BEFORE THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

O. A. No. 200 of 2014

In the matter of:

M. C. Mehta ... Applicant(s)

Versus

Union of India & Ors. ... Respondent(s)

Next Date: 22.04.2026

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Date: 21-04-26
Place: New Delhi

ADVOCATE FOR THE RESPONDENT:
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O. A. No. 200 of 2014

In the matter of:

M. C. Mehta ... Applicant(s)

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Affidavit on behalf the National Mission for Clean Ganga (NMCG), Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti New Delhi in compliance of the order dated 21.01.2026

I, Anup Kumar Srivastava, S/o Late P. L. Srivastava, aged 59 years presently working as the Executive Director, Technical in the NMCG, D/o WR, RD & GR, Ministry of Jal Shakti, New Delhi do hereby solemnly affirm and state as under:

1. That I am the deponent herein and am duly authorized to swear this affidavit on behalf of NMCG. I am well conversant with the facts and circumstances of the present matter and competent to depose this affidavit.

2. That it is humbly submitted that the present Affidavit is being filed in compliance with the order dated 21.01.2026 passed by this Hon'ble Tribunal pertaining to prevention, control and

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Abha Tomar
Advocate
New Delhi
Regn. No.
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GOVT. OF INDIA

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भारत सरकार, नई दिल्ली / Govt. of India, New Delhi

abatement of pollution of River Ganga and its tributaries in the State of Bihar.

3. That the Hon'ble Tribunal has observed that the Bihar Government's order dated 06.03.2025 for floodplain zoning of the embanked rivers is contrary to the provisions of the Ganga Authority Notification, 2016. The Hon'ble Tribunal directed that *'flood plain is required to be demarcated strictly in terms of Clause 3(l) of the Ganga Authority Notification, 2016 by determining the area of River Ganga or its tributary which comes under water due to flood corresponding to the greatest flow or with flood of frequency 1:100 years.'* In this regard, it is respectfully submitted for kind consideration of the Hon'ble Tribunal that:

   (i) To assist the states in the process river flood plain zoning, demarcation, protection and management, a set of "Technical Guidelines on Flood Plain Zoning" (Guidelines) was circulated in July 2025 to the States/UTs, including the State of Bihar, with a request to undertake measures for flood plain zoning in alignment with the said Guidelines and periodically apprise the progress in this regard;

   (ii) The Guidelines comprehensively envisage the importance of floodplains and narrate need for flood plain zoning. It extensively categorizes the flood plains of a river into three different zones based on susceptibility of floods derived from return period analysis, namely: (a) ***Protected Zone*** (corresponding to 1-in 5-year return period floods), (b)

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Regulatory Zone (corresponding to 1-in 25-year return period floods), and (c) ***Warning Zone*** (corresponding to 1-in 100- year return period floods). It also enlists the activities to be prohibited/permitted under each of these zones. It further prescribes permissible and prohibited activities within each zone and provide guidance on special situations, including areas with existing embankments, storage structures, and overlapping floodplains of different rivers etc.;

(iii) NMCG, vide letter dated 27.05.2025, directed the State Government of Bihar to undertake floodplain zoning strictly in accordance with the provisions of the Ganga Authority Notification, 2016. This communication further highlights that flood plain can't restricted to areas within the bounds of embankments only, but it stretches beyond it;

(iv) NMCG, vide subsequent communication dated 07.08.2025, reiterated the aforesaid directions and emphasized that the floodplain zoning exercise in the State be carried out in conformity with both the Ganga Authority Notification, 2016 and the Guidelines issued in July, 2025; and

(v) Further, NMCG vide letter dated 30.01.2026, again underscored the need for expeditious demarcation of floodplains in alignment with the said Guidelines and requested the State Government of Bihar to submit an Action Taken Report in this regard.

(vi) The matter was further deliberated in a meeting held with State Govt officials on 17.04.2026, wherein the State responded that-

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a) The State informed that a comprehensive floodplain study has been initiated for the Ganga River stretch in Bihar through engagement of NIH, Roorkee.

b) The study involves hydrological and hydraulic modelling for scientific delineation of floodplain zones.

c) The expected timeline for completion of the study is ***October 2026.***

d) It was further stated that the results of the study will facilitate evidence-based planning, regulation of activities in floodplains, and prioritization of interventions.

e) The State also indicated that the matter is being coordinated with the Water Resources Department for necessary action and policy alignment.

(vii) In this meeting, NMCG once again emphasized the early completion of the study and approach to regulating activities in flood plain during the intervening period.

True copies of communication between NMCG / BIHAR State Authorities dated 27.05.2025, 07.08.2025 and 30.01.2026 are annexed hereto and marked as ***Annexure-1 (Colly.)*** A copy of the Govt of Bihar letter dated 18.02.2026 is attached herewith as ***Annexure-2.*** A copy of the Record of the Discussion is attached as ***Annexure-3.*** Response received from Govt of Bihar is attached ***as Annexure-4.***

4. That the Hon'ble Tribunal has observed that the construction of Digha STP within the floodplain of River Ganga is in violation of

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Clause 4(ix) of the Ganga Authority Notification, 2016, and that NMCG and the State of Bihar to take appropriate remedial measures to address regulatory non-compliance and mitigate environmental risks.

(i) This matter was also discussed with State Officials in a meeting on ***17.04.2026***. Following is the submission made by the State-

a) The State Government elaborated that Patna city has been divided into six sewerage zones based on topography and natural drainage patterns.
b) The Digha zone has a natural gradient towards the river Ganga, making it hydraulically suitable for locating an STP at the downstream end.
c) The Digha STP has therefore been constructed at the lowest point of the catchment to facilitate gravity-based conveyance, minimizing pumping requirements and operational costs.
d) The site selection also considered proximity to the sewage generation area, thereby reducing the need for extensive sewer networks.
e) Adequate land was available at the site, and its location near the river ensures efficient disposal of treated effluent.
f) The STP has been designed and constructed such that it does not obstruct the active river channel and is located away from the main current.

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g) Recognizing the floodplain context, several protective measures have been implemented, including raising the plinth above High Flood Level (HFL), provision of embankments, and other flood protection works.

h) The STP plays a crucial role in intercepting untreated sewage from drains and treating it before discharge, thereby improving river water quality.

i) The State also reiterated that the ongoing floodplain study by NIH, Roorkee will provide further clarity, and any additional safeguards required will be implemented accordingly.

(ii) That it is submitted that having gone through the justification provided the State, as reflected in the preceding para, NMCG agreed that the findings of the ongoing floodplain study shall be reviewed upon completion, and any additional measures required for ensuring long-term safety and compliance shall be undertaken by the State. In this context, aforementioned ***Annexure-2*** & ***Annexure-3*** may also be referred to.

5. That this Hon'ble Tribunal has observed that storm water drains are being used for conveyance of sewage, which is technically unsound and environmentally unsustainable. In this regard, it is respectfully submitted that the existing Interception & Diversion (I&D) works and STPs have been undertaken as interim measures for immediate abatement of pollution in River Ganga.

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6. That it is respectfully submitted that the adoption of the I&D approach does not dilute, defer or transfer the statutory obligation of the State of Bihar and its agencies to establish closed and comprehensive sewerage networks with 100% household connectivity. The long-term responsibility to eliminate sewage discharge into rivers and waterbodies rests entirely with the State Authorities/Agencies and the respective ULBs.

7. That NMCG has already attached a due significance to this aspect and has begun incorporating this as one of several other conditions for compliance by the State, while issuing AA & ES of sewerage management projects.

   True copy of the NMCG letter dated 08.12.2025 is attached herewith as ***Annexure-5.***

8. That the Hon'ble Tribunal has observed significant under-utilisation of several STPs in Bihar, including 100 MLD Digha STP; 10 MLD Bakhtiyarpur STP; and 50 MLD Kankarbag STP. It is humbly submitted that the Digha STP, having an installed capacity of 100 MLD, which was reported to be operating at an approximate utilization of 10 MLD, is presently treating about 31 MLD of sewage. Similarly, the Kankarbagh STP, with a capacity of 50 MLD, has shown improvement from an earlier utilization of approximately 8 MLD to about 21 MLD at present. Further, the Bakhtiyarpur STP, with a capacity of 10 MLD, continues to operate at around 2.5 MLD, with no significant change in inflow conditions. The State Authorities have been

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directed to enhance sewage conveyance and optimize the loading of the aforesaid STPs, which has resulted in a substantial improvement of approximately 200% to 300% in capacity utilization in respect of Digha and Kankarbagh STPs. Further steps are being made to improve the capacity utilization of these assets.

9. That it is most humbly submitted that the contents of this affidavit are derived from and supported by official records, project documents, and technical reports furnished by the concerned State Implementing Agency.

10. In light of the above submission, it is respectfully submitted that this Answering Respondent NMCG, shall abide by any order(s) or direction(s) passed by this Hon'ble tribunal in this Application.

Deponent

21 APR 2026

Sahil, Adv.

NOTARY
Abha Tomar
Advocate
New Delhi
Regn. No.
8513
GOVT. OF INDIA

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भारत सरकार, नई दिल्ली / Govt. of India, New Delhi

Certified that the foregoing statement was declared on solemn affirmation before me who has been read over to the deponent who has admitted it as correct

Notary DELHI

21 APR 2026

VERIFICATION: 21 APR 2026

Verified at New Delhi on this ..... day of April, 2026 that the averments and facts stated herein above are true and correct to my knowledge and belief and nothing material has been concealed therefrom.

Deponent

अनूप कुमार श्रीवास्तव/Anup Kumar Srivastava
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भारत सरकार, नई दिल्ली / Govt. of India New Delhi

21 APR 2026

Date:

Place: New Delhi

Certified that the deponent who has signed in my presence

Sahil Ahlawat

NOTARY
Anita Tomar
Advocate
New Delhi
Regn. No.
9513
GOVT. OF INDIA

Certified that the foregoing statement was declared on solemn affirmation before me which has been read over to the deponent who has admitted it as correct

Notary DELHI

21 APR 2026

सत्यमेव जयते

D O No.: L-25011(11)/2/2025-LME NMCG

Dated: 30th January, 2026

Subject: Flood Plain Zoning (FPZ) for rivers in the State of Bihar – reg. Ref: NMCG letters dated 27th May, 2027 and 7th August, 2025 regarding Implementation of Flood Plain Zoning (FPZ) in the State of Bihar

Resp. Sir,

Kind reference is invited to NMCG letters dated 27th May, 2025 and 7th August 2025 vide which it was requested to undertake the FPZ works in a timely and effective manner, in conformity with the Technical Guidelines issued by the Central Water Commission in July 2025.

This matter was also discussed in the Central Monitoring Committee (CMC) meeting held on 17th July 2025, and the State was requested to follow FPZ as per NMCG letter dated 27.05.2025.

Above in view, it is again requested to kindly look into the matter and direct the concerned authorities to ensure that the work of flood plain demarcation may be carried out expeditiously in consonance to the Technical Guidelines issued by CWC and submit the action taken report in the matter at the earliest.

Encl.: *As above*

Yours sincerely,

(Rajeev Kumar Mital)

Shri Pratyaya Amrit, I.A.S
Chief Secretary and Chairman, State Ganga Committee,
Government of Bihar,
Main Secretariat, Patna-800015
Email: cs-bihar@nic.in

राजीव कुमार मित्तल, भा.प्र.से.
महानिदेशक
राष्ट्रीय स्वच्छ गंगा मिशन
Rajeev Kumar Mital, IAS
DIRECTOR GENERAL
NATIONAL MISSION FOR CLEAN GANGA

सत्यमेव जयते

आज़ादी का अमृत महोत्सव

भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन,
नदी विकास और गंगा संरक्षण विभाग
GOVERNMENT OF INDIA
MINISTRY OF JAL SHAKTI
DEPARTMENT OF WATER RESOURCES,
RIVER DEVELOPMENT & GANGA REJUVENATION

D O No. : TE-16015/7/2023-O/o ED(TECH) NMCG **Dated: 7th August, 2025**

Subject: *Flood plain identification & demarcation as per the Technical Guidelines issued by CWC– reg.*

Resp. Sir,

Kind reference is invited to The River Ganga (Rejuvenation, Protection and Management) Authorities Order, dated 07.10.2016, emphasizes the protection of flood plains in the Ganga Basin as an essential component for the rejuvenation and sustainable management of the river. Specific references to Flood plains are outlined under Sections 3(l), 4(ix) and 6(3) of the said Order which, inter-alia, mentions flood plain delineation at 100-yr return period flood, and prohibition of construction activity in the active flood plain, except under exceptional circumstances, as defined.

Attention is also invited to the *"Technical Guidelines on flood plain zoning"* issued by the Central Water Commission (CWC), under Ministry of Jal Shakti, Government of India on 31st July 2025. These guidelines provide structured guidance document for undertaking Flood plain demarcation in respective States. A copy of the said guidelines sent to State Governments by CWC vide their letter File No. T-101013/1/2022-RC DTE/52- 81 dated 31-07-2025 is enclosed as ***Annexure-1*** for ready reference.

In light of these comprehensive guidelines, the National Mission for Clean Ganga (NMCG) will align relevant provisions of the 2016 Order, particularly with respect to the delineation/demarcation of flood plains for different flood return periods and the regulation of activities in protected/regulated zones.

It is now expected that the process of flood plain demarcation and its regulation in protected/regulated zones will be streamlined and effectively implemented. And, in view of these, it is requested that concerned officials in the State be directed- (i) to undertake the FPZ works in a timely and effective manner, in conformity with the aforementioned guidelines, & (ii) to submit updated status reports on the FPZ activities and their implementation to NMCG at the earliest.

Yours sincerely,

Encl.: ***As above***

(Rajeev Kumar Mital)

Shri Amrit Lal Meena , I.A.S
Chief Secretary,
Government of Bihar,
Main Secretariat, Patna-800015

भारत सरकार
Government of India
केंद्रीय जल आयोग
Central Water Commission
योजना एवं विकास संगठन
Planning and Development Organization

First Floor, West Block2
R.K. Puram, New Delhi
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Ph: 011-29583836

File No. T-101013/1/2022-RC DTE/52-81 Dated : 31-07-2025

OFFICE MEMORANDUM

Floods remains one of India's most persistent and destructive natural disasters, routinely impacting lives, livelihoods, and critical infrastructure across the country. Despite frequent flood events, there has long been an absence of a structured national technical framework to guide floodplain zoning activities, an important non-structural measure to manage floods and its impacts. Recognizing the urgent need to regulate developmental activities within flood-prone areas and mitigate associated risks, the Central Water Commission, Ministry of Jal Shakti has proactively developed the **Technical Guidelines on Flood Plain Zoning (FPZ)- July 2025.**

These Guidelines have emerged through extensive consultations with Central and State stakeholders, including deliberations at two National Workshops on Flood Plain Management. These are envisioned to serve as a comprehensive framework enabling States and Union Territories to undertake scientific demarcation of floodplain zones—particularly across priority river reaches—and regulate activities therein, anchored in principles of ecological sensitivity and flood vulnerability.

The Central Water Commission (CWC) stands committed to support State(s) towards effective implementation of FPZ across the country through technical assistance to empower stakeholders with the necessary tools and expertise.

The Guidelines are **annexed** herewith for further action. It is requested that States/ UTs undertake follow-up measures in alignment with the Guidelines and periodically apprise CWC of their progress, thereby fostering a coordinated and sustained effort between Central and State governments toward enhanced flood resilience and ecological conservation.

