river and Varuna river will be delineated from the CartoSat DEM and Survey of India Topo Sheets in GIS platform. Various catchment characteristics

like Area, Longest Flow Path, Centroidal Longest Flow Path, equivalent stream slope etc. will be estimated.

Flood Frequency Analysis

Flood frequency analysis will be carried out for estimation 100 year return period flood using the observed annual maximum peak flood data. Where historical flood discharge data is not available, the flood value will be estimated from rainfall of corresponding return period rational formula or using synthetic unit hydrograph (SUH) approach as applicable.

Hydraulic Modelling

Once the flood corresponding to 100 year return period is estimated, the hydraulic model (HEC RAS) will be used to simulate the flow pattern on the existing topography (represented through cross-section, Bathymetry i.e. Digital Elevation Model) for estimating flood inundation extent. The river cross-section and Digital Elevation Model is to be provided to NIH by the Irrigation and Water Resources Department, Govt. of UP.

Flood Plain Zone Demarcation

The hydraulic model will provide the flood inundation extent for 100 year return period flood. NIH will process the output and the line corresponding to outer extent of flood plain will be provided as a KML file and Shape file to the Irrigation and Water Resources Department, Govt. of UP. The coordinates (Lat, Log) at suitable interval (200 m or bend to bend) will also be provided for further use. The Irrigation and Water Resources Department, Govt. of UP after verification/validation of the line may take-up the work for physical demarcation and notification as per necessity and directive of Hon'ble NGT.

7. DATA REQUIREMENT:

SN	Data	Source	Responsibility
1	Historical Observed Discharge and Water level data	CWC, Govt. UP	Sponsoring agency
2	River Cross-section	Survey	Sponsoring agency
3	High resolution DEM	SOI, Drone Survey	Sponsoring agency
4	CartoSat DEM	NRSC	NIH
5	Structures (bridge, barrage, embankment, etc.)	Govt. UP	Sponsoring agency
6	Previous Flood inundation extent from satellite data	NRSC, RSAC-UP	Sponsoring agency

8. DURATION AND TIME SCHEDULE

The study will be completed in Six months from the date of award of work, supply of data, and approval of Director, NIH Roorkee. The proposed timeline is given below:

SN	Activity	Month					
		1	2	3	4	5	6
1	Catchment delineation and selection of river reaches						
2	Data collection and Processing						
3	Flood frequency analysis: and Estimation of flood for 100 year return period						
4	Hydraulic model setup using HEC RAS						
5	Finalization of hydraulic model results with structures, embankments etc. with sponsoring agency						
6	Submission of interim findings for discussion, result verification with sponsoring agency.						
7	Finalization of delineation of flood plain						
8	Submission of draft Report						
9	Submission of final Report						

Note: Timely availability of data is very important for maintaining the proposed activity schedule. Scientist of NIH and officers of sponsoring agency will interact regularly for monitoring progress of the study.

9. COST AND PAYMENT SCHEDULE:

The Total cost of the study will be Rs 25,00,000 plus GST charges (18% or as applicable) as per the details given below:

	Financial aspects	Amount (Rs)
a)	On Man-days and Intellectual Fees	11,18,750
b)	Consumables / Components	30,000
c)	Services/utilities	25,000
	Overheads (25% of b &c)	13,750
d)	Equipment /computer usages	12,500
e)	(Project staff/Resources Person, Workstation/computer peripherals, stationary etc.)	10,00,000
f)	TA/DA	2,00,000
g)	Contingencies	1,00,000
I	**Total Expenses [sum of I(a) to (g)]**	**Rs.25,00,000**
II	GST (@ 18% or as applicable)	Rs.4,50,000
	Total Consultancy charges including GST (I + II)	**Rs.29,50,000**

10.PAYMENT TERMS:

- The payment has to be made in two instalments. First instalment of 60% is to be made along with the award of work and the second instalment of the cost 40% is to be paid on the submission of the final report of the study.
- As per the notification of CBDT, Ministry of Finance, Govt. of India no 36/2017 (F. No.203/24/2016/TT A-II), the National Institute of Hydrology is exempted from tax deduction from source, therefore, tax deduction on source will not be applicable on any payment to National Institute of Hydrology.

Bank details for on-line money transfer/RTGS

Account name	National Institute of Hydrology (NIH) consultancy Project
A/C No	31125916862
Bank name	State Bank of India
Branch	IIT Roorkee Branch
IFSC Code	SBINO001069
MICR Code	247002094

Seal of Parties:

In witness where of the parties here to have signed this agreement on Day, Month and Year mentioned here in before

PARTIES

For and on behalf of irrigation & Water Resources Department, Uttar Pradesh	For and on behalf of National Institute of Hydrology, Roorkee
Signature:	Signature:
Name: (महेन्द्र कुमार)	Name: Dr. A. K. Lohani
Designation: अधिशासी अभियन्ता बन्धी प्रखण्ड, वाराणसी	Designation: Scientist-G & Head, Surface Water Hydrology Division
Seal	डा. ए.के. लोहानी वैज्ञानिक जी एवं प्रभागाध्यक्ष सतही जलविज्ञान प्रभाग, रुड़की Dr. A.K. Lohani Sc. G. & Head Surface Water Hydrology Division,Roorkee
Witness: (Name and Address)	**Witness: (Name and Address)**
1. (सतीश कुमार) सहायक अभियन्ता पंचम बन्धी प्रखण्ड, वाराणसी	1. Jagadish Prasad Patra, Scientist-E Surface Water Hydrology Division, NIH
2. (रमेश कुमार सिंह) सहायक अभियन्ता-तृतीय बन्धी प्रखण्ड वाराणसी	2. Soumyaranjan Sahoo, Scientist-B Surface Water Hydrology Division, NIH

Signed on the 07 Day of December 2024

राष्ट्रीय जलविज्ञान संस्थान
(जल शक्ति मंत्रालय, जल संसाधन, नदी विकास एवं गंगा संरक्षण विभाग,
के अधीन भारत सरकार की समिति)
जलविज्ञान भवन, रुड़की-247 667 (उत्तराखण्ड) भारत
National Institute of Hydrology
(A Government of India Society under Ministry of Jal Shakti,
Department of Water Resources, R.D. & G.R.
Jalvigyan Bhawan, Roorkee - 247 667, (Uttarakhand) INDIA
(An ISO 9001 : 2015 Certified Organization)
Phone : +91-1332-272108, 272106
Web : www.nihroorkee.gov.in

No. SWHD/NIH/2024-25
Date: December 4, 2024

Superintending Engineer,
Office of Superintending Engineer
Irrigation Work Circle, Varanasi
Irrigation and Water Resources Department, Govt. of UP

Sub.: Flood plain zone delineation of Varuna and Assi river.

Ref.: Your Letter No. 6710/ सिंकामंवा/एन0जी0टी0 Letter dated 14-11-2024

Sir,

With reference to above cited letter the proposed ToR for the study "Flood plain zone delineation of Varuna and Assi river" is enclosed herewith.

With

Regards,

Head, Surface Water Hydrology Division
National Institute of Hydrology, Roorkee

Term of Reference

Title of Study: Flood plain zone delineation of Varuna and Assi river

1. Introduction

The Superintending Engineer, Irrigation Work Circle, Varanasi has awarded the study **"**Flood plain zone delineation of Varuna and Assi river" to National Institute of Hydrology, Roorkee. The study will be carried out as per direction given by Hon'ble High Court of U.P. Allahabad and Hon'ble NGT. From the initial discussion with the office of the Irrigation Work Circle, Varanasi, it has been found that the Assi river is a very small tributary of the Ganga river about 08 km in length, mainly flowing within the city limit of Varanasi. Whereas, Varuna river is about 202 km long originating near Prayagraj and joins the Ganga river at Varanasi. NIH is already carrying the flood plain delineation of the Ganga river in guidance of Hon'ble NGT. Similar methodologies will be used for delineation of flood plain corresponding to frequency of once in hundred year flood.

2. Brief Methodology:

Catchment Delineation

The catchment area of the Assi river and Varuna river will be delineated from the CartoSat DEM and Survey of India Topo Sheets in GIS platform. The Assi river pass through the city area and Varuna River is meandering in nature. The extent of river reaches for flood plain demarcation will be digitized and finalized jointly with the Irrigation and Water Resources Department, Govt. of UP (Sponsoring agency).

Flood Frequency Analysis

Flood frequency analysis will be carried out from the observed annual maximum peak flood data. Where historical flood discharge data is not available, the flood value will be estimated from rainfall of corresponding return period rational formula or using synthetic unit hydrograph (SUH) approach as applicable.

Hydraulic Modelling

Once the flood corresponding to 100 year return period is estimated, the hydraulic model (HEC RAS) will be used to simulate the flow pattern on the existing topography (represented through cross-section, Bathymetry i.e. Digital Elevation Model) for estimating flood inundation extent. The river cross-section and Digital Elevation Model is to be provided to NIH by the Irrigation and Water Resources Department, Govt. of UP.

Flood Plain Zone Demarcation

The hydraulic model will provide the flood inundation extent for 100 year return period flood. NIH will process the output and the line corresponding to outer extent of flood plain will be provided as a KML file and Shape file to the Irrigation and Water Resources Department, Govt. of UP. The coordinates (Lat, Log) at suitable intervals (200 m or bend to bend) will also be provided for further use. The Irrigation and Water Resources Department, Govt. of UP after verification/validation of the line may takeup the work for physical demarcation and notification as per necessity and directive of Hon'ble NGT.

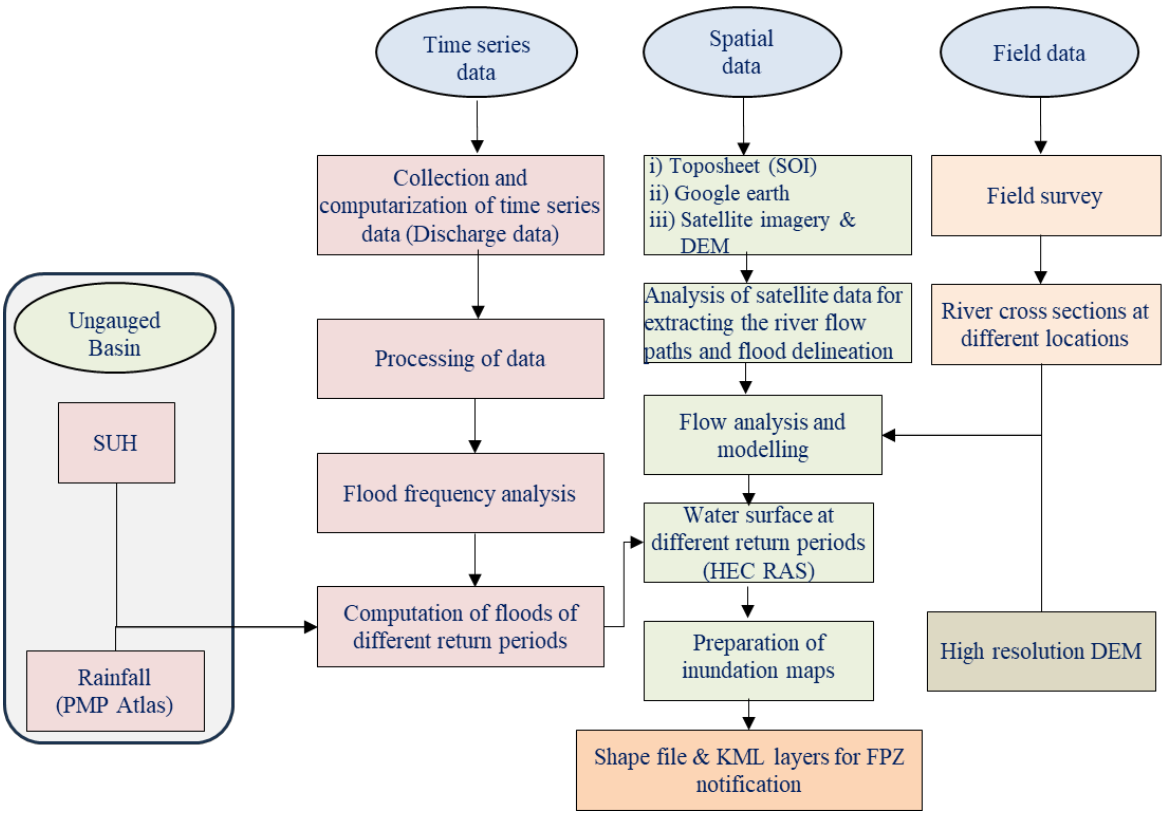


Figure 1: Flow Chart for flood plain zoning study

3. Data Requirement:

SN	Data	Source	Responsibility
1	Historical Observed Discharge and Water level data	CWC, Govt. UP	Sponsoring agency
2	River Cross-section	Survey	Sponsoring agency
3	High resolution DEM	SOI, Drone Survey	Sponsoring agency
4	CartoSat DEM	NRSC	NIH
5	Structures (bridge, barrage, embankment etc.)	Govt. UP	Sponsoring agency
6	Previous Flood inundation extent from satellite data	NRSC, RSAC-UP	Sponsoring agency

Duration of Study:

The study will be completed in Six months from the date of award of work, supply of data, and approval of Director, NIH Roorkee. The proposed timeline is given below:

SN	Activity	Month					
		1	2	3	4	5	6
1	Catchment delineation and selection of river reaches						
2	Data collection and Processing						
3	Flood frequency analysis estimation of flood for 100 year return period						
6	Hydraulic model setup using HEC RAS						
7	Finalization of hydraulic model results with structures, embankments etc. with sponsoring agency						
8	Submission of interim findings for discussion, result verification with sponsoring agency.						
9	Finalization of delineation of flood plain						
10	Submission of draft Report						
11	Submission of final Report						

Note: Timely availability of data is very important for maintaining the proposed activity schedule. Scientist of NIH and officers of sponsoring agency will interact regularly for monitoring progress of the study.