(D.P. Mathuria)
Chief Engineer

To

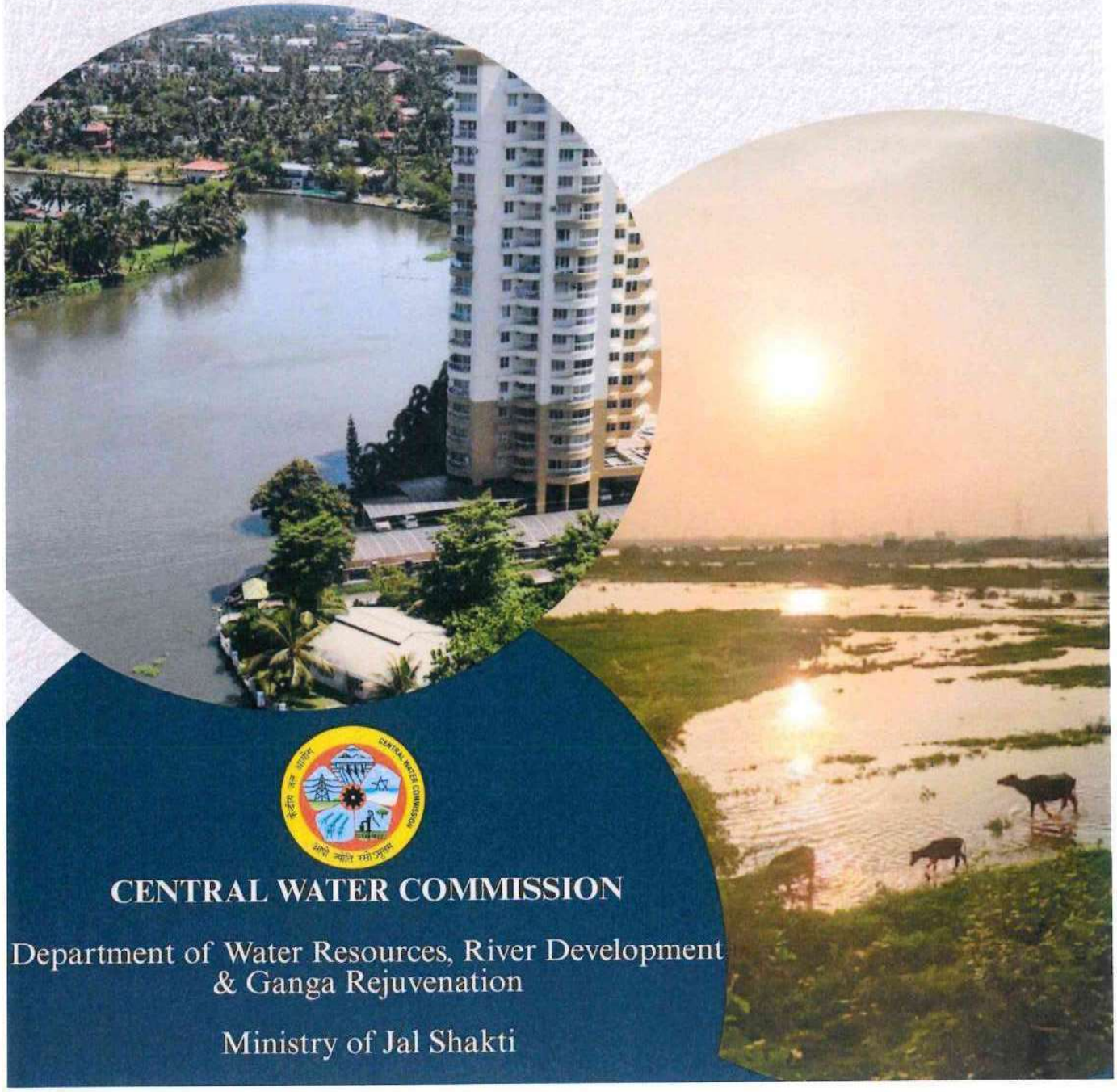
1. Principal Secretaries, WRD of the States/UTs (as per list attached).
2. Regional Offices of CWC (As per list attached)
3. Engineer-in Chiefs of States /UTs (As per list attached)

Copy for information to:

1. PS to Secretary, DoWR, RD & GR, New Delhi.
2. PS to Secretary, DDWS, CGO Complex, Pragati Vihar, New Delhi-03
3. PS to Chairman, CWC, New Delhi.
4. Chief Secretaries of States/UTs (as per list attached).
5. PS to Member (RM/D&R/WP&P), CWC, New Delhi.
6. Commissioner (FM), CGO Complex, Lodhi Road, New Delhi.
7. Director General, National Mission for Clean Ganga, Major Dhyan Chand Stadium, New Delhi-02.
8. Project Director, National River Conservation Directorate, Jor Bagh, New Delhi.
9. Chairman, Brahmaputra Board, Guwahati, Asssam-29.
10. Chairman, GFCC, Sinchai Bhawan, Rajbansi Nagar, Patna-15.
11. Chairman, Upper Yamuna River Board, C Block, Phase 2, Industrial Area, Sector 62, Noida, Uttar Pradesh 201309.
12. Chairman, KRMB, Errum Manzil, Irram Manzil Colony, Punjagutta, Hyderabad, Telangana 500082.
13. Chairman, GRMB, 5th Floor, Jalasoudha, Errum Manzil, Hyderabad-082
14. Project Administrator, Polavaram Irrigation Project , Rajamahendravaram, Andhra Pradesh-125.
15. Director General, National Water Development Agency, 18-20, Community Centre, Saket, New Delhi-17.
16. Chairman, BBMB, sector 19-B, Madhya Marg, Chandigarh-19
17. Chairman, Damodar Valley Corporation, DVC Towers, VIP Road Kolkata-700054.
18. Chairman, TB, Hosapete, Karnataka 583225.
19. Chairman, Narmada Control Authority, Sector B, Scheme No 74, Vijay Nagar, Indore, Madhya Pradesh 452010.
20. Chairman, Bansagar Control Board, Chirahula Colony, Madhya Pradesh 486001.
21. Secretary, Betwa River Board, Rajghat Colony, Jhansi, Uttar Pradesh 284003.
22. Director, CWPRS, Sinhagad Road, Khadakwasla, Pune-24
23. Director, CSMRS, Sector 3, Hauz Khas, New Delhi, Delhi 110016

सत्यमेव जयते

TECHNICAL GUIDELINES ON FLOOD PLAIN ZONING



CENTRAL WATER COMMISSION

Department of Water Resources, River Development & Ganga Rejuvenation

Ministry of Jal Shakti

सत्यमेव जयते

भारत सरकार

GOVERNMENT OF INDIA

जल शक्ति मंत्रालय

MINISTRY OF JAL SHAKTI

जल संसाधन, नदी विकास और गंगा संरक्षण विभाग

DEPARTMENT OF WATER RESOURCES RIVER DEVELOPMENT & GANGA REJUVENATION

बाढ़ मैदान परिक्षेत्रण पर तकनीकी दिशानिर्देश

TECHNICAL GUIDELINES ON FLOOD PLAIN ZONING

केंद्रीय जल आयोग

CENTRAL WATER COMMISSION

नई दिल्ली

NEW DELHI

जुलाई 2025

JULY 2025

देवश्री मुखर्जी
Debashree Mukherjee
सचिव
SECRETARY

भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
GOVERNMENT OF INDIA
MINISTRY OF JAL SHAKTI
DEPARTMENT OF WATER RESOURCES,
RIVER DEVELOPMENT & GANGA REJUVENATION

MESSAGE

Floods are among the most persistent and disruptive natural hazards confronting India, impacting millions and incurring immense socio-economic costs every year. As climate variability intensifies and urban expansion continues unbated, the limitations of purely structural flood mitigation are becoming increasingly evident. We must now embrace a paradigm that embodies ecological sensitivity with scientific precision.

This document, ***Technical Guidelines on Flood Plain Zoning***, is not merely a regulatory preposition-they represent a strategic reimagining of how we can coexist with our rivers. Prepared through robust consultations and grounded in national and international best practices, this document seeks to equip state governments, urban planners, and decision-makers with a standardized yet adaptable framework for delineating, regulating, and restoring the floodplain zones.

I extend my deepest appreciation to the central Ministries, national agencies and state governments whose invaluable technical insights and thoughtful contributions have been instrumental in shaping this foundational document.

I compliment the entire team of Central Water Commission for their tremendous efforts in bringing out this guideline document. Let these guidelines be the catalyst for a more integrated, inclusive, and resilient approach to water and land management across India's riverine landscapes.

(Debashree Mukherjee)

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FOREWORD

Floods remain among the most devastating natural calamities facing India, recurrently disrupting lives, livelihoods and infrastructure across diverse geographies. While structural interventions have historically formed the backbone of flood management, it is now evident that sustainable flood resilience demands a more holistic, non-structural approach. Flood Plain Zoning (FPZ) has emerged globally as an effective tool-not only to mitigate flood damage, but to preserve ecological integrity and support climate adaptation.

This document, ***Technical Guidelines on Flood Plain Zoning***, represents a significant step forward in translating this policy aspirations into actionable frameworks. Developed under the aegis of the Ministry of Jal Shakti and the Central Water Commission, the guidelines present a comprehensive synthesis of the scientific principles, national experiences and international best practices. They aim to equip the State governments with a clear, implementable road map for floodplain delineation, regulation of activities and ecological restoration.

As India faces increasing urbanization, erratic rainfall patterns and intensifying climate events, the adoption of FPZ becomes not only desirable, but imperative as well. These guidelines invite all stakeholder, from planners and engineers to local communities and policy makers, to reimagine rivers as lifelines that must be protected, not constrained.

It is our hope that these guidelines will serve as a catalyst for informed decision-making, proactive planning, resilient development-paving the way for a safer, more sustainable future.

Atul Jain

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PREFACE

India's perennial vulnerability to floods presents a complex challenge- one that demands an integrated approach rooted in both scientific rigor and ecological sensitivity. Though traditional flood mitigation strategies have often emphasized structural interventions, global and national experiences reveal that long-term resilience lies equally in non-structural measures. Flood Plain Zoning (FPZ) stands out as a pivotal instrument in this regard.

This document has been meticulously designed by Central Water Commission to support State Governments and local authorities in scientifically delineating flood-prone areas and regulating the land use within them. It synthesizes insights from India's diverse river systems, international frameworks, and policy precedents to offer a detailed roadmap for FPZ implementation.

Structured across multiple chapters, these guidelines offer a comprehensive understanding of riverine dynamics, outline flood zone classifications based on recurrence intervals and delineate permissible land-use activities across rural and urban context. Crucially, the document underscores the ecological value of floodplains- an intrinsic system that facilitate aquifer recharge, sustain biodiversity, and regulate sediment transport- reaffirming their role as both natural safeguards and vital ecological corridors.

We anticipate that these guidelines will serve as a cornerstone for developing robust, climate-resilient frameworks across flood-prone regions of India, by empowering the States and National agencies to systematically mitigate flood risks while preserving the ecological integrity of our riverine systems, aligned with broader environmental restoration objectives and sustainable development goals.

Anupam Prasad

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ACKNOWLEDGEMENT

The preparation of Technical Guidelines on Flood Plain Zoning is the outcome of rigorous consultations, interdisciplinary insights, and the collective efforts of domain experts, institutions and government bodies committed to advancing sustainable flood management to the next level in India.

I gratefully acknowledge the technical contributions of the organizations such as National Mission for Clean Ganga (NMCG), Ganga Flood Control Commission (GFCC), National River Conservation Directorate (NRCD) and National Disaster Management Authority (NDMA) whose domain expertise, field insights and technical feedback as members of the committee for drafting these technical guidelines have played a crucial role in shaping the framework of this document.

I also acknowledge the contributions and guidance rendered by my seniors and colleagues in the Flood Management Wing, DoWR, RD& GR whose relentless efforts have paved the way for timely release of this document.

While the process was time -intensive, it proved resilient and inclusive, successfully accommodating the active participation of a broad spectrum of Central Agencies such as Department of Science and Technology (DST), India Meteorological Department (IMD), Ministry of Defense (MoD), Ministry of Housing and Urban Affairs (MoHUA), Ministry of Environment, Forest & Climate Change (MoEF&CC), Niti Ayog, Department of Drinking Water and Sanitation (DDWS) and Ministry of Power (MoP).

I thank all the state governments and UTs whose valuable contributions have been vital in shaping this document. Importantly, Central Water Commission organized two workshops during November and December 2024, in which Central agencies and State Governments have participated. These workshops significantly contributed to the evolution of these guidelines.

The active participation and enthusiastic involvement of State governments, providing invaluable regional perspectives, strategic suggestions and execution perspectives have been instrumental in fine-tuning operational strategies and enriching this document's relevance with a pan-India outlook.

Special recognition is accorded to the officers of the River Conservation Directorate, CWC including **Sh. Deepak Kumar (Chief Engineer), Sh. Avanti Verma (Director), Sh. Piyush Kumar (Director), Sh. Ramavtar Verma (Director), Sh. Pranav Shukla (Deputy Director) and Smt. Greeshma Krishnan (Assistant Director)** whose persistent efforts in coordinating technical drafts, aligning policy precedents and integrating multi-agency feedback were vital to the formulation of this document.

I hope that this document serves as a meaningful step toward attaining the target of ecological integrity and structured river management.

D.P. Mathuria

ABBREVIATIONS

FPZ	Flood Plain Zoning
ULBs	Urban Local Bodies
ZP	Zilla Parishads
DEM	Digital Elevation Model
NRSC	National Remote Sensing Centre
DoWR, RD & GR	Department of Water Resources, River Development and Ganga Rejuvenation
CWC	Central Water Commission
CGWB	Central Ground Water Board
NDMA	National Disaster Management Authority
HFL	Highest Flood level
EPA	Environment Protection Act, 1986
EIA	Environmental Impact Assessment
RBA	Rashtriya Barh Ayog
RCZ	River Conservation Zone
RRZ	River Regulation Zone
FEMA	Federal Emergency Management Agency
SFHA	Special Flood Hazard Area
AEP	Annual Exceedance Probability
NGT	National Green Tribunal
URDPFI	Urban Regional Development Plans Formulation & Implementation
MSW	Municipal Solid Waste
FIRM	Flood Insurance Rated Maps
MoHUA	Ministry of Housing & Urban Affairs
MoEF&CC	Ministry of Environment, Forest & Climate Change
MoJS	Ministry of Jal Shakti
STP/ETP	Sewage Treatment Plant/Effluent Treatment Plant
SDMA	State Disaster Management Authority

GLOSSARY

1.	Flood Plain	includes water channel, flood channel and that area of nearby low land susceptible to natural flood inundation during periods of maximum discharge
2.	Flood Plain Zoning	means regulating any human activity in the flood plains of a river where the plains are created by overflow of water from the channels of rivers and streams
3.	Alluvial plain	A plain formed by the deposition of sediment from the periodic flooding of a river
4.	Flood Insurance	Insurance covering loss or damage to property arising from a flood, flood tide etc.
5.	Bank Infiltration	Infiltration of surface water, mostly from a river system into a groundwater system induced by water abstraction close to the surface water
6.	Ecosystem	a geographic area where plants, animals, and other organisms, as well as weather and landscape, work together for life sustenance
7.	Encroachment	any entry into an area not previously occupied
8.	Aquifer	a layer of rock or soil that can take in and hold water
9.	Run-off	the part of the water cycle that flows over land as surface water instead of being absorbed into groundwater
10.	Water table	the level below which the ground is saturated with water
11.	Storm water drainage	the system of publicly or privately operated rivers, creeks, ditches, drainage channels, pipes, basins, street gutters, and lakes within the city through which or into which storm water runoff, surface water or subsurface water is conveyed or deposited
12.	Water logging	saturate with water
13.	Spawning ground	a place where animals (such as fish or frogs) go to lay eggs
14.	Return period	an average time or an estimated average time between events
15.	Active Flood plain	an area on either side of a stream/river which is regularly flooded on a periodic basis
16.	Embankment	a raised structure (as of earth or gravel) used specially to hold back the water
17.	1% chance of flooding	for every year, there is a 1% chance (a 1 in 100 chance) that the event will be equaled or exceeded
18.	1 in 500-year flood	A '1-in-500-year flood' refers to a flood height that has a long-term likelihood of occurring once in every 500 years
19.	Rating Curve	graph of discharge versus stage for a given point on a stream, usually at gauging stations, where the stream discharge is measured across the stream channel
20.	Wetland	areas where water covers the soil or is present either at or near the surface of the soil all year or for varying periods of time during the year

21.	Erosion	the geological process in which earthen materials are worn away and transported by natural forces such as wind or water
22.	Desilting	Process of removal of silt from a body of water
23.	Landfills	an area of land where large amounts of waste material are buried
24.	Volatile material	Substances which have the capability to go into the vapour phase with or without heating
25.	Highest Flood Level	the maximum level to which a river or stream could rise due to rainwater and runoff during a flooding event
26.	Urban Local Bodies	small local bodies that administer or govern a city or a town of specified population
27.	Zilla Parishad	the top tier of the Panchayati Raj system in a district
28.	Watersheds	an area of land in which all the incoming precipitation drains to the same place – toward the same body of water or the same topographic low area
29.	Biosphere reserve	protected areas meant for the conservation of plants and animals
30.	Endangered species	a species of animal or plant that is seriously at risk of extinction
31.	Organic Farming	An agricultural process that uses biological fertilizers and pest control acquired from animal or plant waste
32.	Hazardous waste	a waste with properties that make it dangerous or capable of having a harmful effect on human health
33.	Environmental Impact Assessment	assessment of the environmental consequences of a plan, policy, program, or actual projects prior to the decision to move forward with the proposed action

Contents

Background

Floods constitute one of the major national calamities faced by India almost every year resulting in substantial loss of life, large scale damage to property, disruption of community lifelines besides entailing untold misery to the millions. Concerted efforts have been made over the years to reduce the damage due to floods and mitigate the sufferings of the people. Various structural flood control measures were taken up in the past including construction of reservoirs, embankments, drainage channels, etc. It is however, now realized that absolute and permanent protection to all flood prone areas and for all magnitudes of floods by structural measures alone may not be possible and nor economically viable.

The emphasis has therefore been rightly shifted to non-structural measures such as Flood Plain Zoning and regulation, flood forecasting etc. to effectively supplement the structural measures for providing sustainable protection to flood affected areas. Non-structural strategies are increasingly adopted by many countries including the United States of America, Canada, and the United Kingdom.