4. Cost and Payment Schedule:

The Total cost of the study will be Rs 25,00, 000 plus GST charges (18% or as applicable)

- 60 % payment is to be made along with the award of work.
- 40% payment is to be made on submission of the final report of the study.

NIH will meet the travel expenses from the above budget. Sponsoring agency will assist during local field visits and accommodation as per requirement. NIH shall submit the final report with maps and the outer extent of flood plain will be provided as a KML file and Shape file to the Irrigation and Water Resources Department, Govt. of UP. The coordinates (Lat, Log) at suitable interval (or bend to bend) will also be provided as per requirement for further use.

जिला गंगा समिति, वाराणसी की बैठक में मा0 एन0जी0टी0 से सम्बंधित विभिन्न वादों में पारित आदेशों के अनुपालन में जिलाधिकारी महोदय, वाराणसी की अध्यक्षता में दिनांक 19.11.2024 को सायं 7.00 बजे रायफल क्लब में सम्पन्न समीक्षा बैठक का कार्यवृत्त।

मा० राष्ट्रीय हरित अधिकरण, नई दिल्ली द्वारा विभिन्न वादों में पारित आदेशों के अनुपालन में जिलाधिकारी महोदय, वाराणसी समीक्षा की गयी। बैठक में उपस्थित अधिकारीगण की सूची संलग्न है।

1– मा0 राष्ट्रीय हरित अधिकरण, नई दिल्ली में विचाराधीन ई0ए0 नं0 28/2024 विद ओ0ए0 नं0 128/2021 सौरभ तिवारी बनाम यूनियन ऑफ इण्डिया एवं अदर्स में पारित आदेश दिनांक 23.11.2021 के अनुपालन में अध्यक्ष महोदय द्वारा कहॉ गया कि मा0 एन0जी0टी0 द्वारा उक्त ओ0ए0 में पारित आदेश के अनुपालन में निष्पादन समिति (Execution Committee) की बैठक प्रति माह आयोजित की जाती है। बैठक का कार्यवृत्त सम्बंधित कार्यदायी संस्थाओं/विभागों को अनुपालन हेतु प्रेषित किया जाता है साथ ही बैठक का कार्यवृत्त जिला सूचना विज्ञान अधिकारी, वाराणसी को जिलाधिकारी, वाराणसी एवं आयुक्त, वाराणसी मण्डल वाराणसी से सम्बंधित वेबसाईट https://varanasi.nic.in/ जो सार्वजनिक जानकारी और भागीदारी को सक्षम करता है, पर अपलोड किया जा रहा है। मा0 एन0जी0टी0 द्वारा पारित आदेश दिनांक 23.11.2021 के अनुपालन में निष्पादन समिति (Execution Committee) की बैठक दिनांक 23.10.2024, 18.09.2024, 02.08.2024, 29.02.2024, 29.01.2024, 23.12.2023, 28.10.2023, 28.08.2023, 12.07.2023, 01.07.2023, 30.06.2023, 14.05.2023, 29.03.2023, 09.02.2023, 26.12.2022, 15,12,2022, 01.11.2022, 29.09.2022, 23.08.2022, 26.07.2022, 28.06.2022, 27.05.2022, 28.03.2022, 20.02.2022 एवं 11.02.2022 को आयोजित की गयी है। अगामी जिला पर्यावरण समिति की बैठक में निष्पादन समिति (Execution Committee) की बैठक को करा लिया जाये तथा कार्यवृत्त भी अपलोड कराया जाये।

2– अध्यक्ष महोदय द्वारा वरूणा नदी गिरने वाले नालों की जानकारी चाही गयी। बैठक में उपस्थित परियोजना प्रबंधक, यू0पी0 जल निगम (ग्रामीण), भगवानपुर, वाराणसी द्वारा अवगत कराया गया कि वरूणा नदी में वर्तमान में कुल 15 नाले गिर रहे हैं। उक्त नालों में 06 अदद नालें पूर्णतया टैप्ड हैं। 08 अदद नाले पार्शियली टैप्ड हैं एवं एक अदद दुर्गा नाला अनटैप्ड है। अनटैप्ड नाले के सम्बंध में परियोजना प्रबंधक द्वारा अवगत कराया गया कि 55 एम0एल0डी0 एस0टी0पी0 प्रस्तावित है। उक्त एस0टी0पी0 का डी0पी0आर0 तैयार कर स्वीकृति हेतु राष्ट्रीय स्वच्छ गंगा मिशन, नई दिल्ली को प्रेषित किया गया है, जो प्रकियाधीन है। उक्त से अवगत होने के उपरांत अध्यक्ष

महोदय द्वारा अनुस्मारक पत्र प्रेषित किये जाने हेतु परियोजना निदेशक को निर्देशित किया गया है।

(कार्यवाही–उ0प्र0 जल निगम (ग्रामीण/नगरीय), वाराणसी /सिंचाई विभाग, बन्धी प्रखण्ड, वाराणसी/जलकल विभाग, नगर निगम, वाराणसी)।

अग्रेतर परियोजना प्रबंधक द्वारा अवगत कराया गया कि वरूणा नदी में गिरने वाले शेष नाले जो पार्शियली टैप्ड हैं, उसके कियाशील रहने के सम्बंध में मुख्य सचिव महोदय, उ0 प्र0 शासन की अध्यक्षता में दिनांक 28.02.2024, 09.04.2024 एवं 22.10.2024 को बैठक आयोजित की गई, जिसमें विभागवार जिम्मेदारी दी गयी है, जिसमें सिंचाई विभाग बन्धी प्रखण्ड, वाराणसी, यू0पी0पी0सी0एल0, नगर निगम, वाराणसी, आयुक्त, वाराणसी मण्डल, वाराणसी को क्या–क्या कार्य किया जाना है के सम्बंध में विस्तृत निर्णय लिए गये हैं, जिसके कार्यवृत्त संलग्नक–1 पर संलग्न है। अध्यक्ष महोदय द्वारा निर्देशित किया गया कि सम्बंधित विभाग अपने प्रशासनिक विभाग से सम्पर्क कर तत्काल निर्देशों का अनुपालन कराये, इस सम्बंध में भी अधोहस्ताक्षरी को वस्तु स्थिति से अवगत कराते हुए अनुपालन आख्या मुख्य सचिव, उ0 प्र0 शासन को भी अवगत कराये।