Natural floodplains provide flood risk reduction benefits by slowing runoff and storing flood water. They also provide other benefits of considerable economic, social, and environmental value that are often overlooked when local land-use decisions are made. Flood Plain Zoning has been recognized as an effective non-structural measure for flood management. Flood-plain zoning measures aim at demarcating zones or areas likely to be affected by floods of different magnitude or frequencies and probability levels and specify the types of permissible developments in these zones, so that whenever floods occur, the damage can be minimized. The action for demarcation of flood plain areas and regulating the activities therein, is to be undertaken by respective state governments/UTs.

Flood risk zoning regulates land-use or zoning policies which in turn regulates construction in high-risk areas. This reduces the economic exposure and its vulnerability to flood events.

Ministry of Jal Shakti has continuously impressed upon the States the need to adopt flood plain zoning approach. A model draft bill for flood plain zoning legislation was also circulated by Central Water Commission in 1975 to all the States. This bill envisages zoning of flood plain of a river according to flood frequencies and defines the type of use of flood plain. The States of Manipur, Rajasthan, Uttarakhand, erstwhile State of Jammu & Kashmir and Arunachal Pradesh have enacted the legislation.

However, delineation and demarcation of flood plains is yet to be undertaken. National Mission for Clean Ganga (NMCG) has also, from time to time, advised all states in Ganga basin for demarcation, delineation and notification of river flood plains and removal of encroachment from riverbed/floodplain of the river Ganga and its tributaries in adherence to the River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016.

A literature review regarding Report and Guidelines on Flood Plain Zoning has been carried out based on which this document has been prepared. Chapters 1-5 present a report on the study carried out and Chapters 6-8 contain a list of guidelines which have been developed based on this review. These sections also classify the nature of activities and development regulations that would be needed to protect sensitive regions.

The guidelines, based on implementation by State Governments, will offer learning to Central/State governments. Accordingly, these guidelines shall be reviewed to account for emerging scenarios.

1. Introduction

A river is defined as a natural stream of flowing water. Rivers are found on every continent on Earth and on nearly every kind of land. The Indian sub-continent is also blessed with several large and small rivers, which are all distinct in terms of their hydrology and sediment transport.

A river shifts in its shape, size, flow pattern of water, silt, nutrients, and biota, in fact all its variables seem to change with time and space. The perceptions differ as one move from mountains to plains and to the deltas. The same stream displays a wide variance of characteristics that depend upon the land it flows through and the microclimate along its banks. Rivers, many a times, seem to mirror the local flavor of the land they flow through.
Usually, a river system is composed of the following parts:

1. Source/Origin (Mouth)
2. Tributaries
3. Confluences
4. Channels
5. Riverbanks
6. River/Flood Plains
7. Mouth (Outfall)

Indian rivers are deeply embedded into the economic, social, political as well as cultural fabric of the country. Ever since ancient times, most of the civilizations have developed on the banks of rivers. Rivers form the backbone of any economic activity.

They serve as a vital component not only for agriculture, industry, and transportation but also for forestry, recreation, and environment. Rivers also 'contain' many other embedded ecosystems (both terrestrial and aquatic) and most of the times play hosts to rare flora and fauna.

The below Map of India substantiates the vast network of rivers and tributaries flowing through the Indian sub-continent, covering majority of the geographical area.

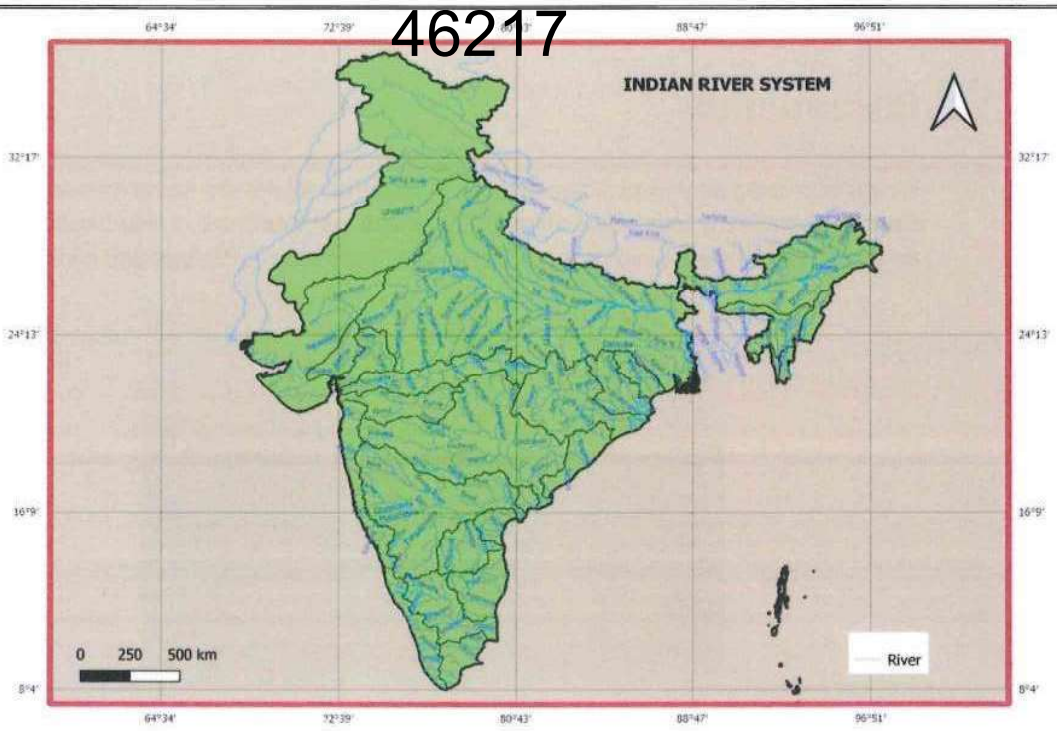


Figure 1: Indian River System (Source: India-WRIS)

However, due to rapid urbanization and development, the plains of rivers are being encroached upon in an unsustainable manner, negatively impacting the 'state' and 'health' of rivers, which are further aggravated by extreme climate change events. Despite its inevitable necessity for subsistence and varied uses, the water resources, particularly rivers are in woeful conditions.

1.1. Indian River System

The major river systems in the country can be broadly classified into two groups viz., Rivers of the Himalayan region and Rivers of Peninsular India. Himalayan rivers are fed by melting snows and glaciers of the great Himalayan range during spring and summer, and from rains during monsoon. They are often uncertain and capricious in their behavior. They carry significant flows during the dry weather due to snow melt and carry minimum flows, during winter. On the other hand, the peninsular rivers originate at much lower altitudes, flow through more stable areas and are more predictable in their behavior. Their flow is characterized by heavy discharges during monsoons followed by very low discharges during the rain-free months.

Box 1: Flood Plain Zoning Bill 1975

- ✓ A Model Flood Plain Zoning Bill, prepared by CWC in 1975, was circulated to States/UTs for enactment of legislation. So far, Manipur, Rajasthan, Uttarakhand, erstwhile State of Jammu & Kashmir and Arunachal Pradesh have enacted the bill. However, no efforts have been made by any of the states/UTs except Uttarakhand for demarcation of flood plain till date.
- ✓ Limited efforts made by any major flood prone state of the country.
- ✓ Thick population density, Lack of alternative settlement, Implementation difficulty etc. have been cited as major impediments in implementation of flood plain zone.

From the point of view of flood problem, rivers can also be grouped under the four regions as below:

- ✓ Central India & Deccan region
- ✓ Brahmaputra region
- ✓ Ganga region
- ✓ Northwest region

1.2. Types of River

A river is termed 'flashy' if floods in the river rise and fall in a very short period of time. Apart from North Eastern States & Hilly States, some rivers of Rajasthan, Gujarat etc. are flashy in nature.

A 'virgin' river is one which completely dries up before its outfall into the sea or another river. These are common in desert areas like the Kutch and Rajasthan where due to percolation and evaporation losses, the river disappears after flowing some distance from the source. Further, a river whose water resources potential has not been exploited at all is also termed as a virgin river.

A river is said to meander when it adopts a tortuous course, swinging from one side to another in alternating bends.

It is said to be braided when the bed becomes wide and shallow, with the flow composed of many interlaced channels, causing numerous islands and bars of silt deposits in the bed of the river. Generally, a river forms delta of various patterns, when it approaches the sea.

1.3. The River Course

A river typically flows through three distinct topographical zones: the upper reach in hilly terrain, the middle reach in the alluvial plains, and the deltaic or estuarine reach near its outflow into the sea.

1.3.1. The Upper Reaches

In the upper reaches, rivers can be broadly classified into two types: **incised rivers** and **boulder rivers**. The incised rivers have well-defined banks which are resistant to erosion. The bed of the river is also resistant to erosion despite the steepness of the slope and the swiftness of the current. The boulder rivers are also characterized by steep slopes, but the beds consist of a mixture of boulders, gravel, shingle, and sands.

The bouldery rivers tend to have straight courses with wide shallow beds. At the time of floods, the high velocity flow moves both boulders and gravels downstream. But when the floods subside and the flow slackens, bed materials pile up in heaps. The flow channels with reduced velocity are unable to move these heaps and so while trying to go around them, tend to wander in a new direction, attacking the banks and widening the bed thereby.

1.3.2. The Middle Reaches

Rivers in the middle reaches are usually in the alluvial plains. These have the characteristic of meandering freely from one bank to the other on account of the erodible nature of the beds and banks. These rivers are classified as aggrading, degrading or stable rivers. If it is building up its bed, it is called an aggrading river. If its bed is getting scoured, it is called a degrading river. If river carries down sediments which it receives without either depositing the silt or scouring the bed, it is called a stable river. It is pertinent to point out here that, depending on the silt load and the discharge, the same river may exhibit characteristics of an aggrading, degrading or stable river in different reaches.

1.3.3. Estuarine/Deltaic Reach

In its last reach, before its outfall into another river or sea, the river may be called estuarine. In the latter case, periodic changes in water levels occur due to tides and, therefore, in this reach, it is called a Tidal River. Here, sea water enters the river with the high tide and empties out along with the ebb tide. The distance up to which the tidal effect is felt depends upon the slope of the river, the tidal range, the flood discharge, configuration of the river, etc. Near its outfall to the sea, such a river is called a deltaic/ estuarine river. In this reach, it is distinguished by the many branches the parent river has thrown as it approaches the sea.

(Source: Rashtriya Barh Ayog, Volume-I, 1980)

1.4. Indian River Basin

India has been broadly divided into 20 hydrological basins by Central Water Commission (CWC) for the purpose of river management:

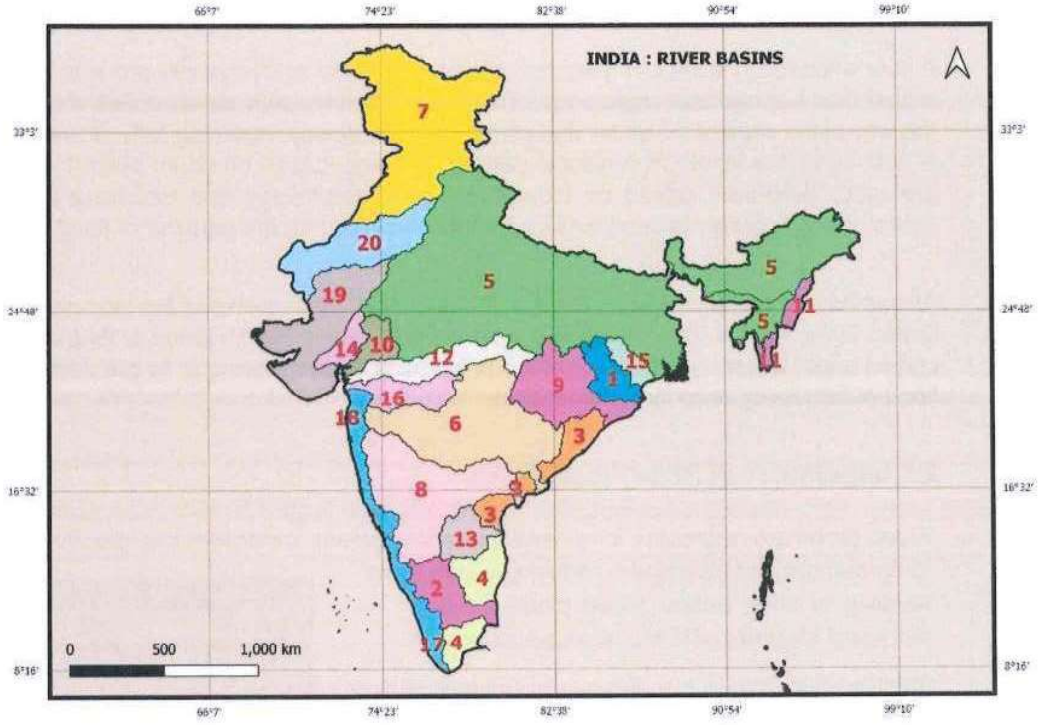


Figure 2: Indian River Basins (Source: River Basin Atlas of India, CWC (2012)

These basins are as below:

1. Brahmani-Baitarani
2. Cauvery
3. East Flowing rivers between Mahanadi and Pennar
4. East Flowing rivers between Pennar and Kanyakumari
5. Ganga/Brahmaputra/Meghna-Barak
6. Godavari
7. Indus
8. Krishna
9. Mahanadi
10. Mahi
11. Minor rivers draining into Myanmar and Bangladesh
12. Narmada
13. Pennar
14. Sabarmati
15. Subarnarekha
16. Tapi
17. West Flowing rivers from Tadri to Kanyakumari
18. West Flowing rivers from Tapi to Tadri
19. West Flowing rivers of Kutch and Saurashtra including Luni
20. Areas of Inland drainage in Rajasthan

2. Flood Plains

A river's floodplain is the low-lying land adjacent to a river and is usually prone to flooding when higher than normal discharges occur. These areas are typically flat stretches of land stretch all the way to the edge of the valley that contains the waterway. Hydrologically, a river's flood plain is defined as the landform subject to periodic flooding (based on return period). Though there are other definitions based on topography, geo-morphology and modelling purposes, the hydrological definition is used throughout this document for the purpose of flood plain zoning.

As per the Notifications of River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016, Para 3 (l), a Flood plain means such area of River Ganga or its tributaries which comes under water on either side of it due to floods corresponding to its greatest flow or with a flood of frequency once in hundred years.

2.1. Importance of River Flood Plains

Flood plains are necessary for a healthy riverine system. It provides the opportunity for water to spread out and slow down, reducing erosion and flooding of other areas. Flood plains support biological diversity, and recharge ground water.

Flood plains provide a buffer space between a river and inhabited areas at risk of flood ie, when water rises above the banks, the speed of flow reduces as it spread out across the flood plain, and overall peak of the water is slower. This can limit the destructive impact of floods. The following are some of the other benefits of flood plains:

a) **Improving water quality**
Floodplains act as natural filters, absorbing harmful chemicals and other pollution, making rivers healthier for drinking and swimming, and for plants and animals.

b) **Creating fertile soil for crops**
Rivers deposit sediment and nutrients in floodplains, making them very productive areas for growing crops.

Box 2: National Green Tribunal Order 2017

- ✓ Identification and demarcation of floodplains of river Ganga in Segment B of Phase-I for one in twenty-five years' cycle.
- ✓ Till the said identification & demarcation of floodplain, 100 meters from the edge of the river to be designated as no development/ construction zone in Segment B of Phase-I i.e., Haridwar to Unnao, Kanpur.
- ✓ Identification of no development/ construction zone, regulatory zone and the activities that can be/ cannot be carried on in the regulatory zone of the floodplain.
- ✓ Complete prohibition on disposing of Municipal Solid Waste (MSW), E- waste or Bio-medical waste on the floodplain or in river Ganga or its tributaries.
- ✓ No dumping or landfill sites for any kind of waste irrespective of any technology for waste processing, within 500 meters from the edge of the river Ganga and/or its tributaries.

c) Nurturing biotic ecosystem

Floodplains are a productive environment for plants and wildlife and serve as nurseries for many species of fish. They provide vital habitat and are important for maintaining the web of life.

d) Providing recreation

Flood plains also provide ideal places for hiking, paddling, fishing, exercising, and connecting with the beauty of nature.

e) Recharging Ground water

The layered sediments of many floodplains can create important aquifers. Clay, sand, and gravel filter the water as it seeps downward. Water purification systems often take advantage of this natural phenomenon in a process called bank filtration. In bank filtration, water is deliberately filtered through the banks or floodplain of a river or lake. Nearby wells then collect the filtered water, which is then ready for more intense purification processes.

Box 3: Floods in the UT of Jammu & Kashmir (2014)

- ✓ During the initial week of September 2014, Jammu & Kashmir encountered one of its worst hit flood events in its north western part. Unprecedented rains that lasted for 5 days led to an increased runoff from the tributaries of river Jhelum. The flood affected nearly 2million people and caused huge damage to property and lives as well as economy of the state.
- ✓ Although heavy rainfall was the triggering factor for floods in the Kashmir valley, the impact of the disastrous event was aggravated by other factors, including the rapid urbanization in the valley, encroachment of waterbodies and land adjoining river banks, the disappearance of wetlands, etc. which has blocked the natural drainage patterns making the situation worse. Extremely urbanized and mismanaged flood plains gave an impetus to the situation which attained disastrous dimensions due to prolonged and extremely heavy rainfall.