(कार्यवाही– सिंचाई विभाग बन्धी प्रखण्ड, वाराणसी, यू0पी0पी0सी0एल0, नगर निगम, वाराणसी)

3. अधिशासी अभियंता, सिंचाई विभाग, बन्धी प्रखण्ड, वाराणसी द्वारा अवगत कराया गया कि वरूण नदी एवं असि नाला की बहाली एवं कायाकल्प के सम्बंध में सी0ई0एम0डी0ई0 द्वारा रू0 137.90 करोड़ का डी0पी0आर0 तैयार किया गया है, जो बजट स्वीकृति हेतु एस0एम0सी0जी0 को भेजा गया है। इस सम्बंध में अध्यक्ष महोदय द्वारा निर्देश दिये गये कि अधोहस्ताक्षरी के स्तर से एक रिमाइण्टर पत्र तत्काल बजट रिलीज करने के लिए भेजा जाये, जिससे कि मा0 एन0जी0टी0 द्वारा पारित आदेश दिनांक 23.11.2021 के अनुपालन में आवश्यक कार्यवाही की जा सके तथा सी0डब्ल्यू0एस0 निर्माण इत्यादि का कार्य कराया जा सके।

(कार्यवाही– सिंचाई विभाग बन्धी प्रखण्ड, वाराणसी, यू0पी0पी0सी0एल0, नगर निगम, वाराणसी)

4. अध्यक्ष महोदय द्वारा अस्सी/नगवा नाले के माध्यम से गंगा नदी में निस्तारित हो रहे बहिश्राव शुद्धीकरण के सम्बंध में चर्चा की गयी, जिस पर उ0प्र0 जल निगम (ग्रामीण) द्वारा अवगत कराया गया है कि अस्सी/नगवा नाले में बहिश्राव की मात्रा लगभग 78 एमएलडी है तथा वर्तमान में 50 एमएलडी सीवेज उत्प्रवाह शोधन हेतु रमना स्थित 50 एमएलडी एसटीपी में प्रेषित किया जा रहा है तथा शेष 28 एमएलडी सीवेज उत्प्रवाह का शोधन हेतु भगवानपुर में निर्माणाधीन 55.00 एमएलडी एसटीपी का निर्माण कार्य की समयसीमा दिनांक 06.12.2025 तक निर्धारित है। वर्तमान में उक्त ड्रेन आंशिक

टैप्ड है तथा अतिरिक्त सीवेज गंगा नदी में निस्तारित होता है। अतिरिक्त सीवेज के शुद्धीकरण हेतु एडवांस आक्सीडेशन प्रोसेस की व्यवस्था की गयी है।

(कार्यवाही–उ0 प्र0 जल निगम (ग्रामीण), वाराणसी)

5. अध्यक्ष महोदय द्वारा दुर्गा नाले के माध्यम से निस्तारित हो रहे बहिश्राव शुद्धीकरण के सम्बंध में चर्चा की गयी जिस पर उ0प्र0 जल निगम (ग्रामीण) द्वारा अवगत कराया गया है कि 55.00 एमएलडी एसटीपी प्रस्तावित है। उक्त का डी0पी0आर0 बनाकर एन0एम0सी0जी0 प्रेषित किया गया है, जो प्रकियाधीन है। उक्त के सम्बंध में अध्यक्ष महोदय द्वारा निर्देशित किया गया कि उक्त परियोजना पर त्वरित कार्यवाही कराई जाये तथा अधोहस्ताक्षरी के स्तर से भी अनुस्मारक पत्र प्रेषित कराया जाये।

(कार्यवाही–उ0 प्र0 जल निगम (ग्रामीण), वाराणसी)

6. अध्यक्ष महोदय द्वारा नख्खा एवं सामने घाट नाला के माध्यम से सीधे गंगा नदी में निस्तारित हो रहे बहिश्राव शुद्धीकरण के सम्बंध में चर्चा की गयी जिस पर उ0प्र0 जल निगम (ग्रामीण) द्वारा अवगत कराया गया है कि नख्खा नाला एवं सामने घाट नाला के बहिस्राव को भगवानपुर में निर्माणाधीन 55 एमएलडी से जोड़ जायेगा।

(कार्यवाही–उ0 प्र0 जल निगम (ग्रामीण), वाराणसी)

6. अध्यक्ष महोदय द्वारा सायर माता मन्दिर एवं घाटवारी माता मन्दिर नाला के माध्यम से निस्तारित हो रहे बहिश्राव शुद्धीकरण के सम्बंध में चर्चा की गयी जिसपर उ0प्र0 जल निगम (ग्रामीण एवं नगरीय) द्वारा अवगत कराया गया कि वर्तमान में सायर माता मन्दिर एवं घटावरी माता मन्दिर नाले में बहिश्राव की मात्रा लगभग 4.5 एमएलडी है, जिसके शोधन हेतु अमृत 2.0 अन्तर्गत सूजाबाद में 07 एमएलडी क्षमता का एसटीपी प्रस्तावित है तथा उक्त एसटीपी हेतु कार्य आदेश दिनांक 30.09.2024 को निर्गत किये जा चुके हैं एवं उक्त कार्य की समयसीमा 24 माह निर्धारित है। अध्यक्ष महोदय द्वारा निर्देशित किया गया कि जलकल विभाग, नगर निगम, वाराणसी एवं उ0प्र0 जल निगम (ग्रामीण/नगरीय) अद्यतन प्रगति से आगामी बैठकों में अवगत कराया जायें।

(कार्यवाही–उ0 प्र0 जल निगम (ग्रामीण/नगरीय), वाराणसी/ जलकल विभाग, नगर निगम, वाराणसी)

7. अध्यक्ष महोदय द्वारा वरूणा नदी एवं असि/नगवॉ नाला के फ्लड प्लेन जोन का पिलर डिमार्केशन हेतु अधिशासी अभियंता, बन्धी प्रखण्ड, सिंचाई विभाग, वाराणसी को निर्देशित किया गया कि एन0आई0एच0 से सम्पर्क कर कार्य प्रगति के सम्बंध में अवगत कराया जाये साथ ही

(कार्यवाही– अधिशासी अभियंता, बन्धी प्रखण्ड, सिंचाई विभाग, वाराणसी)

8. अध्यक्ष महोदय द्वारा निर्देशित किया गया कि मा0 एन0जी0टी0 में विचाराधीन ओ0ए0 सं0 367/2022 राजेन्द्र प्रसाद गुप्ता बनाम उ0प्र0 व अन्य में पारित आदेश दिनांक 16.10.2024 में विभिन्न विभागों को दिये गये निर्देशों का समयबद्ध अनुपालन विभागवार