3. Need of Flood Plain Zoning

In order to have a reasonable degree of protection, floods need to be managed through both structural & non-structural measures so as to reduce the losses. Non-structural measures are planned activities to modify susceptibility due to flood related damages. These are meant to keep people away from floods. Flood Plain Zoning is one of the main non-structural measures for management of floods worldwide. However, this is yet to be taken up in India as an effective measure to manage floods, though flood is one of the major natural calamities in India and almost every year, there is substantial loss of life, large scale damage to property apart from suffering of millions of people due to recurrence of flood in India.

Box 4: FPZ in Uttar Pradesh

- ✓ Notification issued by State of UP dated 4th September 2020 for identification & demarcation of flood plain on River Ganga from Haridwar to Unnao by way of Executive order.
- ✓ Demarcation completed on field.
- ✓ Demarcation pillar being installed all along the riverbank.
- ✓ Activities being regulated accordingly.
- ✓ Steps underway to identify FPZ beyond Unnao up to Ghazipur.
- ✓ Study completed for FPZ of river Yamuna from Asgarpur to Prayagraj. Demarcation under progress.

The concept of Flood Plain Zoning recognizes the basic fact that the flood plain of a river is essentially its domain and any intrusion into or developmental activity therein must recognize the river's 'right of way'. Flood plain zoning involves regulation of land use in flood plains of a river. It is considered as an effective non-structural means for flood management. It aims at demarcating zones or areas likely to be affected by floods of different magnitudes or frequencies and specify the types of permissible developments based on probabilistic analysis in these zones, so that whenever floods occur, the damage can be minimized, if not avoided.

Increased level of urbanization in the country is putting pressure on urban flood plains. Encroachment or unplanned development of such area may prove disastrous for people affected as well as for river in the long run. Flood Plain Zoning, therefore, envisages limitations on indiscriminate development and encroachment of flood plains of a river.

Flood plain zoning is not only necessary in the case of management of floods, but also useful in reducing the damage caused by drainage congestion, particularly in urban areas. It has acquired urgency in the context of increasing variability in rainfall as a result of climate change.

Over the years, the cascading rate of increasing population and the increasing urbanization and industrialization has put a toll upon the health of river systems in India as these anthropogenic pressures brings about changes in the river system

Box 5: Mumbai Floods (2005)

- ✓ On 26th July 2005, the Mumbai Suburban Area was stuck with a heavy storm. Indian Meteorological Department (IMD) reported a 944 mm of rain for the 24 hours. The incident caused extreme water logging in the city area. About 200 km of road length was submerged in flood waters and the traffic was standstill on all internal roads, major roads and corridors of traffic. The incident also caused widespread damage to property and life.
- ✓ The impacts of human activities and the developmental works involving physical, topographic changes etc. affecting the natural hydrological process was felt during the event. This led to a thinking that Infrastructure planning in urban areas should require careful attention to urban hydrological characteristics and how the urban conditions affect the rainfall-runoff relationships in this area.

and causes alterations in river morphology by changing flow patterns, sedimentation, and siltation properties of rivers. Floodplain development also impacts the riparian ecosystem.

This has further increased the probability of urban floods, showing an increasing trend as a phenomenon, and posing huge challenge to city administration and town planners. The lack of protection of river floodplains from damaging impacts like encroachment and diversion for 'developmental projects' is a tragedy that affects both the river as well as those who encroach it adversely. The river suffers as it is unable to occupy and transport flood waters downstream during high rainfall events (monsoon in particular).

The river is also to recharge aquifers, wet the lands along its banks or provide life-sustaining conditions to plant and animal habitats along the river margins and banks. Based upon flood plain zoning demarcation, Flood Insurance and other non-structural measures could also be promoted & initiated in India.

The various alterations susceptible in the river flood plains and its possible impacts are summarized in the table below:

Table 1: Alterations susceptible in the river flood plains and its possible impacts

Alterations	Impact
Increase in impervious surfaces	Decreases infiltration and increases run-off which leads to: • Decrease in lag time • Increase in peak discharge • Production of run-off from small storms • Reduction in flood plain recharge and decreased water table
Development on and near flood plains	• Disrupts migration and spawning cues for fish and marine biodiversity • Unplanned development leads to prolonged water logging • Constricts channel flow and capacity
Construction of storm water drainage systems	• Decreased lag time and increase in peak discharge owing to increased run-off entering the river
Filling up of water bodies	• Disrupts spawning grounds for fishes • Reduced space for flood waters
Construction of embankments and expansion of agriculture	• Change in soil moisture regime of flood plains • Water logging in flood plains due to reduced capacity of water to naturally flush outwards • Reduction in lateral movement of river channel

4. Early Efforts for Flood Plain Regulation in India

Efforts for regulating the development on floodplains can be traced to the Madras River Conservancy Act of 1884 that provided for appointment of 'River Conservators', directed for conducting surveys and defined limits for the river which was termed "river-bed." Any construction or plantation within the riverbed for the area covering the present States of Tamil Nadu and Andhra Pradesh was to be permitted by the Conservator of Rivers.

In 1989, Tamil Nadu Pollution Control Board passed an Order stating that no industry causing serious water pollution will be permitted within 1 km of reservoirs, rivers, and public drinking water sources. Maharashtra Pollution Control Board also framed a River Regulation Zone Policy for the State in the year 2000 (revised in 2009) based on the designated best use as per water quality for rivers, high flood line and categorizing industry based on their pollution levels.

However, this was later withdrawn based on a resolution passed by the Maharashtra Government dated 3rd February 2015.

With floodplains, it is also important to look at relevant land use legislations which come under the ambit of States. State Town and Country Planning Acts were enacted by the States based on Model Town and Country Planning Laws in 1962 (later revised in 1985).

The National Water Policy, 2012 includes a section on conservation of rivers and river corridors. It also prohibits encroachments and diversion of water bodies and advocates that restoration must be promoted to the extent feasible.

Central Water Commission (CWC) has continuously impressed upon the States the need to take action to implement the flood plain zoning approach in development. A model draft bill for Flood plain zoning legislation was circulated by the Union Government in 1975 to all the States. The States of Manipur, Rajasthan, Uttarakhand, erstwhile State of Jammu & Kashmir and Arunachal Pradesh have enacted the legislation.

However, delineation and demarcation of flood plains are yet to be undertaken. So far, limited action has been taken by any of the major flood prone States & others including Uttar Pradesh, Bihar, West Bengal, Assam etc. for enactment of legislation. Many States have expressed their reservations on implementing floodplain zoning due to reasons such as high population density, non-availability of sufficient land for relocating the people occupying flood plains, etc. Government of India has repeatedly advised State/ Union Territory Governments on the need for enactment of an appropriate legislation for delineation & demarcation of flood plain zones on the notified stretches of rivers of the State/UT and regulating the activities therein.

In February 2016, Ministry of Environment, Forests and Climate Change (MOEF & CC) had come out with a draft Notification for River Regulation Zones wherein it proposed to prohibit or regulate the developmental activities on riverfronts and floodplains. The draft Notification has been circulated to all the States and UTs. The draft Notification, under the Environment Protection Act (EPA), 1986, intended to regulate developmental and industrial activities upto 5 km from the banks of the river stretches having floodplains and an equivalent area for mountain/ hill stretches under River Conservation Zones (RCZ) demarcated with reference to the Highest Flood Level (HFL) with a 100-year return period.

The Prohibited Activity Zone (RCZ-PA) in the immediate vicinity of the river will be offered the highest protection since existing activities and constructions within the zone should adhere to the notification. Attention has been paid to regulate new developments within regulated zones. The RRZ draft policy also defined the area for protection from further encroachments as the

"active flood plain", which will be marked by the high flood line. This, in entrenched stretches will be the available space in the valley. In embanked stretches, this would be the area between two embankments or roads along a river acting as an embankment. In other stretches of the river, the active flood plain will be the 100-year flood line, the land which gets flooded during a 100- year storm. The idea was to establish a No-Development Zone not less (in area) than the active floodplain.

5. International Experiences in Flood Plain Management

5.1. Flood Plain Management in United States of America

Floodplain zones are geographic areas that the Federal Emergency Management Administration (FEMA) has determined to be at flood risk to nearby communities and property. FEMA rates these zones for their severity of risk and identifies them as low-to-moderate risks, high risks, coastal areas, and undetermined risks. Each zone designation reflects the seriousness of flooding most likely in the specified area.

On the Flood Insurance Rate Maps, the FEMA defines flood zones as geographic areas that have different levels of flooding. They are as under:

- ✓ **High-risk:** "Special Flood Hazard Area (SFHA)", - an area with a 1% or 1 in 100 chance of experiencing a flood during any given year.
- ✓ **Moderate risk:** 1 in 500 chances of flooding occurring each year
- ✓ **Least risk:** have less than a 1 in 500 chance of occurring in any given year

5.2. Flood Plain Management in United Kingdom

Flood zones have been created by the Environment Agency to be used within the planning process as a starting point in determining how likely somewhere is to flood. However, they only refer to flood risk from rivers or the sea, and not all rivers are included.

The following classification of flood zones are divided: -

- ✓ **Flood Zone 1- Low Probability:** Areas having less than 0.1% chance of flooding in any year
- ✓ **Flood Zone 2- Medium Probability:** Areas to have flooding risk between 0.1% – 1% chance from rivers in any year or between 0.1% – 0.5% chance of flooding from the sea in any year
- ✓ **Flood Zone 3a- High Probability:** Areas at 1% or greater probability of flooding from rivers or 0.5% or greater probability of flooding from the sea
- ✓ **Flood Zone 3b- The Functional Floodplain:** Flood zone 3b is classified as functional floodplain and is deemed to be the most at-risk land of flooding from rivers or the sea. Areas at significant risk of flooding are classified to be within flood zone 3b

5.3. Flood Plain Management in New Zealand

Flood Protection Engineers and Hydrologists in New Zealand describe floods using Annual Exceedance Probabilities (AEP) or Return Periods. For example, a 1% AEP or 1 in 100-year return period flood means that there is a 1% or 1 in 100 chance in any given year that a flood of this size or greater will occur. Accordingly, flood plain areas have been defined:

Table 2: Flood Plain classification based on Average Period of Return

Flood Awareness Likelihood Area	Average period between occurrences of a given flood event
High Likelihood Area	1 in 50 years
Medium Likelihood Area	1 in 100 years
Flood Sensitive Area	1 in 200 years
Low Likelihood Area	1 in 440 years

5.4. Flood Plain Management in Canada

The Department of Environment and Climate Change of the province of Newfoundland Labrador in Canada envisages the following classifications for their flood plains as mentioned in their provincial website as listed below:

i. **Floodway:** The portion of a flood plain where the most frequent flooding occurs. This area is determined based on the 1 in 20 years (1:20) return period flood.
ii. **Floodway Fringe:** The portion of a flood plain where less frequent flooding occurs. This area is where flooding occurs up to 1 in 100 years (1:100) on average.
iii. **Climate Change Flood Zone:** Based on extension of the floodway fringe, this is the area which is likely to be impacted due to the latest forecasted effects of climate change.
iv. **Other Flood Risk Area:** An area where flooding is known or has some probability to occur due to unique or unusual circumstances such as areas subject to shoreline recession, areas downstream of dams or areas adjacent to watercourses potentially prone to ice jams.

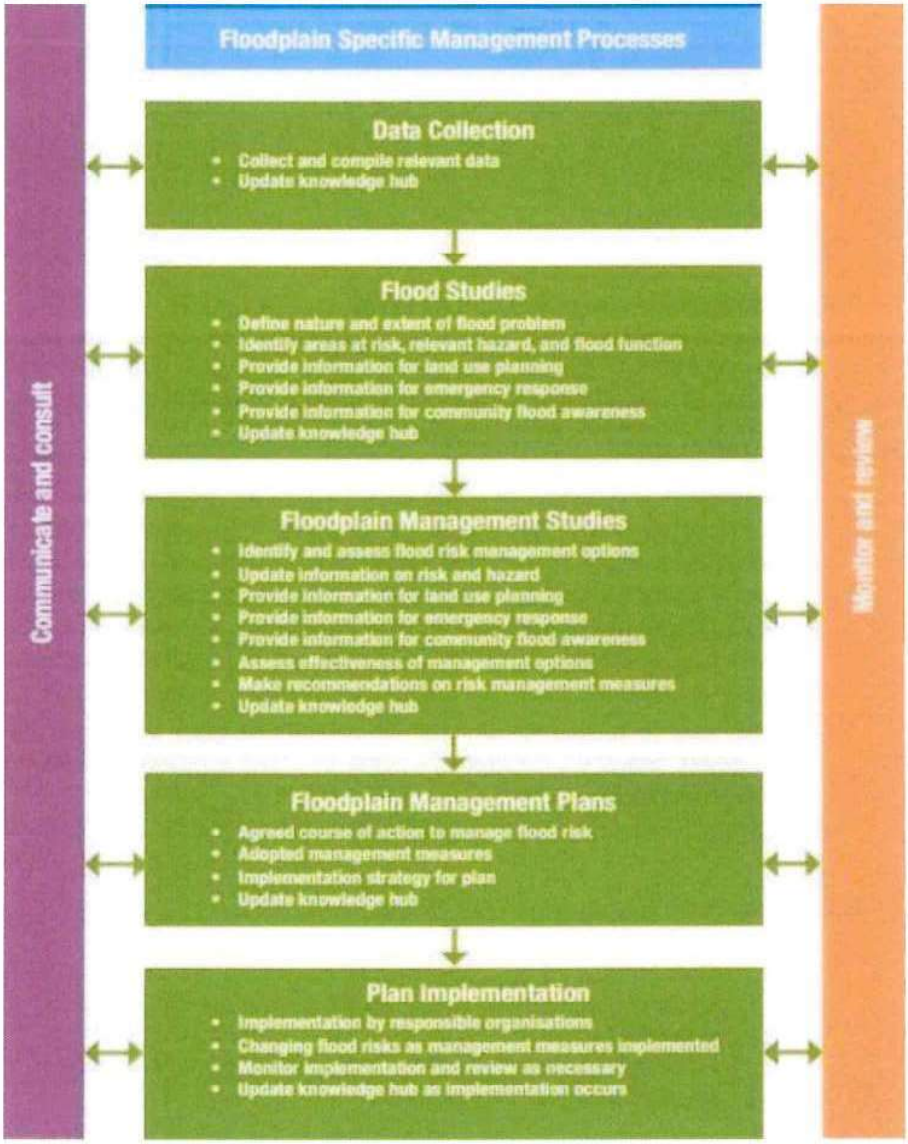
It has given the list of permitted and non-permitted activities in each of these flood plains.

5.5. Flood Plain Management in China

i. Construction of any building, infrastructure etc or any activity within the river channel management areas affecting flood discharge capacity in flood passage is prohibited.
ii. Relocation of people of these reclaimed areas and economic compensation and tax exemption for the settlers.

5.6. Flood plain management in Australia

The Flood plain management practices in Australia involves steps that support understanding and management of flood risks for a specific geographical area. This is generally part of all the floodplain of a single waterway or a combination of the floodplains of several waterways, where flood behavior may interact. This understanding begins with knowledge of the local flood history; evidence of the types and scales of storms that have previously caused problems and indications of what landforms or human-made structures may influence flooding.



5.7. Floodplain Management in Bangladesh

Owing to the fact that a majority of the country's landmass is covered by floodplains, Bangladesh have recently shifted its focus on framing government policies that have adopted using tactics such as discouraging settlements in the high-risk areas and promoting the type of housing and agriculture that can withstand floods.

6. Present Status of Flood Plain Zoning

India stands as the second most flood-impacted nation globally, after Bangladesh and accounts for one-fifth of the global death count due to floods. India's high risk and vulnerability for floods is highlighted by the fact that over 40 million hectares out of total geographical area of 329 million hectares is prone to floods. On an average every year, 75 lakh hectares of land gets affected. According to the Rashtriya Barh Ayog (RBA) an average of 18.6 million hectares of land gets affected annually.

Rastriya Barh Ayog (RBA) was set up by the then Ministry of Agriculture and Irrigation in 1976, to study India's flood-control measures after the projects launched under the National Flood Control Program of 1954 failed to achieve much success.

In 1980, the RBA made 207 recommendations and 4 broad observations.

Firstly, it said there was no increase in rainfall in India and, thus, the increase in floods was due to anthropogenic factors such as deforestation, drainage congestion and badly planned development works.

Secondly, it questioned the effectiveness of the methods adopted to control floods, such as embankments and reservoirs, and suggested that the construction of these structures be halted till their efficacy was assessed. However, it did say that embankments could be constructed in areas where they were effective.

Thirdly, it said there must be consolidated efforts among the states and UTs and the Centre to take up research and policy initiatives to control floods.

Fourthly, it recommended a dynamic strategy to cope with the changing nature of floods. An analysis of the report suggested that the problem began with the methods of estimating flood-prone areas of the country.

Box 6: Uttarakhand Journey to FPZ

- ✓ Enacted the bill in 2012
- ✓ Notification of limit of Flood Plain Area being done in phases:

I. Initial and Final notification done

1. **Bhagirathi** - Gangotri to Devprayag.
2. **Ganga** - Devprayag to Rishikesh.
3. **Ganga** - Rishikesh to Chandi Bridge.
4. **Ganga** - Chandi Bridge, Haridwar to Kalsia village in Laksar, Haridwar district
5. **Bhilaganga** river.
6. **Alaknanda** - Badrinath to Devprayag.
7. **Mandakini** - Kedarnath to Rudraprayag.

II. Study Completed

1. **Gola**-Near Ganrar to State border of
2. **Rispana**-Rajpur (source) upto confluence with Song
3. **Bindal**- Rajpur (source) upto Rispana (confluence)
4. **Song**- Pasani village up to confluence with Ganga.

III. Study in Progress

1. Kosi - Near Kantali to State border of UK
2. Asan and tributaries (Nimi, Nun, Swarna rivers and Sitla Rao)
3. Jhakhan up to Ranipokhri
4. Chandrabhaga
5. Yamuna
6. Pindar river
7. Dhauliganga
8. Nandakini
9. Solani
10. Malini
11. Ratmau
12. Nandhaur
13. Ladhiya
14. Ramganga W River.

In a 2011 meeting of the working group on flood management for the 12th Five-Year Plan, of Flood Management Program, Central Water Commission (CWC), acknowledged that scientific criteria needed to be adopted to assess flood-prone areas. It was recommended that there should be effective monitoring based on frequency of flooding and period of inundation as gauged by contour maps and satellite imagery.

As per NITI Ayog's Report of the Committee constituted for formulation of Strategy of Flood Management Works in Entire Country and River Management Activities and works related to Border Areas (2021-26), annually 7.17 Mha. of area is affected with floods in India, of which 3.94 Mha. is cropped area. On an average, floods claim 1,654 human and 6,18,248 cattle life annually. Reports further reiterate Flood Plain Zoning as an integral non-structural flood management measure. Under section 4 Major Flood Events: Case Studies and Lessons Learnt, it was mentioned that the severity of the floods in India, in most of the cases are enhanced manifold by anthropogenic activities. The major take- away in such cases is the strict implementation of Flood Plain Zoning Act and regulating construction within the flood plain of a river.

The RBA report also recognized the need for timely evaluation of flood management projects. It entrusted State Irrigation and Flood Control Departments, CWC, Ganga Flood Control Commission & Brahmaputra Board with the task of adopting or discarding them based on their performance.

Box 7: Floods in Kerala (2018)

- ✓ Unprecedented rains lashed parts of Kerala from 8th to 18th August, 2018 causing widespread damages to all major sectors of the state. Many human lives were lost, thousands of houses damaged, over a million and half people were moved to relief camps, large stretches of major roads got washed away and many bridges got damaged.
- ✓ Other than unprecedented rainfall in an ecologically sensitive zone such as Kerala, it was not just urbanization; it was the unscientific use of its land and water resources that added to the severity of damage. The other issue was management of river and its flood plain. The numerous dams across these rivers have reduced the flow into the rivers during most of the time. With passage of time, their floodplains have shrunk, and people have occupied these floodplains for cultivation and construction. Unchecked tourism and illegal constructions, mostly related to tourism was another triggering factor that was accentuated by incessant rains.

The 'Assessment of Areas affected due to Floods in India' published by Central Water Commission in June 2024 concludes that the total flood affected areas in India delineated from analyzing LandSAT and Sentinel -1&2 data on GEE and GIS during the period from 1986-2022 is 21.213 Mha. A map showing the pan -India aggregated extent of Flood Affected Areas in India (1986-2022) is given in Fig. 3.

Sl. No	Description	Fig (in Mha)
(i)	Total Area Affected	21.213
(ii)	Area Protected	20.538
(iii)	**Area liable to Floods =(i)+(ii)**	**41.751**

Table 3 : Details of Area liable to Floods as per CWC report on Assessment of Areas affected due to Floods in India', 2024.

Despite a series of disastrous floods in recent times such as in Kedarnath (2013), Srinagar (2014) and Kerala (2018) apart from regular flooding in Assam, Bihar, Uttar Pradesh & West Bengal resulting from constraints in river floodplains, the nation is still without a legally mandated prohibition on such ingress into and violation of the river's integrity.

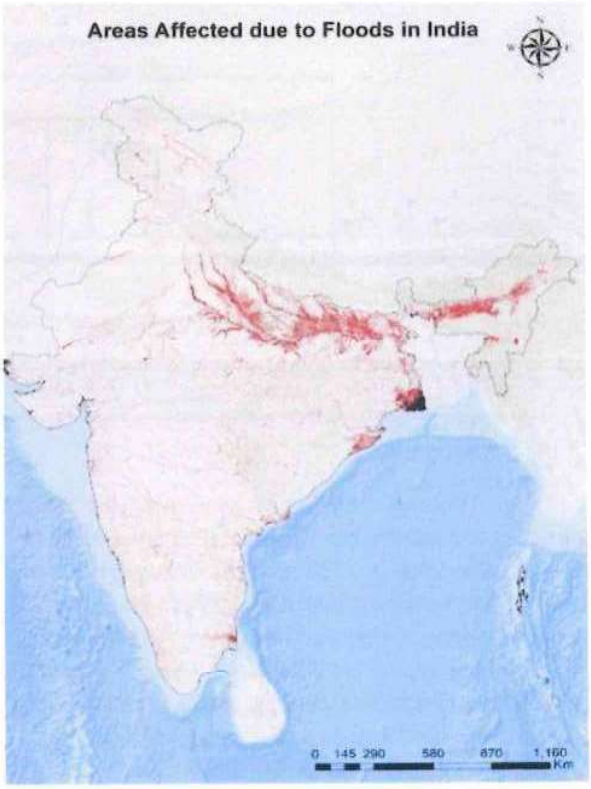
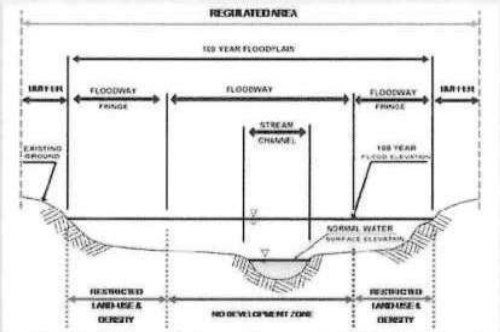


Figure 3 - Aggregated Extent of Flood Affected Areas in India (1986-2022)

Keeping in view the fact that the problem is becoming more and more severe, and with losses mounting every year, the subject of flooding has been recognized at the national level. Thereafter, action for demarcation of flood plain areas and regulating the activities therein, is to be undertaken by respective State Governments/UTs.

Box 8: Godavari Flood Plain

- ✓ Classification of flood plain of River Godavari into different zones by Nashik Mahanagar Palika. List of permissible and prohibited activities have been envisaged under Floodplain Planning & Development Guidelines for River Godavari, Nashik Region. A list of planning guidelines & developmental controls including permissible restorative activities and recommended approach is also given.



- ✓ The document also says about the design aspects to be taken care of while building structures such that they are built on stilts allowing free flow of water below around the structures, as per the flood protection guidelines.

National Green Tribunal (NGT) has also advised the State Governments/UTs to take necessary steps in this direction from time to time. NGT in its order dated 13.07.2017 in the matter of O.A. No. 200 of 2014 – M C Mehta Vs Union of India & Others had directed demarcation of flood plain for river Ganga from Haridwar in Uttarakhand up to Unnao in Uttar Pradesh. In the matter of restoration of river Yamuna in the matter of O.A No. 6/2012 Manoj Mishra Vs Union of India, Hon'ble NGT, vide its Order/Judgment dated 13.01.2015, had directed the State to adopt a precautionary principle by directing various steps which are required to be taken by the authorities, including prohibitory orders in relation to dumping and throwing of waste of any kind in the drains in the river Yamuna, which is lethal for the environment.

In this regard, there is a need for drafting a set of guidelines, to be followed by State Governments/UTs while taking up any developmental activities in the flood plain of any river.

7. Guidelines for Flood Plain Zoning

Based upon the draft Flood Plain Zoning Bill of DoWR, RD & GR, direction of Hon'ble NGT through its Order, draft RRZ by MoEF&CC, broad Guidelines for identifying the Flood Plain Zone in different types of rivers of India and activities to be considered in various zones of such flood plains are given below as a guiding principle to preserve and improve river health.

7.1. Broad Guidelines

7.1.1 Prioritization of Reaches

1. Considering implementation of Guidelines rests with respective State Governments/UTs , the States/UTs should first prioritize the rivers on which flood plain zoning is required. The States/UTs may further decide to implement these guidelines on tributaries & sub-tributaries of such rivers.

2. As a general principle, flood plain zoning may be first taken up for the main river and then its major tributaries. However, the States/UTs may take up the zoning activity on the main river as well as tributaries concomitantly as per their convenience, computing capacity and volume of data to be processed.

3. Zoning exercise may be taken up as a whole or reach-wise in rivers depending upon location and prioritization by respective State/UTs governments.

4. The draft Guidelines may also consider change in river depth due to siltation in the river while demarcating the flood plains. Accordingly, these guidelines shall be reviewed to account for emerging scenarios.

7.1.2 Declaration of Nodal Agency and its functions

1. State Governments/UTs may declare the Nodal Agency for implementation of FPZ Guidelines.

2. The land use in the floodplain should follow a collaborative approach involving urban/rural development authorities in consultation with the Nodal Agency.

3. The Nodal agency shall demarcate and mark the flood plain in the pristine location too.

4. Nodal agency in association with Municipal/ Panchayat bodies and SDMA shall frame guidelines for safety of existing structures and to increase the Flood Resilience within the identified flood plain and implement other existing guidelines such as National Framework for Sediment Management, 2022 of MoJS, Sustainable Sand Mining Guidelines, 2016 and 2020 of MoEF&CC.

5. A No-objection certificate from the Nodal agency of the respective State/UTs will be required for carrying out any activity in the Flood Plain.

- For all new construction (including house or any infrastructure), permit system may be incorporated by the concerned Municipal/ Panchayat body in consultation with Flood Plain Zone Nodal Agency which will need to be enforced strictly.

- Further, in the case of Hydro-projects/Pumped Storage Projects, the agency shall also submit the NOC from the Flood Plain Zone Nodal Agency while seeking environmental clearance from MoEF&CC.

6. The Water Resources/Jal Shakti/Irrigation Department of the respective State Government/UTs shall work in close coordination with the Nodal Agency, if any other department/ organization is declared as Nodal agency, to ensure that the flood plains are managed as per the guidelines.

Box 9 : Uttarakhand Floods (2013)

- ✓ In the month of June 2013, the region suffered its worst disaster with huge loss of lives and widespread destruction. The disaster coincided with the peak tourist and pilgrimage season, considerably enhancing the number of the casualties with adverse impact on the immediate rescue and relief operations.
- ✓ The nature's fury was most pronounced in the Mandakini valley of the Rudraprayag district. Torrential rains coupled with the collapse of the Chorabari Lake led to flooding at the Kedarnath Shrine and the adjacent areas of Rambara, Agastyamuni, Tilwara, and Guptakashi.
- ✓ There were extensive damages to the housing, both in urban and rural areas, as settlements were mostly concentrated along the rivers i.e. flood plain of the rivers.

7. The flood plain areas which have already been urbanized/developed shall be identified and inventories of such areas would be maintained. This should be made a continuous activity, since some development in floodplain areas is inevitable even after implementation of floodplain zoning. The same may be carried out using satellite data. The nodal agency should ensure that future development takes place as per guidelines and proper convergence with the existing and proposed developmental plans should be done. Further, people settled in the river's active floodplain should be warned periodically to move to safer places in a phased manner. The concerned Government agency may initiate some schemes for relocation of such settlements.

7.1.3 Data Standards and Methodology

1. The basic requirements to be taken care of before implementing flood plain zoning are as follows:
   - ➢ Broad demarcation of areas vulnerable to floods.
   - ➢ Preparation of a large-scale map (1:10,000/1:15,000) of the area vulnerable to floods with contours at an interval of 0.3 m to 0.5 m.
   - ➢ Marking of reference river gauges with respect to which, the areas likely to be inundated for different magnitudes of floods will be determined.
   - ➢ Demarcation of areas liable to inundation by floods of different frequencies, e.g., 1 in 5-year, 1 in 25-year and 1 in 100-year appropriately involving mathematical modeling/ Artificial Intelligence and factoring in possible climate change scenarios (including changing rainfall pattern & intensity) in different region of country.

2. The following data are required to carry out Flood Plain Zoning:
   - Historical Discharge/ Rainfall data (as much as available). Minimum 30 years of historical data is recommended.
   - In case of lesser data availability, Peak-over-Threshold method may be used.
   - Digital Elevation Model (DEM) for the river stretches for which FPZ is intended. However, length of reach and capacity of computational power available are critical for DEM resolution suitability. Hence, a combination of freely available coarse DEM + LiDAR DEM is suggested. For reaches <50 km or city-specific study, high-resolution DEM is recommended. Base DEM should not be coarser than 30 m horizontal resolution. Existing embankment details be merged with topography details, if coarse DEM is being used.
   - Close-interval Cross section of the river deduced from DEM as well as collected from the survey conducted in the river reach for carrying out hydrodynamic study.
   - Water Level and River Flow Discharge Data/ Rating Curve at gauging sites to estimate water level corresponding to given flood magnitude.
   - Satellite image for superimposing layers for different flood plain zones.

3. The process of demarcation of flood plain zones is data intensive exercise requiring river flow, river morphology & cross-section, details of embankments, bridges & similar structures. The study primarily involves the determination of 5, 25 & 100-year return period floods at different discharge observation locations of the reach.
   - Annual maximum discharge for each location is utilized for estimation of quantiles of different return periods by fitting into suitable probability distribution viz., e.g. Gumbel, Log Normal, Log Pearson Type-II etc.
   - In case the river is ungauged, i.e. no discharge observation is available, then the rainfall may be used for estimation of discharges. This method involves formulation of Synthetic Unit Hydrograph of sub-catchments, estimation of design storm based on Probable Maximum Precipitation (PMP) atlas of the sub-region and estimation of quantiles of different return periods using calculation of requisite return period rainfall, which is further converted into runoff discharges. These calculated discharges are then utilized in 2D inundation models to calculate the spread of the water for each return period.
   - The output of the study, i.e. return period maps may be validated with the past water levels and past inundations from satellite images, wherever possible.

7.1.4 Data Dissemination and Monitoring

1. The maps prepared shall be placed on a centralized portal for information of public.

2. Joint Regular monitoring of demarcated flood plain zone shall be done by the Nodal agency in association with Municipal/ Panchayat bodies and State/UTs Disaster Management Authority (SDMA) to prevent any further encroachment in the flood plain.

3. Central Government, through an appropriate Agency/Organization, will monitor the implementation of flood plain zoning activities by the States/UTs using the advance and state of the art technologies.

4. Till the said identification and demarcation of floodplain is completed, no further activity is to be allowed within 100 meters from the edge of the river, designated as No

Development/Construction zone. However, if any State Government/UTs has already notified the No Development/Construction zone which may be contravening to this provision, the concerned State Government/UTs shall be encouraged to move towards this provision in a phased manner. However, State Government/UTs may amend or relax this clause for construction of Railway lines, Bridges and essential infrastructure construction or public service etc.

Note: For defining the river's edge, maximum of extent defined by dry seasons water line or flood line in the last five (5) years may be adopted.

7.1.5 Environmental Safeguards in the Floodplain Zones

1. There shall be prohibition on direct disposing of Municipal Solid Waste (MSW), E- waste or Bio-medical waste on the floodplain or in the river. In addition, the monitoring of the effluents emanating from treatment facilities, as envisaged in Section 21 of the Water (Prevention and Control of Pollution) Act of 1974 should be mandatory.

2. There shall be no dumping or landfill sites for any kind of waste irrespective of any technology for waste processing, within 500 meters from the edge of the river or as defined by the existing Municipal guidelines/State Bye-laws in urban area, whichever is more. The nodal agency in consultation with Municipal/ Panchayat body may seek removal of existing dump fills areas, if any, from the river's active floodplain.

3. Appropriate precautionary measures in respect of safety of nuclear plants, aerodrome etc., lying in the designated flood plain zones shall be taken by the respective department depending upon the zone where those are lying.

4. Demarcation of flood plain zones, downstream of dam/ barrages, shall be done as per Para 7.2.3 (III) of these Guidelines. Mapping of existing encroachment in the downstream area vis-à-vis demarcated flood zones shall be done by the Nodal agency. Action Plan shall be prepared for removal of such encroachment in a phased manner in consultation with District Administration/ SDMA. Regular interaction and awareness program among the residents of such areas shall be carried out by the Nodal agency. Government, if desirable, may declare itself free of any responsibility for any flooding and subsequent loss to life & property to encourage people to move towards safer places.