सुनिश्चित किया जाये। वरूणा नदी एवं गंगा नदी में गिर रहे नालों पर लगाये गये पर्यावरणीय क्षतिपूर्ति पर चर्चा की गयी, जिस पर नगर निगम, वाराणसी द्वारा अवगत कराया गया कि उक्त ओ0ए0 में पारित आदेशानुसार पर्यावरणीय क्षतिपूर्ति की धनराशि को शासन स्तर से बजट से काटकर जमा किया जाना निर्देशित है।

(कार्यवाही– नगर निगम, वाराणसी/अधिशासी अभियंता, बन्धी प्रखण्ड, सिंचाई विभाग, वाराणसी/वाराणसी विकास प्राधिकरण, वाराणसी/जल निगम (ग्रामीण/नगरीय))

9. अध्यक्ष महोदय द्वारा निर्देशित किया गया कि मा0 एन0जी0टी0 ओ0ए0 सं0 483/2022 आशीष कुमार मिश्रा बनाम उ0 प्र0 राज्य एवं अन्य में पारित आदेश दिनांक 06.08.2024 में दिये गये निर्देशों के अनुपालन में सिंचाई विभाग द्वारा फ्लड प्लेन डिमार्केशन एन.आई.एच. द्वारा समयबद्ध कार्यवाही किये जाने हेतु प्रगति से समय–समय पर सूचित किया जाये तथा फ्लड प्लेन के अन्तर्गत निर्माणों के ध्वस्तिकरण हेतु वाराणसी विकास प्राधिकरण, वाराणसी एवं नगर निगम द्वारा ड्रोन सर्वे कराकर डिमोलिशन सम्बंधी कार्यवाही नियमानुसार कराई जाये।

(कार्यवाही– नगर निगम, वाराणसी/अधिशासी अभियंता, बन्धी प्रखण्ड, सिंचाई विभाग, वाराणसी/वाराणसी विकास प्राधिकरण, वाराणसी/जल निगम (ग्रामीण/नगरीय))

10. शहर की एक्यूआई मॉडरेट है। इस सम्बंध में नगर निगम द्वारा नॉन अटेन्मेट सिटी हेतु बनाये गये एक्शन प्लान के अनुसार कार्यवाही सुनिश्चित किया जाये। पराली प्रबंधन हेतु कृषि विभाग द्वारा शासन के निर्देशानुसार आवश्यक कार्यवाही सुनिश्चित करायी जाये। कन्स्ट्रशन एण्ड डिमोलिशन वेस्ट को सी0 एण्ड डी0 साईट पर निस्तारण सुनिश्चित कराया जाये। डीजल चलित नॉव को भी सी0एन0जी0 में परिवर्तित कराये जाने हेतु आवश्यक कार्यवाही की जाये। सी0एन0जी0 नेटवर्क को बढ़ाया जाये। बायोमास/कूड़ा दहन की रोक–थाम हेतु नगर निगम द्वारा जोनवार निगरानी की जाये। घाटों की सफाई पर विशेष ध्यान दिया जाये तथा घाटों पर दीपक इत्यादि जलाये जाने पर जनित वेस्ट का समुचित निस्तारण सी0एण्डडी0 साईट पर कराया जाये। गंगा नदी में फ्लोटिंग मटेरियल की सफाई हेतु स्कीमर वाली वोट के लिए एस0एम0सी0जी0 को पत्र प्रेषित किया जाये।

(कार्यवाही– नगर निगम, वाराणसी/अधिशासी अभियंता, बन्धी प्रखण्ड, सिंचाई विभाग, वाराणसी/वाराणसी विकास प्राधिकरण, वाराणसी/जल निगम (ग्रामीण/नगरीय)/कृषि विभाग, वाराणसी/जिला आपूर्ति विभाग, वाराणसी)

11 गंगा टास्क फॉर्स वाराणसी द्वारा बैठक में अवगत कराया गया की गंगा किनारे स्थित गंगा ग्रामो में इस वर्ष कुल 18000 पौधे लगाए गए है , इस पर जिलाधिकारी महोदय द्वारा सम्बंधित रिपोर्ट समिति में समक्ष प्रेषित करने हेतु गंगा टास्क फॉर्स वाराणसी को निर्देशित किया ।

(कार्यवाही– गंगा टास्क फॉर्स वाराणसी)

12 अध्यक्ष महोदय द्वारा सॉलिड लिक्विड कूड़ा मैनेजमेंट हेतु गंगा ग्राम स्तर पर कार्य योजना बनायीं जाए साथ ही पंचायती राज विभाग वाराणसी , उत्तर प्रदेश प्रदुषण नियंत्रण बोर्ड वाराणसी , जल निगम वाराणसी की सहभागिता के साथ कार्य योजना के नियमित रूप से अमल में लाया जाए ताकि ग्राम स्तर स्तर से निकल रहे कूड़े सीधे गंगा नदी में जाने से रोका जा सके ।

(कार्यवाही– जल निगम (ग्रामीण/नगरीय / पंचायती राज विभाग वाराणसी / उत्तर प्रदेश प्रदुषण नियंत्रण बोर्ड वाराणसी)

13 अध्यक्ष महोदय द्वारा गंगा एवं वरुणा नदी की साफ सफाई नियमित रूप से करते हुए सम्बंधित रिपोर्ट प्रेषित करने हेतु नगर निगम वाराणसी को निर्देशित किया साथ ही नगर निगम वाराणसी द्वारा अवगत कराया गया की वरुणा नदी में जल कुम्भी निस्तारण करने हेतु स्किम्मर की आवश्यकता है , इस पर अध्यक्ष महोदय द्वारा नगर निगम वाराणसी को निर्देशित किया गया की राष्ट्रीय स्वच्छ गंगा मिशन नई दिल्ली से मांग पत्र के माध्यम से स्किम्मर की अपेक्षा जल से जल्द रखी जाए।

(कार्यवाही– नगर निगम, वाराणसी)

14 अध्यक्ष महोदय द्वारा बताया गया की प्रतिवर्ष जनपद वाराणसी में पर्यटन विभाग द्वारा देव दीपावली महोत्सव वृहद स्तर पर मनाया जाता रहा है जिसमे भारी मात्रा में लोगों की प्रतिभागिता होती रही है , आगामी गंगा उत्सव कार्क्रम को पर्यटन विभाग द्वारा मनाये जा रहे देव दीपावली महोत्सव के साथ ही मनाया जाए जिससे की गंगा नदी के प्रति जनजागरूकता कार्यक्रम के प्रति बड़े स्तर पर लोगों को लामबंध किया जा सके।

(कार्यवाही– पर्यटन विभाग वाराणसी , राष्ट्रीय स्वच्छ गंगा मिशन नई दिल्ली , राज्य स्वच्छ गंगा मिशन लखनऊ)

प्रभागीय वनाधिकारी / सदस्य सचिव जिला गंगा समिति , वाराणसी	मुख्य विकास अधिकारी / नोडल अधिकारी जिला गंगा समिति , वाराणसी	10/12/24 जिलाधिकारी / अध्यक्ष जिला गंगा समिति,वाराणसी

राष्ट्रीय स्वच्छ गंगा मिशन
National Mission for Clean Ganga

Annexure-3

File No.: TE/3/2022-O/o ED(TECH) NMCG

Dated: 01st December, 2023

To,
M/s ORAIPL,
902, Ozone House, Khare Town, Dharampeth,
Nagpur – 440010

Sub: Treatment of Assi Drain via Advanced Oxidation Process", Varanasi, Uttar Pradesh under Namami Gange Program

Ref:

1. GEM Bid Number GEM/2023/B/3175712. Dated 24/05/2023.
2. RFP Ref No: TE/3/2022-O/o ED (Tech)/NMCG.
3. Online Negotiation Meeting at 11 AM Dated 09/11/2023.
4. Your letter dated 09/11/2023.

Dear Sir,

This is to notify that your bid for the execution of the " Services for removal of pollutants from Drain water through installation and commissioning of Advanced Oxidation Process AOP or any Similar Treatment Process for drain joining River Ganga at Varanasi", Uttar Pradesh, under Namami Gange Program for the **contract price of Rs. 40.00 cr. (Rupees Forty Crores only**) including GST, is hereby accepted by competent authority NMCG for a period of two years. The contract may be further extended for one or more years subject to satisfactory performance and requirement assessment by NMCG and guided by the General Condition of the Contract, clause no. 14 – Contract Extension, Pg no – 27 of the RFP.

2. It is requested to furnish Performance Security for **Rs. 1.20 cr. (Rupees One Crore and Twenty Lacs only)** in favor of the Project Director, SMCG-UP and valid beyond 60 days form the contract completion period, in the form and manner and as per terms and conditions of the tender documents within 15 days from the date of issue of this LOA. You are also requested to execute the contract agreement within 25 days from the date of issue of this LOA.

3. The contract price as per rates quoted are tabulated in Annexure-1.

4. Technical proposal submitted by you shall form a part of the contract. In addition, a detailed work plan for the project needs to be submitted to SMCG-UP for their approval, if required, through combined site visit and the approved work plan shall be made part of the contract agreement.

5. The flow monitoring mechanism shall be as per the RFP. The same shall be clearly articulated in the work plan and flow data management shall be approved by SMCG-UP and shared with SMCG-UP (R)/NMCG, so that the same is made part of the contract agreement.

एन.एम.सी.जी., (जल शक्ति मंत्रालय, जल संसाधन, नदी विकास और गंगा संरक्षण विभाग, भारत सरकार)
प्रथम तल, मेजर ध्यान चन्द नेशनल स्टेडियम, इन्डिया गेट, नई दिल्ली–110002
NMCG, (Ministry of Jal Shakti, Department of Water Resources, River Development & Ganga Rejuvenation, Government of India)
First Floor, Major Dhyan Chand National Stadium, India Gate, New Delhi-110002
Ph.: 011-23072900, 23072901

6. Payment Schedule shall be as per General Conditions of Contact, Clause no. 12 – Payment, page no 26 of the TFP document.

7. SMCG-UP shall be the appointed authority for monitoring the performance of the plant and verification/validation of the monthly performance report.

8. The payment shall me made by NMCG after approval of the monthly performance report which should be based on Third Party assessment.

9. Please acknowledge the receipt of this letter and convey acceptance of all terms and conditions with 7 days of receipt of this letter to SMCG-UP with a copy to NMCG.

10. SMCG-UP shall issue the requisite 'Notice to proceed with work' upon receipt of your acknowledgement, receipt of Performance Guarantee in full in approved form as per RFP, approval of work plan and signing of contract agreement. Other terms and conditions of the RFP shall prevail.

11. The Oxidation plant shall be fully functional within three months from the issuance of 'Notice to proceed with work'.

12. This is a performance contract (service contract model), and hence the approved rate would be reduced by 5%for the entire period, if the starting date, as agreed for service delivery, is breached.

13. The system to be put in place and treatment of Assi nala must be started within 90 days as proposed. If contractor fails to achieve the timeline, the 1% penalty will be levied on per day basis.

14. NMCG/ SMCG-UP will monitor the progress of the work on a continuous basis.

15. As deliberated in the EC meeting and recorded in the EC minutes, the payment will be on the actual treatment quantity and no payment will be made during the monsoon season.

16. This issues with the approval of competent authority.

Your Sincerely,
For National Mission for Clean Ganga

(बिनोद कुमार)
निदेशक (परियोजना), एनएमसीजी

Copy for kind perusal to:

1) Project Director, SMCG-UP

Copy for information:

1) PPS to the Secretary, DoWR, RD&GR
2) PS to Director General, NMCG
3) PS to Executive Director (Technical) / PS to Executive Director (Projects) / PS to Executive Director (Finance) NMCG
4) Guard file

Annexure-1

Assi Nala

S. No.	Activity	Unit	Fixed Cost per day (in INR)
1	Service cost for providing committed water quality of drain water	MLD	29,850/- (Excluding GST)

*All cost to be inclusive of all T & P, POL and labour components complete.

Contract price has been derived as below:

Contract price is Rs 29,850-/ per ML excluding taxes for two years' contract as per T&C of the tender document. The payment shall be made on actual treatment quantity and no payment shall be made during monsoon period.

Considering a wet period of 3 months and average flow of 22 MLD (flow varies from 15-30 MLD), the maximum fund outgo in the project shall be Rs 40.00 cr. (Avg flow 22 MLD X Discounted rate Rs 29850/- per ML X 1.18 (GST) X 240 days per year (excluding monsoon period) X project duration of 2 years).

CIN No : U40200MH2002PTC135883

OZONE RESEARCH & APPLICATIONS (I) PVT. LTD.