Box 10: West Bengal Floods: 2013 & 2015

- ✓ In 2013, heavy rainfall in the catchment of Damodar Valley led to flooding in the floodplains of districts of Paschim & Purba Medinipur, Howrah, Hooghly, Bardhaman and Bankura causing widespread damage of life and properties.
- ✓ In 2015, the unprecedented rainfall due to the effect of cyclone 'Komen' caused flood in West Bengal. Suitable precautionary measures in the form of advance flood forecasting based reservoir operating system, along with Flood Plain Zoning is the need of the hour in such areas.

5. The revenue department of the state/UTs maintains its own record of river courses. Once Flood Plain zoning work is completed, the same may be updated in the revenue records for future reference.

7.2. Implementation Guidelines

As per definition, a river's floodplain is the low-lying land adjacent to a river and is prone to flooding and generally conforms to a flood of frequency of one in a hundred years. To minimize the damages due to floods and to protect the pristine nature of the river, there is a need to regulate the activities in the flood plain of the river. However, the entire zone corresponding to flood of 1 in 100-year return period can't be declared as protected zone. Instead, the area needs to be divided in different zones depending upon the nature of settlement in the area i.e., rural, or urban. Based on the availability of satellite data, studies will be carried out by the States/UTs on such areas.

Irrespective of zoning, as prescribed below, the following are pre-requisite to be undertaken by the Nodal Agency for effective implementation of regulation of flood plain zoning:

a) Mapping of vulnerability risk of structures to keep flood hazards at minimal
b) Development of a robust warning system

Box 11: Surat, Gujarat Floods: 2006

In Aug 2006, heavy rainfall in the catchment was responsible for heavy inflow in the Ukai reservoir and 3 Lakh to 9 Lakh Cusecs were released from Ukai Dam. The flood situation in Surat city worsened due to such large spill over from Ukai dam. Almost the whole of Surat was submerged and almost all communication channels failed. The people of Surat were badly affected by this flood.

7.2.1. Rural Areas

There will be three zones of the identified flood plains in the urban areas and two zones in the rural areas. The same is listed below for reference:

I. **Protected Zone:** It may also be called Active Flood Zone and will be vulnerable to most frequent flooding events. This area may correspond to floods of 1 in 5-year return period. No activities/ construction will be allowed in this zone except those specified under Section 8.1.

II. **Regulatory Zone:** The activities in this zone are regulated. This area termed as regulatory zone may correspond to the area covered by floods ranging from 1 in 5-year to 1 in 25-year return period.

7.2.2 Urban Areas

In urban areas, flood plains may have specialized functions as public open spaces and entertainment areas. Sometimes these floodplains are encroached and slums develop on them, which is a major issue. The Nodal Agency needs to ensure that such areas are free from encroachment.

Box 12: Chennai Floods, 2015

The city of Chennai has seen a very rapid increase in urbanization and unplanned construction in the floodplains after the 1960s. Many marshlands and rivers have disappeared in the spite of the development of the IT corridor in the city.

Residential colonies in Velachery, Madipakkam, Perugundi, Perumbakkam etc. have all come up in the marshes or their vicinity. These rapid encroachments reduce the water retention capacity of the marshes ultimately leading to the scenario of floods. The CAG Report of 2017, following the floods of 2015 indicated that around 30 km length of river Adyar has been illegally encroached upon that had contributed majorly towards the havoc from the floods in Chennai.

The three zones of floodplains for urban areas are listed below:

I. **Protected Zone:** This is the active flood zone and subjected to most frequent flooding. This corresponds to the area covered by floods with 1 in 5-year return period. No activities/ construction will be allowed in this zone except those specified under Section 8.1.

II. **Regulatory Zone:** The area of flood plain covered by floods between 1 in 5-year return period and 1 in 25-year return period will be termed as Regulatory Zone. The activities in this zone will be regulated. The severity of flood in this area will be lesser than that of the Protected zone.

III. **Warning Zone:** It is the outermost zone in which most of the activities can be permitted by mapping their vulnerability so that that risk flooding hazards remain minimal. This part of flood plain corresponds to the area covered by floods between 1 in 25-year return period and 1 in 100-year return period.

Table 4: Demarcation Areas and associated Flood Frequency Intervals

S. No.	Demarcation of area	Flood Frequency Interval
1	Protected Zone (both rural and urban areas)	Up to 1 in 5-yr
2	Regulatory Zone (both rural and urban areas)	Between 1 in 5-yr and 1 in 25-yr
3	Warning Zone (only in urban areas)	Between 1 in 25-yr and 1 in 100-yr

Note: Demarcation of floodplain corresponding to 100-year return period flood shall necessarily be done for both urban and rural areas.

7.2.3 Other developmental regulations

I. For reaches where embankments exist within a protected or regulated zone, the outer boundary of the active flood plain will be up to the embankment, or the line corresponding to 1 in 5-year return period flood, whichever is more.

Figure 4- River plain with embankments

Figure 5 - River plain without embankments

Box 13: Joshi math Land Subsidence

On account of the events that happened at Joshi math, Uttarakhand, due to land subsidence and sinking at various parts of the area, it is imperative that utmost priority be accorded to, on reducing infrastructure development in ecologically sensitive areas, and where necessary, then building sustainable, climate-change-adapted, disaster-resilient housing and infrastructure that specifically recognizes environmental concerns.

II. In case the Flood Plain Zone of one river overlaps with that of another river within a region, the entire area between the two rivers should be considered for regulation of various activities.

III. In case of existing storage structures on the river such as dams and barrages, the demarcation of flood plains is to be done carefully, after taking into consideration factors such as maximum discharging capacity of the spillway, maximum release after construction that may be routed in the channel downstream of the reservoir etc. The maximum flood level at different locations downstream may also be considered and flood plains may be marked suitably.

Mountain Rivers and Hill Streams: For the Hilly and mountainous region, Flood Plain Zoning requires extra effort and attention. The Himalayan region is significant due to the region's susceptibility to both monsoonal and glacial lake outburst floods. Floodplain zoning in the Hilly region should be adaptive, flexible, and supported by scientific research and local knowledge. It is crucial to consider the unique challenges posed by the region's complex topography and climate, as well as the potential impact of cloudburst, glacial melt and climate change on flood patterns. Regular updates to regulations and collaborative efforts at the local, state, and national levels are key to effective floodplain management in the mountainous region.

Protected Zone

In case of hilly areas, the floodplains may be demarcated as per the slope characteristics of the hill/ mountain relative to the river as mentioned in Table 5. This approach ensures that natural topography/elevation features are also appropriately factored while identifying zones in such terrain as velocity of flows and consequential slope stability is an important consideration in hilly terrain as against terrain in plains. However, where difficulties may arise in determining/ identifying the Highest Flood Level (HFL) of a river along its course, Flood Plain Zoning shall be done as per the Flood Frequency Analysis methodology. Accordingly, either of above two approaches may be adopted for demarcation of flood plains in hilly areas.

Table 5: Extent of Protected Zone along the slope of hills

Sl. No	Slope of the hill towards the river	Extent of Protected Zone
1.	> 30 degrees	Shall be up to 5m from the highest recorded flood level in the valley along the slope
2.	> 10 degrees and < 30 degrees	Shall extend up to 15m from the HFL along the slope
3.	< 10 degrees*	Shall extend up to 50 m from the HFL along the slope

Regulatory Zone: This zone should extend up to 100 m along the slope or the crest of the hill, whichever is less, beyond the boundary of Protected Zone. There will be no warning zone.

8. Regulation of Activities

8.1. List of prohibited activities

The list of prohibited activities in the demarcated flood pains is tabulated below:

Table 6 : List of Prohibited Activities

Sl. No	Zone		Prohibited Activities
1	Protected Zone	(i)	All kinds of permanent construction including addition of floor area/elevation of any existing structure except Civil and Railways Infrastructures (Embankments/Bridges specifically for railway infrastructure with adequate safety measures, Flood/Bank protection works, but the construction of new embankments remain prohibited activity)
		(iii)	Any construction disturbing the natural course of the river channel except Essential Services and Infrastructure (gas/petroleum lines, power line transmission pylons, pipelines for water supply, bridges and barrages/construction of ghats, green-riverfronts, and jetties for navigation) and Temporary Structures (Defence establishments, disaster management activities due to natural calamities, religious and socio-cultural activities, recreational activities not requiring the erection of any permanent structures)
		(iv)	Dumping of solid waste/creation of landfills
		(v)	Storage of highly volatile, inflammable, explosive, toxic materials
		(vi)	Establishment of large-scale commercial or industrial facilities except Sustainable Activities such as groundwater withdrawal by handpumps for non-commercial uses, traditional organic farming, traditional fisheries, grazing by animals and eco-friendly tourism and Permanent Utilities such as Parks, Playgrounds, Gardens, discharge of domestic wastewater after treatment.
2.	Regulatory Zone	(i)	Residential settlement except Public Institutions, Government offices, Universities and Educational Institutions without residential facilities, public libraries, sewage treatment plants, community halls, subject to the condition that the Minimum plinth level of the building should be above the level corresponding to the 1 in 100 -year flood and subject to earthquake safety and the ground floors of such facilities can be utilized for non -residential purposes and controlled afforestation and conservation projects to enhance green cover without disrupting the natural flood flow of the river.
		(ii)	Critical Defence Installations
		(iii)	Construction of basements
3.	Warning Zone	(i)	Hazardous Waste producing chemical industries except other industries, public utilities like hospitals, power installations, water supply, telephone exchanges, railway stations, airports, commercial centers, etc. subject to the condition that the minimum plinth levels of structures should correspond to 1 in 100-year flood.
		(ii)	Nuclear Plants

Note: 1. The Prohibited Activities mentioned above are for illustration purpose from functional consideration of notification by the state governments/UTs, notwithstanding the terminology that has to been used here.

2. Activities that can be permitted under each zone has been identified for the state governments/UTs and the same has been described as an illustrative list along with the list of Prohibited Activities.

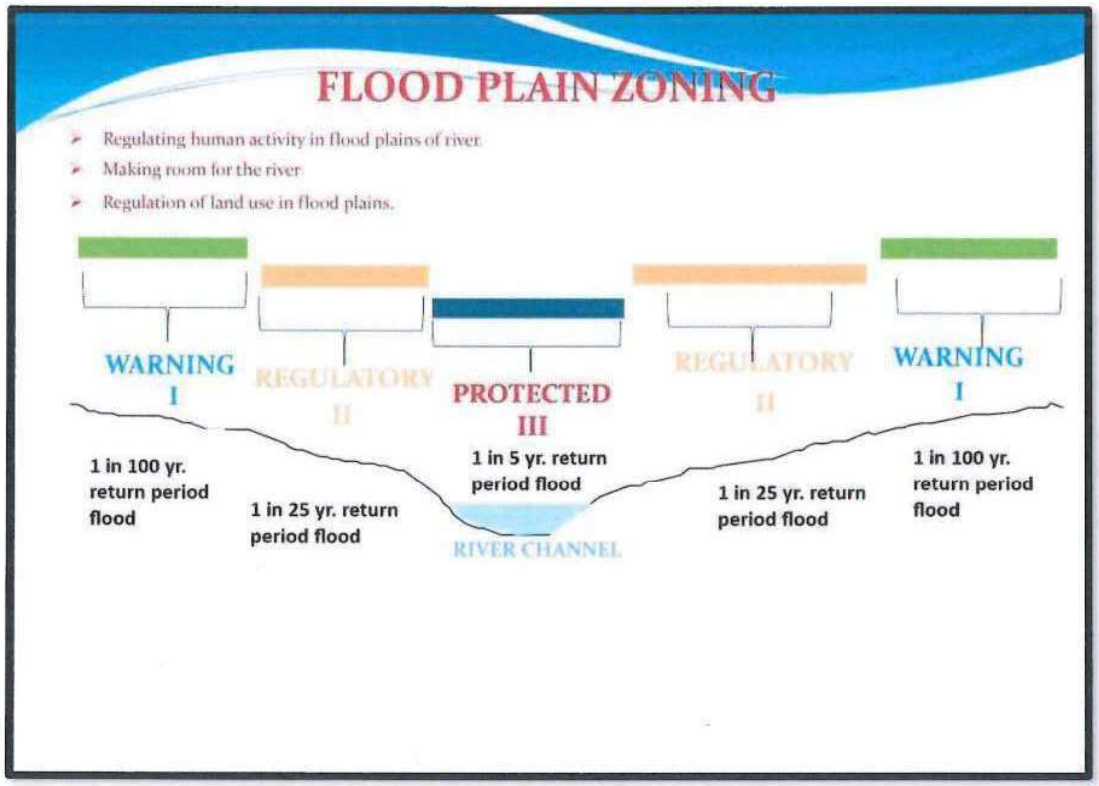


Figure 6- Flood Plain Zoning

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Uttarakhand FPZ Bill, 2012

क्रम संख्या– 10

पंजीकृत संख्या–यू0ए0 / डी0ओ0–30 / 2012–14
(लाइसेन्स टू पोस्ट विदाउट प्रीपेमन्ट)

सरकारी गजट, उत्तराखण्ड

उत्तराखण्ड सरकार द्वारा प्रकाशित

असाधारण

विधायी परिशिष्ट

भाग–1, खण्ड (क)

(उत्तराखण्ड अधिनियम)

देहरादून, सोमवार, 28 जनवरी, 2013 ई0

माघ 08, 1934 शक सम्वत

उत्तराखण्ड शासन

विधायी एवं संसदीय कार्य विभाग

संख्या 31 / विधायी एवं संसदीय कार्य / 2012

देहरादून, 28 जनवरी, 2013

अधिसूचना

विविध

"भारत का संविधान" के अनुच्छेद 200 के अधीन राज्यपाल महोदय ने उत्तरांचल विधान सभा द्वारा पारित उत्तराखण्ड बाढ़ मैदान परिक्षेत्रण विधेयक, 2012 को दिनांक 24 जनवरी, 2013 को अनुमति प्रदान की और वह उत्तरांचल अधिनियम संख्या 07, सन 2013 के रूप में सर्व–साधारण की सूचनार्थ इस अधिसूचना द्वारा प्रकाशित किया जाता है।

उत्तराखण्ड बाढ़ मैदान परिक्षेत्रण अधिनियम, 2012
(उत्तराखण्ड अधिनियम संख्या 07 वर्ष 2013)

THE UTTARAKHAND FLOOD PLAIN ZONING ACT, 2012
[UTTARAKHAND ACT NO. 07 OF 2013]

उत्तराखण्ड बाढ़ मैदान परिक्षेत्रण अधिनियम, 2012
(उत्तराखण्ड अधिनियम सं0 07 वर्ष 2013)

अनुक्रमणिका

अध्याय– छः
प्रतिकर

अध्याय– सात
प्रतिषेद्ध के पश्चात् बाधाएं हटाने की शक्ति

अध्याय– आठ
विविध

उत्तराखण्ड बाढ़ मैदान परिक्षेत्रण अधिनियम, 2012
[उत्तराखण्ड अधिनियम सं0 07 वर्ष 2013]

उत्तराखण्ड राज्य में नदियों के बाढ़ मैदान परिक्षेत्रण की व्यवस्था के लिए

अधिनियम

भारत गणराज्य के तिरसठवें वर्ष में उत्तराखण्ड विधान सभा द्वारा निम्नवत रूप में अधिनियमित हो :–

अध्याय–एक
प्रारम्भिक

संक्षिप्त नाम, विस्तार और प्रारम्भ	**1.**	**(1)** इस अधिनियम का संक्षिप्त नाम उत्तराखण्ड बाढ़ मैदान परिक्षेत्रण अधिनियम, 2012 है। **(2)** इसका विस्तार सम्पूर्ण उत्तराखण्ड राज्य में होगा। **(3)** यह धारा तुरन्त प्रवृत्त होगी और इस अधिनियम के शेष उपबन्ध उस तारीख से प्रवृत्त होंगे, जो राज्य सरकार, राजपत्र में, अधिसूचना द्वारा नियत करे : परन्तु यह कि विभिन्न नदियों और विभिन्न क्षेत्रों के लिए इस अधिनियम के विभिन्न उपबन्धों हेतु भिन्न–भिन्न तारीखें नियत की जा सकेंगी।
परिभाषाएं	**2.**	इस अधिनियम में, जब तक कि संदर्भ से अन्यथा अपेक्षित न हो :– **(क) "बाढ़ मैदान"** में जल सरणी, बाढ़ सरणी और लगभग जब तक कि प्रसंग या संदर्भ से अन्यथा अपेक्षित न हो, इस अधिनियम में नीची भूमि का वह क्षेत्र सम्मिलित है, जो जलप्लावन के कारण आने वाली बाढ़ के लिए सुग्राही हो; **(ख) 'बाढ़ मैदान परिक्षेत्रण'** से किसी नदी के बाढ़ मैदानों में जहाँ नदियों और जलधाराओं से जल के अतिप्लावन के कारण मैदान बन जाते हैं, मानव गतिविधियों पर प्रतिबन्ध अभिप्रेत है; **(ग) 'बाढ़ क्षेत्र'** से ऐसा क्षेत्र अभिप्रेत है, जिससे अधिकतम सम्भावित बाढ़ प्रवाह बहा ले जाना अपेक्षित है; **(घ) 'बाढ़ परिक्षेत्रण प्राधिकारी'** से नदी के सम्बन्ध में धारा 3 के अधीन राज्य सरकार द्वारा नियुक्त प्राधिकारी अभिप्रेत है; **(ङ) 'भूमि'** में भूमि के हित, भूमि से उत्पन्न फायदे या भूमि से संलग्न या भूमि से संलग्न किसी भी बीज के साथ स्थायी रूप से जकड़ी बीजों का समावेश है; **(च) 'अधिभोगी'** किसी भूमि के सम्बन्ध में ऐसा व्यक्ति अभिप्रेत है, जिसका किसी भूमि में हित है और वह उस भूमि पर स्वयं खेती करता है, अपने सेवक या भाड़े के मजदूर से खेती करवाता है। इसमें काश्तकार भी शामिल है; **(छ) 'स्वामी'** से किसी भूमि के सम्बन्ध में ऐसा व्यक्ति अभिप्रेत है, जिसका ऐसी भूमि में हित है; **(ज) 'विहित'** से राज्य सरकार द्वारा इस अधिनियम के अधीन बनाये गये नियमों द्वारा विहित अभिप्रेत है; **(झ) 'नदी'** में उसकी सहायक नदियों का समावेश है; **(ञ) 'जल सरणी'** से ऐसी सरणी अभिप्रेत है, जिसमें साधारणतः नदी का प्रवाह परिरूद्ध रहता है।