ORAIPL
AN ISO 9001:2008 COMPANY
www.oraipl.com

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Telefax:+ 9 1 - 7 1 2 - 2 5 5 1 0 5 5
E-mail :oraipl@oraipl.com

WORKS: C-75, MIDC, Industrial Area
Hingna, Nagpur-440 028. (M.S.) India
Telefax : 07104-235783, 6588988

Project: treatment of Assi drain water via advance oxidation process **(Package- 14, Varanasi)**

Client:
National Mission for Clean Ganga (NMCG) - Union body
State Mission for Clean Ganga (SMCG) - State body

Vendor: Ozone Research Application India Pvt. Ltd. (ORAIPL) Nagpur (MH)

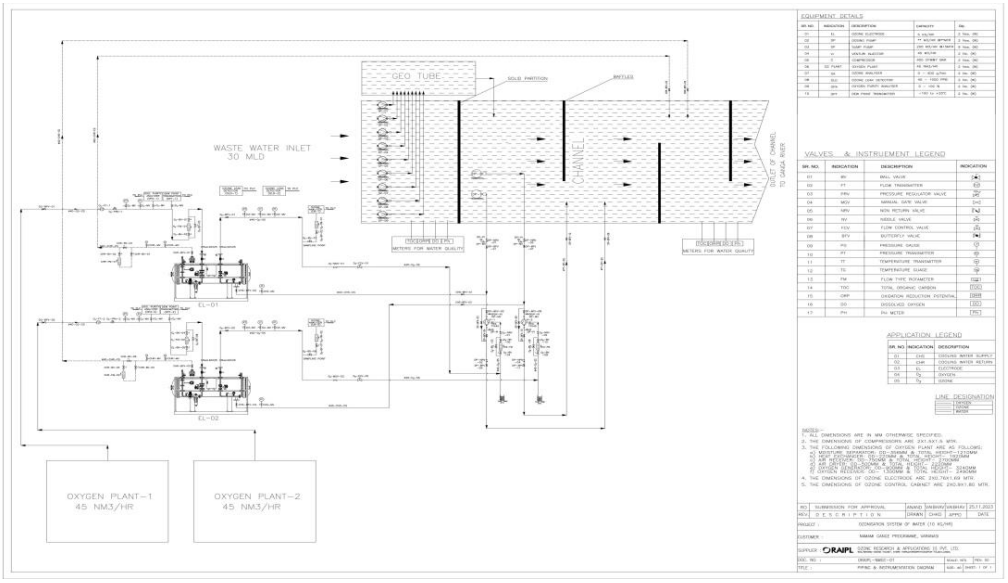
Ref. Doc. of Work Order:

1. RFP ref no ._TE/3-2022O/oED(Tech)/ NMCG.
2. Bid No.GEM/2023/B/ 3175712/December 2024/

Details: Advanced Oxidation Process AOP or any Similar Treatment Process for drain joining River Ganga at Varanasi", Uttar Pradesh,

2. Table of content:

3. P&ID:



4. List of Equipment's installed:

4.1 Geotube :-The Geotubes are also known as geobags.
They are containers that are hydraulically filled with a slurry mix of sand and water. The hydraulic pressure helps to transport the sand along the inside of the tube, while the water will dissipate through the permeable engineered fabric, then the sand will settle out within the container by gravity.

4.2 **Sump pump:-A sump pump is a pump used to remove water that has accumulated in a water-collecting sump basin.**

4.3:- Air Compressor: To compress air at required pressure and flow as source to Air Dryer.

4.4:-Air Dryer: PSA based desiccant type Air dryer is used to remove moisture from compressed air.

4.5:- Air receiver tank: Air receiver tank is used to store compressed air which will be further supplied to oxygen generator module.

4.6:-Oxygen generator: To produce oxygen from air.

Oxygen Absorbers: Dry Air from Air dryer are fed to PSA based Oxygen absorbers to remove nitrogen & pass oxygen.

Oxygen Receiver: Buffer tank to store oxygen.

4.7:-Oxygen receiver tank: This tank will be used to store generated oxygen which will be further supplied for ozone generation.

4.8:-Ozone generator: To produce ozone gas from oxygen feed gas using corona discharge method.

4.9:-Ventury Injector: Ventury injector will suck ozone gas & mix it with motive water.

4.10:-Dosing Pump: Dosing pumps provides motive water required for Ventury Injectors.

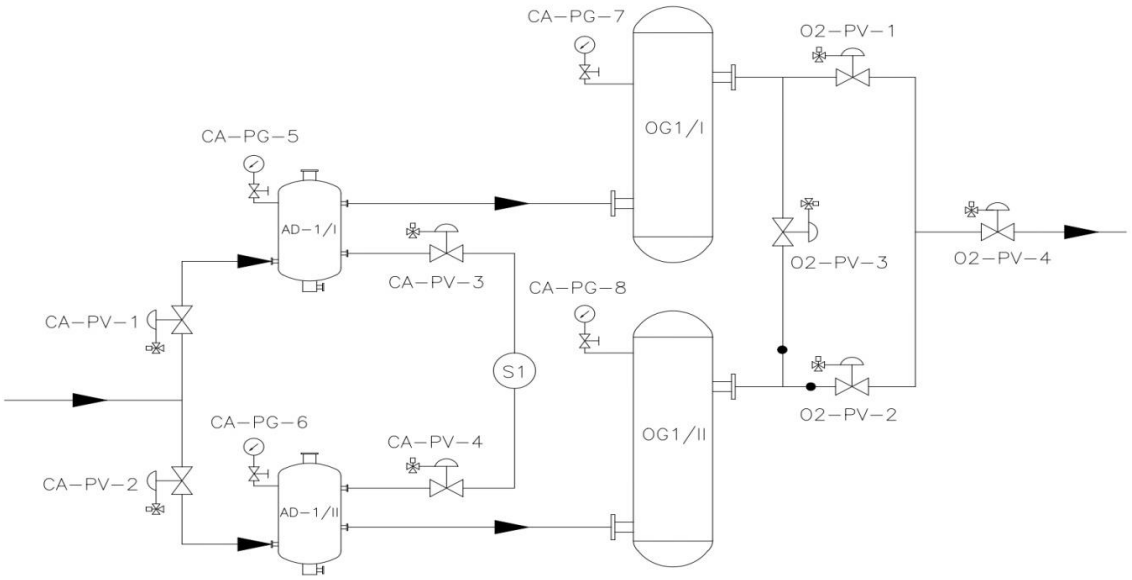
4.11:- Oxygen purity analyser:-oxygen analyzer is used to measure trace or percent levels of oxygen concentration in gas streams .

4.12 :- Ozone analyser:-The instrument may be used to monitor ozone values

4.13:- Due point temprature:- the temperature the air needs to be cooled to (at constant pressure) in order to achieve a relative humidity (RH) of 100%.

5. Operation philosophy:

5.1 Oxygen generator operation philosophy:



Screw Type Air Cooled Compressor:

Ambient atmospheric air is compressed in the air compressor to - 5 kg/cm^2 (g) pressure. This compressed air at ambient temperature (Max. temp, 59^{0}C) contains saturated condense moisture which is removed by a Moisture Separator. Dust is also removed by the filter installed in the compressor.