		अध्याय–दो **बाढ़ परिक्षेत्रण प्राधिकारी तथा उसकी शक्तियाँ**
बाढ़ मैदान परिक्षेत्रण की घोषणा	**3.**	**(1)** जहाँ राज्य सरकार ऐसा करना आवश्यक या समीचीन समझती है तो वह सरकारी राजपत्र में, अधिसूचना द्वारा यह घोषित कर सकेगी कि ऐसी रीति से जो इस अधिनियम में आगे विनिर्दिष्ट की गई है, बाढ़ मैदान परिक्षेत्रण किया जायेगा। **(2)** राज्य सरकार निदेश दे सकेगी कि जिन सीमाओं के निर्धारण हेतु नदी का सर्वेक्षण किया जाय, उनके अन्तर्गत इस अधिनियम के उपबन्ध चार्ट और पंजियां (रजिस्टर) तैयार किये जायं, जिनमें समस्त सीमाएं, भूमि–चिन्ह और ऐसी सीमाएं अभिनिश्चित करने के प्रयोजन हेतु आवश्यक कोई अन्य विषय विनिर्दिष्ट किया जाय। **(3)** राज्य सरकार, राजपत्र में अधिसूचना द्वारा जिले में जिलाधिकारी या सरकार के ऐसे अन्य प्राधिकारी को उपधारा (2) के अधीन अपेक्षित क्षेत्र का सर्वेक्षण करने के प्रयोजनों के लिए बाढ़ परिक्षेत्रण अधिकारी नियुक्त कर सकती है, जिसे वह आवश्यक समझे, और ऐसी अधिसूचना में वह उक्त प्राधिकारी द्वारा निर्वहन किये जाने वाले कर्तव्य विनिर्दिष्ट कर सकेगी।
बाढ़ परिक्षेत्रण अधिकारी की शक्तियाँ और कृत्य	**4.**	बाढ़ परिक्षेत्रण प्राधिकारी, इस अधिनियम के उपबन्धों के अनुसार शक्तियों का प्रयोग और कर्तव्यों का निर्वहन धारा 3 की उपधारा (3) के अधीन अधिसूचना में विनिर्दिष्ट शर्तों और निबन्धनों के अनुसार करेगा।
		अध्याय–तीन **बाढ़ मैदान परिक्षेत्रण के सर्वेक्षण एवं चित्रण**
सर्वेक्षण	**5.**	**(1)** बाढ़ परिक्षेत्रण प्राधिकारी, नदियों के बाढ़ मैदानों का सर्वेक्षण करेगा और नदियों के बाढ़ मैदानों के स्वरूप और सीमा का अवधारण करेगा। **(2)** बाढ़ परिक्षेत्रण प्राधिकारी, उपधारा (1) के अधीन किये गये सर्वेक्षण के आधार पर बाढ़ मैदान परिक्षेत्रों की स्थापना करेगा और उन क्षेत्रों का आंकलन करेगा, जिसमें जनसाधारण के स्वास्थ्य, सुरक्षा और सम्पत्ति की अभिरक्षा के आशय से बाढ़ मैदान के उपयोग के आपेक्षिक जोखिम के सन्दर्भ में भूमि के वर्गीकरण का भी समावेश होगा। **(3)** बाढ़ परिक्षेत्रण प्राधिकारी, उपधारा (2) के अधीन वर्णित क्षेत्र दर्शाते हुए चार्ट और पंजिकाएं तैयार करेगा।
सर्वेक्षण की शक्ति	**6.**	बाढ़ परिक्षेत्रण प्राधिकारी अथवा अन्य इस निमित्त सामान्य या विशेष रूप से प्राधिकृत किसी अन्य अधिकारी के लिये यह विधि पूर्ण होगा कि वह– **(क)** अपनी अधिकारिता के अन्तर्गत किसी भी भूमि पर प्रवेश करे और उसका सर्वेक्षण कर और उसका स्तर नापे; **(ख)** ऐसे स्तरों, सीमाओं और सीमा रेखाओं को चिन्ह अथवा सीमा पत्थर लगाकर चिन्हित करना;

		(ग) भूमि नापना;
		(घ) धारा 3 की उपधारा (2) में निर्दिष्ट सीमाएं अभिनिश्चित करने के प्रयोजनों के लिये समस्त अन्य आवश्यक कार्य करना;
		(ङ) जहाँ सर्वेक्षण और स्तर नापना अन्यथा पूर्ण नहीं किया जा सकता और किसी खड़ी फसल, बाढ़ या जंगल को काटना या उसके किसी भाग को साफ करना विधि सम्मत होगा :
		परन्तु यह कि भूमि के ऐसे अधिभोगी को कम से कम इस आशय का सात दिन का नोटिस दिए बगैर (अधिभोगी की इसके लिए सहमति के बिना) कोई बाढ़ परिक्षेत्रण प्राधिकारी अथवा कोई अन्य अधिकारी या किसी निवास गृह से संलग्न किसी भवन, किसी बगीचे या खुले या बन्द प्रांगण में प्रवेश नहीं करेगा।
नुकसानी का संदाय	**7.**	**(1)** बाढ़ परिक्षेत्रण प्राधिकारी अथवा इस निमित्त सामान्य अथवा विशेष रूप से प्राधिकृत कोई अन्य अधिकारी, जिसने धारा 5 के अधीन किसी भूमि पर प्रवेश किया है, उसे छोड़ने के पूर्व ऐसे किसी भी नुकसान के लिये जो कि भारित हुआ हो, ऐसी भूमि के स्वामी अथवा अधिभोगी को प्रतिकर देगा और इस प्रकार दी गयी राशि की पर्याप्तता के बारे में कोई विवाद होने की स्थिति में बाढ़ परिक्षेत्र प्राधिकारी या इस निमित्त प्राधिकृत अधिकारी द्वारा मामला विनिश्चय हेतु राज्य सरकार को निर्दिष्ट किया जायेगा।
		(2) उपधारा (1) के अधीन अधिकारी का विनिश्चय अन्तिम होगा और उसे अपास्त या उपान्तरित कराने के लिये किसी सिविल न्यायालय में कोई भी वाद नहीं लाया जा सकेगा।
		अध्याय–चार **बाढ़ मैदानों की परिसीमाओं की अधिसूचना**
बाढ़ मैदानों क्षेत्रों को विन्हित करने के राज्य सरकार के आशय की घोषणा	**8.**	राज्य सरकार, बाढ़ परिक्षेत्रण प्राधिकारी की रिपोर्ट के आधार पर या अन्यथा, राजपत्र में अधिसूचना द्वारा बाढ़ मैदान क्षेत्रों को विन्हित करने और उनमें भूमि के उपयोग को प्रतिषिद्ध या निर्बन्धित करने के अपने आशय की घोषणा कर सकेगी।
सार्वजनिक सूचनाएं	**9.**	**(1)** बाढ़ परिक्षेत्रण प्राधिकारी, धारा 8 के अधीन अधिसूचना जारी करने पर क्षेत्र के सुविधाजनक स्थानों पर ऐसी अधिसूचना का सारांश सार्वजनिक रूप से सूचित करेगा।
		(2) बाढ़ परिक्षेत्रण प्राधिकारी, क्षेत्र में स्थित भूमियों के स्वामियों को सूचनायें व्यष्टितः भी देगा।
		(3) बाढ़ परिक्षेत्रण प्राधिकारी, अभिलेख, चार्ट, नक्शे, पंजिकायें और अन्य दस्तावेज, नदी सरणी / बाढ़ सरणी और बाढ़ मैदान दर्शाते हुए क्षेत्र का स्वरूप और जिस सीमा तक उसका उपयोग प्रतिषिद्ध अथवा प्रतिबन्धित है, विनिर्दिष्ट करते हुए विनिर्दिष्ट समयों पर आम जनता की जानकारी हेतु कार्यालय में प्रदर्शित करेगा।

आक्षेप	10.	(1) कोई व्यक्ति, जो धारा 9 में निर्दिष्ट सार्वजनिक सूचना में विनिर्दिष्ट परिसीमाओं के प्रतिबन्धों या निर्बन्धनों के प्रति आक्षेप करना चाहता हो, राजपत्र में अधिसूचना के प्रकाशन की तारीख से साठ दिन की कालावधि के भीतर अपने आक्षेप उपवर्णित करते हुए एक लिखित विवरण बाढ़ परिक्षेत्रण अधिकारी को अग्रेषित कर सकेगा।
		(2) उपरोक्त कालावधि की समाप्ति के पश्चात् बाढ़ परिक्षेत्रण अधिकारी विहित रीति से नोटिस जारी करेगा और सम्बन्धित पक्ष को मामले की सुनवाई का युक्तियुक्त अवसर प्रदान कर देने के पश्चात् आक्षेपों पर विचार करेगा। (3) बाढ़ परिक्षेत्रण प्राधिकारी, धारा 9 की उपधारा (3) में निर्दिष्ट अभिलेखों के साथ उसके और अपने प्रस्ताव राज्य सरकार को अग्रेषित करेगा।
राज्य सरकार का विनिश्चय	11.	(1) राज्य सरकार, बाढ़ परिक्षेत्रण प्राधिकारी की रिपोर्ट पर विचार करने के पश्चात् क्षेत्र की परिसीमाओं में ऐसे परिवर्तन करने का आदेश देगी, जैसा वह आवश्यक समझे। (2) राज्य सरकार का विनिश्चय अन्तिम होगा। (3) राज्य सरकार, राजपत्र में अधिसूचना द्वारा, यह घोषित करेगी कि इस अधिनियम के उपबन्ध विनिर्दिष्ट सीमाओं परिसीमाओं सहित उक्त नदी पर लागू होंगे : परन्तु यह कि नदी के भराव क्षेत्र में पूर्व से अवस्थित मानवीय बस्तियों को पुनर्वासित किए जाने की व्यवस्था भी राज्य सरकार द्वारा की जायेगी। (4) राज्य सरकार द्वारा अंकित और अनुमोदित क्षेत्र बाढ़ मैदान समझे जायेंगे और सीमाएं, जहाँ आवश्यक हो, सीमा के पत्थरों या अन्य उपयुक्त चिन्हों द्वारा चिन्हित की जायेंगी। (5) बाढ़ परिक्षेत्रण प्राधिकारी, इस प्रकार वर्णित ऐसे क्षेत्रों के मानचित्र और पंजिकाएं रखेगा और ऐसे मानचित्र तथा पंजिकाएं कार्यालय के स्थायी अभिलेखों का भाग समझी जायेगी। (6) उपधारा (5) के अधीन रखे गये मानचित्र और पंजिकाएं उस जिले के जिलाधिकारी को प्रस्तुत की जायेगी, जिसमें नदी का कोई भाग स्थित है और ऐसे समय पर आम जनता के निरीक्षण के लिए उपलब्ध होंगे, जैसा विहित किया जाये।
		अध्याय– पाँच **<u>बाढ़ मैदान के उपयोग का प्रतिषेध एवं निर्बन्धन</u>**
बाढ़ मैदान में बाधा आदि के प्रतिषेध की शक्ति	12.	(1) जहां राज्य सरकार का यह समाधान हो जाय कि सार्वजनिक स्वास्थ्य, सुरक्षा या सम्पत्ति के हित में या आम जनता की असुविधा को कम करने के हित में बाढ़ मैदानों में गतिविधियों प्रतिषिद्ध या निर्बन्धित करना आवश्यक है, वहाँ सरकार राजपत्र में, अधिसूचना द्वारा वह क्षेत्र, जिसमें प्रतिषेद्ध या निर्बन्धन प्रवृत्त किया जाना है और ऐसे प्रतिषेध या निर्बन्धन का स्वरूप और सीमा विनिर्दिष्ट कर सकेगी :

		परन्तु यह कि इस उपधारा के अधीन कोई भी अधिसूचना, धारा 8 के अधीन जारी अधिसूचना के प्रकाशन की तारीख से [अठारह मास] की समाप्ति के पश्चात् जारी नही की जायेगी। **(2)** तत्समय प्रवृत्त किसी विधि, रूढ़ि, करार अथवा लिखत में किसी बात के होते हुए भी उपधारा (1) के अधीन अधिसूचना के प्रकाशन पर ऐसी अधिसूचना में विनिर्दिष्ट प्रतिषेद्ध अथवा निर्बन्धन अभिभावी रहेगा। **(3)** कोई भी व्यक्ति बाढ़ परिक्षेत्रण प्राधिकारी की पूर्वानुमति के बिना निर्बन्धित अथवा प्रतिषिद्ध क्षेत्र में कोई गतिविधि आरम्भ नही करेगा : परन्तु यह कि जब कोई व्यक्ति बाढ़ परिक्षेत्रण प्राधिकारी को इस धारा के अधीन कोई गतिविधि आरम्भ करने के लिए अनुज्ञा के लिए आवेदन करता है और बाढ़ परिक्षेत्रण प्राधिकारी ऐसा आवेदन प्राप्त होने की तारीख से 90 दिन की कालावधि के भीतर उक्त व्यक्ति को संसूचित नहीं करता है कि आवेदित अनुज्ञा अस्वीकृत कर दी गई है, वहाँ यह उपधारित किया जायेगा कि बाढ़ परिक्षेत्रण प्राधिकारी ने उक्त अनुज्ञा दे दी है।
शास्ति	**13.**	यदि कोई व्यक्ति धारा 12 की उपधारा (1) के अधीन की अधिसूचना में विनिर्दिष्ट क्षेत्र में उक्त अधिसूचना में विनिर्दिष्ट निर्बन्धनों और शर्तों के प्रतिकूल कोई गतिविधि प्रारम्भ या कार्यान्वित करता है या करने का प्रयत्न करता है तो वह :– **(क)** जुर्माने से, जो पाँच सौ रूपये तक का हो सकेगा, या जुर्माने के संदाय में व्यतिक्रम होने पर साधारण कारावास से, जो दो मास तक हो सकेगा, और **(ख)** खण्ड (क) के अधीन दोष सिद्ध के पश्चात उस प्रत्येक दिन के लिए, जिसके दौरान अपराध जारी रहता है, एक सौ रूपये तक का हो सकेगा।
अपराध शमन करने की शक्ति	**14.**	**(1)** राज्य सरकार द्वारा किसी सामान्य या विशेष आदेश द्वारा इस निमित्त प्राधिकृत कोई भी अधिकारी ऐसी शर्तों के, जो कि विहित की जाये, अध्यधीन रहते हुए इस अधिनियम के अधीन कार्यवाहियाँ संस्थित होने के पूर्व या पश्चात् उस व्यक्ति से, जिसने अपराध किया है या जिस पर कोई अपराध करने का युक्तियुक्त सन्देह है, एक हजार रूपये से अनधिक धनराशि स्वीकार कर सकेगा। **(2)** ऐसी धनराशि का संदाय कर दिये जाने पर ऐसे व्यक्ति को अपराध से उन्मोचित कर दिया जाएगा और ऐसे अपराध के संबंध में उसके विरूद्ध कोई कार्यवाही नहीं की जायेगी।
अपील	**15.**	**(1)** बाढ़ परिक्षेत्रण प्राधिकारी के विनिश्चय से व्यथित कोई भी व्यक्ति उस तारीख से, जिसको उसे उक्त विनिश्चय की संसूचना दी गई थी, नब्बे दिन की कालावधि के भीतर उस प्राधिकारी को अपील कर सकेगा, जिसे राज्य सरकार द्वारा इस निमित्त विहित किया जाये : परन्तु यह कि यदि विहित प्राधिकारी को इस बात का समाधान हो जाये कि अपीलार्थी ससमय किसी कारणवश नहीं कर पाया था, अपील दाखिल तो वह 90 दिन की कालावधि की समाप्ति पर भी अपील पर विचार कर सकेगा।