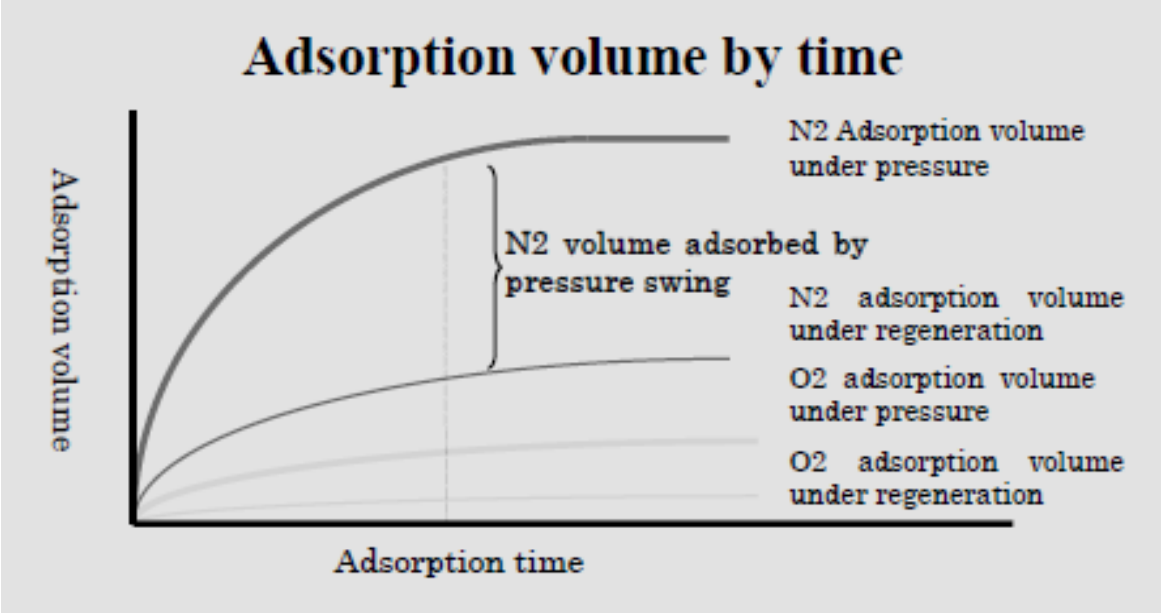
Dryer Unit:

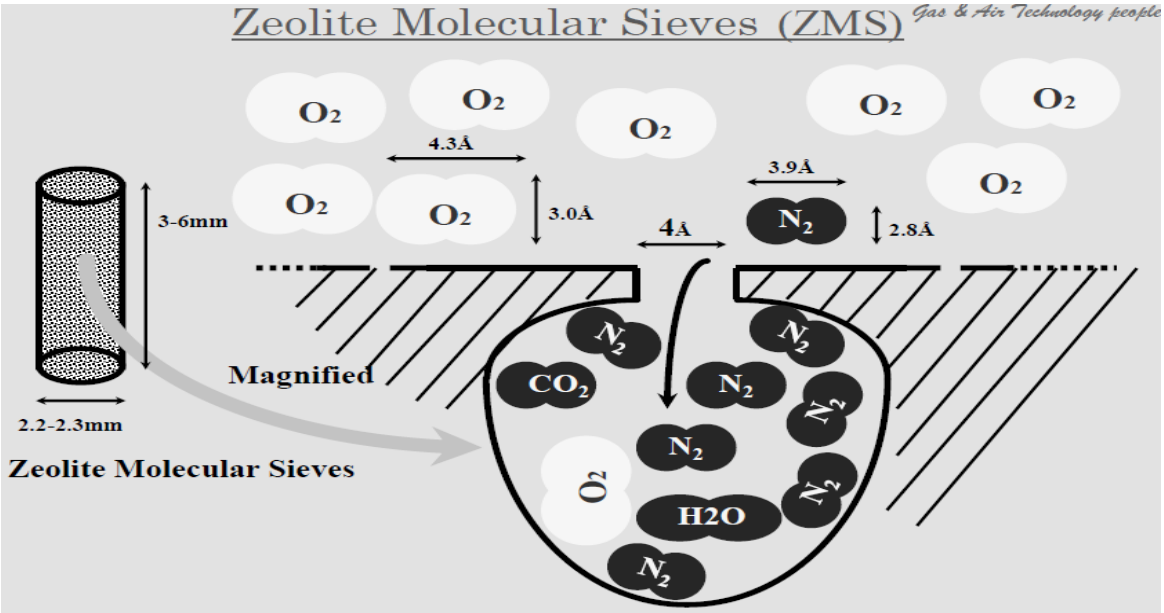
Oil free compressed air containing moisture in vapour form enters at the bottom side of one of the Dryer Adsorber filled with a unique quality adsorbent Activated Alumina, which adsorbs moisture in vapour form producing dry moisture free air at the top (Dew point at oxygen header line -40^{0}C).

Oxygen Generator:

Moisture free dry air enters at the bottom of one of the oxygen generators, oxygen generator with the specially designed adsorbent. This adsorbent is called Zeolite Molecular Sieves having a micro pore in its surface and adsorbs N2, CO2 and H2O molecular into such all selectively under a certain pressure. After adsorption process, adsorbent is

regenerated by depressurizing. Oxygen generator can produce the Oxygen gas continuously by repeating above adsorption and regeneration.





When the producing Dyer Adsorber & Oxygen Generator Adsorber is saturated with moisture and nitrogen respectively, the compressed Air feed is automatically switched to the other oxygen generator adsorber via other dryer adsorber. The adsorbed nitrogen from oxygen generator adsorber & moisture from dryer adsorber is desorbed. When the

adsorbers are depressurized, purged & vented to the atmosphere. Each of the Adsorbers cycles between two stages; production & regeneration. One set of dryer &oxygen generator adsorber produces dry Air / Oxygen while other set of Dryer & Oxygen generator adsorber regenerates themselves. The entire cycle is automatically controlled by PLC.

5.2 Ozone Generator Module:

Ozone generator is vertical shell and tube, corona discharge, water cooled type. Ozone shall be generated by passing oxygen through a gap formed between power connection and SS tube. Ozone production is controlled by varying the applied frequency.

Ozone Generation module consist the following equipment's:

Ozone Electrode Module: Ozone generating module is modular vertical tubular form of MOC SS316 Ti.

Dielectric Glass Tube:

- **Material:** Borosilicate glass.
- **Type:** Cylindrical.
- **Construction:** Closed at one end.

Ozone generator is completely work in automatic mode controlled by programmable control logic (PLC) using valve operating sequence, during operation of ozone generator safety interlock also ensure by PLC logic.

6. Waste recycling system:

During the process of sludge collected in geotube after sometime it will replaced.

7. Pollutants:

The below data shows the list of pollutants generate during operation.

Sr. No.	Category	Remark
1	Water pollutants	NA
2	Soil pollutants	NA
3	Air pollutants	NA
4	Noise pollutants	NA
5	Hazardous chemicals	NA

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- **End -**