1-उत्तराखण्ड अधिनियम संख्या 22 वर्ष 2018 की धारा 2 द्वारा प्रतिस्थापित।

		(2) विहित प्राधिकारी, अपीलार्थी को सुनवाई का युक्तियुक्त अवसर प्रदान करने के पश्चात् ऐसे आदेश पारित कर सकेगा, जो वह उचित समझे और उसका विनिश्चय अन्तिम होगा।
पुनरीक्षण	16.	(1) जहां धारा 15 के अधीन कोई अपील नहीं की गयी है, वहां राज्य सरकार, बाढ़ परिक्षेत्रण प्राधिकारी के किसी आदेश, जाँच या कार्यवाहियों की वैधता, औचित्य या शुद्धता के परीक्षण करने के प्रयोजनार्थ बाढ़ परिक्षेत्रण प्राधिकारी की जाँच या कार्यवाहियों का अभिलेख मंगा सकेगी और मामले में ऐसा आदेश पारित कर सकेगी, जो वह उचित समझे : परन्तु यह कि ऐसे आदेश की तारीख से छः मास समाप्त हो जाने के पश्चात् ऐसा कोई अभिलेख नहीं मंगाया जायेगा। (2) राज्य सरकार, बाढ़ परिक्षेत्रण प्राधिकारी के किसी भी आदेश में किसी भी व्यक्ति को मामले में सुनवाई का उचित अवसर दिये बिना ऐसा कोई परिवर्तन नहीं किया जायेगा, जिससे किसी व्यक्ति पर प्रतिकूल प्रभाव पड़ता हो।
		अध्याय– छः **प्रतिकर**
प्रतिकर का संदाय	17.	(1) जहाँ किसी भी व्यक्ति को बाढ़ मैदान में कोई कार्यकलाप हाथ में लेने की अनुज्ञा देने से इन्कार कर दिया गया हो या जहाँ इस अधिनियम के अधीन किसी व्यक्ति पर अधिरोपित, प्रतिषेद्ध या निर्बन्धन के परिणाम स्वरूप किसी व्यक्ति को कोई नुकसान होता हो तो वहाँ वह ऐसे प्रतिकर के संदाय का हकदार होगा, जो भूमि अर्जन अधिनियम, 1894 (केन्द्रीय अधिनियम सं0 01 वर्ष 1894) की धारा 23 एवं 24 के अधीन अवधारित भूमि के मूल्य और उस मूल्य के बीच के अन्तर से अधिक नहीं होगा, जो कि उसे उस तिथि में मिलता कि जब किसी कार्यकलाप के क्रियान्वयन की अनुज्ञा मिल गई होती या जब निर्बन्धन अथवा प्रतिषेद्ध अधिरोपित नहीं किया गया होता। (2) उपधारा (1) के अधीन प्रतिकर की धनराशि का अवधारण करने में ऐसे किसी भी निर्बन्धन पर विचार किया जायेगा, जिसके कि अध्यधीन वह भूमि, प्रतिकर का दावा करने वाले व्यक्ति के, उस भूमि पर कोई भी कार्य करने या उस भूमि के अन्यथा उपयोग के, अधिकार के सम्बन्ध में, तत्समय प्रवृत्त किसी भी अन्य विधि के अधीन है।
पहचान से प्रतिकर और प्रभाजन का अवधारण	18.	(1) जिस व्यक्ति को धारा 17 के अधीन प्रतिकर संदत्त किया जाना है तथा ऐसी धनराशि का प्रभाजन, जिसमें व्यक्ति हितबद्ध है, उसका निर्धारण प्रतिकर में हितबद्धता का दावा करने वाले व्यक्ति या व्यक्तियों के बीच बाढ़ परिक्षेत्रण प्राधिकारी द्वारा, करार द्वारा अवधारित किया जायेगा। (2) ऐसे किसी करार के अभाव में, बाढ़ परिक्षेत्रण प्राधिकारी, ऐसी जाँच जो वह आवश्यक समझे :— **(क)** धारा 17 के अधीन दिये जाने वाले प्रतिकर की राशि, **(ख)** प्रतिकर का ऐसे व्यक्तियों में, जिनका उसमें हितलाभ होने की जानकारी अथवा विश्वास किया जाता है, प्रभाजन अवधारण कर, अधिनिर्णय (अवार्ड) देगा : परन्तु यह कि जहाँ प्रतिकर की राशि दस हजार रूपये से अधिक हो, वहाँ राज्य सरकार या इस निमित्त राज्य सरकार द्वारा प्राधिकृत अधिकारी की पूर्वानुमति के बिना कोई अवार्ड नहीं किया जायेगा।

प्रतिकर का ग्राह्य नहीं होना	19.	(1) कोई प्रतिकर नहीं दिया जायेगा, यदि :– (क) जहाँ तक भूमि उस तारीख को जिस दिन इस अधिनियम द्वारा या उसके अधीन निर्बन्धन अधिरोपित किये गये थे, प्रवृत किसी अन्य विधि के अधीन प्रवृत सारतः वैसे ही निर्बन्धनों के अध्यधीन है, या (ख) यदि इस अधिनियम द्वारा या उसके अधीन या प्रवृत किसी अन्य विधि के अधीन पूर्णतः समान निर्बन्धनों के सम्बन्ध में दावेदार या उसके पूर्वाधिकारी, जिसका दावे में हितबद्धता है, भूमि के सम्बन्ध में प्रतिकर का पहले ही संदाय कर दिया गया है; (ग) किसी भी अतिक्रमण को हटाने के लिए। (2) यदि किसी व्यक्ति ने अनधिकृत रूप से कोई गतिविधि आरम्भ की गयी है तो ऐसी गतिविधि से भूमि के मूल्य में वृद्धि पर भूमि के मूल्य का आंकलन करते समय विचार नही किया जायेगा।
अधिनिर्णय (अवार्ड) के विरुद्ध आवेदन	20.	(1) धारा 18 की उपधारा (2) के अधीन बाढ़ परिक्षेत्रण प्राधिकारी के अवार्ड से व्यथित कोई भी व्यक्ति, लिखित आवेदन द्वारा राज्य सरकार अथवा इस निमित प्राधिकृत ऐसे अधिकारी को जिसे राज्य सरकार, इस निमित प्राधिकृत करे, आवेदन कर सकेगा। (2) उपधारा (1) के अधीन आवेदन ऐसे प्ररूप में और रीति से, जो विहित की जाये और अवार्ड की संसूचना प्राप्त होने की तारीख से पैंतालीस दिन के अन्दर किया जायेगा। (3) इस धारा के अधीन किये गये आवेदन का निपटारा ऐसी रीति से किया जायेगा, जो विहित की जाये।
धारा 20 के अधीन आवेदन पत्रों पर निर्णय लेने की प्रकिया और प्राधिकारियों की शक्तियाँ	21.	(1) धारा 20 के अधीन आवेदन को सिविल प्रक्रिया संहिता, 1908 (केन्द्रीय अधिनियम सं0 05 वर्ष 1908) की धारा 141 के अर्थान्तर्गत कार्यवाहियाँ समझा जायेगा और उसका विचारण करने में निर्देश विनिश्चय करने के लिये सशक्त प्राधिकारी सिविल न्यायालय की शक्तियों का प्रयोग कर सकेंगे। (2) जाँच का क्षेत्र राज्य सरकार अथवा इस निमित्त प्राधिकृत किसी अन्य ऐसे अधिकारी को विनिर्दिष्ट मामले पर विचार करने तक ही सीमित रहेगा।
विनिश्चय का सिविल न्यायालय की डिक्री के रूप पर प्रवर्तनीय होना	22.	धारा 21 के अधीन निर्णय सिविल न्यायालय की डिक्री के रूप में प्रवर्तनीय होगा।
अधिनिर्णय के अधीन संदाय	23.	धारा 18 की उपधारा (1) के अधीन अवधारित प्रतिकर अथवा धारा 18 की उपधारा (2) के अधीन अभिनिर्णय दे दिये जाने पर या ऐसे अभिनिर्णय के विरूद्ध धारा 20 के अधीन कोई आवेदन किया जाता है तो प्राधिकारी के विनिश्चय के पश्चात् बाढ़ परिक्षेत्रण प्राधिकारी द्वारा प्रतिकर का संदाय किया जायेगा और ऐसे संदाय पर भूमि अर्जन अधिनियम, 1894 (केन्द्रीय अधिनियम सं0 01, वर्ष 1894) की धारा 31 से 35 के उपबन्ध लागू होंगे।

		अध्याय– सात **प्रतिषेद्ध के पश्चात् बाधाएं हटाने की शक्ति**
प्रतिषेद्ध के पश्चात् बाधाएं हटाने की शक्ति	**24.**	**(1)** बाढ़ परिक्षेत्रण प्राधिकारी, इस अधिनियम के उपबन्धों के अधीन भूमि के किसी स्वामी अथवा अधिभोगी को कोई कार्य करने या अनधिकृत अवरोध हटाने का ऐसे समय के अन्दर जैसे विनिर्दिष्ट किया जाय, निदेश दे सकता है और भूमि का स्वामी अथवा अधिभोगी ऐसा कार्य करेगा और अवरोध हटायेगा। **(2)** यदि स्वामी या अधिभोगी, उपधारा (1) के अधीन विनिर्दिष्ट समय के अन्दर बाढ़ परिक्षेत्रण प्राधिकारी के आदेश का पालन करने में विफल रहता है तो बाढ़ परिक्षेत्रण प्राधिकारी वह कार्य करवा सकेगा और अवरोध हटवा सकेगा। **(3)** बाढ़ परिक्षेत्रण प्राधिकारी द्वारा इस धारा के अधीन किया गया समस्त व्यय ऐसे स्वामी अथवा अधिभोगी से भू–राजस्व के बकाया के रूप में वसूल किया जा जायेगा।
		अध्याय– आठ **विविध**
बाढ़ परिक्षेत्रण प्राधिकारी को कोई कार्य करने से रोकना अपराध होगा	**25.**	कोई भी व्यक्ति बाढ़ परिक्षेत्रण प्राधिकारी का इस अधिनियम के द्वारा या इसके अधीन ऐसे प्राधिकारी पर अधिरोपित किसी कार्य का निर्वहन करने से रोकता है, उसके लिये यह समझा जायेगा कि उसने भारतीय दण्ड संहिता, 1860 (केन्द्रीय अधिनियम सं0 45 वर्ष 1860) की धारा 186 के अधीन अपराध किया है।
बाढ़ परिक्षेत्रण प्राधिकारी, अन्य अधिकारियों का लोक सेवक होना	**26.**	बाढ़ परिक्षेत्रण प्राधिकारी और इस अधिनियम के अधीन प्राधिकारी, अन्य अधिकारी एवं कर्मचारी भारतीय दण्ड संहिता, 1860 (केन्द्रीय अधिनियम सं0 45 वर्ष 1860) की धारा 21 के अर्थान्तर्गत लोक सेवक समझे जायेंगे।
सद्भाव से कार्यवाही का संरक्षण	**27.**	**(1)** कोई भी वाद, अभियोजन या अन्य विधिक कार्यवाही, जो ऐसे किसी भी बात के लिए इस अधिनियम या इसके अधीन बनाये गये नियम अथवा आदेश के अनुश्रवण में सद्भावपूर्वक की गयी हो, या की जानी आशयित हो, राज्य सरकार ऐसे किसी प्राधिकारी अथवा व्यक्ति के विरूद्ध नही हो सकेगी, जो इस अधिनियम के अधीन किसी भी शक्ति का प्रयोग या किसी भी कर्तव्य का पालन कर रहा हो। **(2)** कोई भी वाद या अन्य विधिक कार्यवाही ऐसी किसी बाद के लिए कारित या कारित होने के लिए सम्भाव्य किसी नुकसान के कारण राज्य सरकार के विरूद्ध नहीं हो सकेगी, जो इस अधिनियम या इसके अधीन बनाये गये किसी भी नियम या आदेश के अनुश्रवण में सद्भावपूर्वक की गयी हो, या की जानी आशयित हो।
जुर्माने की वसूली	**28.**	इस अधिनियम के अधीन अधिरोपित सभी जुर्माने दण्ड प्रक्रिया संहिता, 1973 (केन्द्रीय अधिनियम सं0 2 वर्ष 1974) में उपबंधित रीति से वसूल किये जायेंगे।
न्यायालय की शक्ति	**29.**	सिविल न्यायालय को किसी प्रश्न के निस्तारण, विनिश्चित करने या उस पर कार्यवाही करने की अधिकारिता होगी, जिसे इस अधिनियम द्वारा या इसके अधीन बाढ़ परिक्षेत्रण प्राधिकारी अथवा ऐसे अन्य अधिकारी द्वारा जिसे राज्य सरकार द्वारा इस निमित्त प्राधिकृत किया गया है, निस्तारित, विनिश्चित किया जाना या

		जिस पर कार्यवाही किया जाना अपेक्षित है।

{उत्तराखण्ड बाढ़ मैदान परिक्षेत्रण अधिनियम, 2012}

नियम बनाने की शक्ति	**30.**	**(1)** राज्य सरकार, इस अधिनियम के प्रयोजनों के कार्यान्वयन हेतु राजपत्र में अधिसूचना द्वारा नियम बना सकेगी। **(2)** विशेष रूप से पूर्वोक्त उपबन्धों की व्यापकता पर प्रतिकूल प्रभाव डाले बिना ऐसे नियमों में निम्नलिखित उपबंध किए जा सकेंगे :– **(क)** वह रीति, जिससे चार्ट और अभिलेख रखे जायेंगे; **(ख)** वह प्ररूप और रीति जिससे धारा 20 के अधीन आवेदन किया जायेगा और वह रीति, जिससे ऐसे आवेदनों का निस्तारण किया जायेगा; तथा **(ग)** कोई अन्य विषय, जिसे विहित किया जाना हो या किया जाए।
		(3) इस अधिनियम के अधीन बनाया जाने वाला प्रत्येक नियम बनाये जाने के बाद यथाशीघ्र 14 दिन की कुल अवधि के एक या दो या अनुवर्ती सत्रों में हो, प्रस्तुत किया जायेगा तथा उपरोक्त सत्र या अनुवर्ती सत्र के तुरन्त कि नियम न बनाया जाय तो तत्पश्चात् यथास्थिति नियम ऐसे उपांतरित रूप में प्रभावी होगा या निष्प्रभावित हो जायेगा तथापि ऐसे किसी उपान्तरण या बातिलकरण का इस नियम के अधीन पूर्व में की गयी किसी बात की विधिमान्यता पर प्रतिकूल प्रभाव डाले बिना हो। बाद के सत्रों के अवसान से पूर्व यदि सदन उक्त नियम मे कोई उपान्तरण के लिये सहमत हो जाता है तथा सदन सहमत हो जाता है।
निरसन और व्यपवाद	**31.**	**(1)** उत्तराखण्ड बाढ़ मैदान परिक्षेत्रण अध्यादेश, 2012 इसके द्वारा निरसित किया जाता है। **(2)** ऐसे निरसन के होते हुए भी, उक्त अध्यादेश के अधीन की गई कोई बात या कार्रवाई इस अधिनियम के तत्स्थानी उपबन्धों के अधीन की गई समझी जायेगी।

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THE UTTARAKHAND FLOOD PLAIN ZONING ACT, 2012
[UTTARAKHAND ACT NO. 07 OF 2013]

INDEX

THE UTTARAKHAND FLOOD PLAIN ZONING ACT, 2012
[UTTARAKHAND ACT NO. 07 OF 2013]

An
Act

to provide for the zoning of flood plains of rivers in the State of Uttarakhand.

Be it enacted by the Uttarakhand State Legislative Assembly in the Sixty-third Year of the Republic of India, as follows :--

CHAPTER-I
PRELIMINARY

Short title, extent and commencement	1.	**(1)** This Act may be called the Uttarakhand Flood Plain Zoning Act, 2012. **(2)** It extends to the whole of the State of Uttarakhand. **(3)** This section shall come into force at once and the remaining provisions of this Act shall come into force on such date as the State Government may, by notification in the official Gazette, appoint: Provided that different dates may be appointed for different provisions of this Act, and for different areas of different rivers.
Definitions	2.	In this Act, unless the context otherwise requires:- **(a) "Flood Plain"** includes water channel, flood channel and that area of nearly low and which is susceptible to flood by inundation; **(b) "Flood Plain Zoning"** means restricting any human activity in the flood plains of a river where the plains are created by overflow of water from the channels of rivers and streams; **(c) "Flood Zone"** means the area which is required to carry the flow of the maximum probable floods; **(d) "Flood Zoning Authority"** in relation to river, means the authority appointed by the State Government under section 3; **(e) "Land"** includes interest in lands, benefits arising out of lands and things attached to the earth or permanently fastened to anything attached to the earth; **(f) "Occupier"** in respect of any land, means any person who has an interest in the land and cultivates the land himself or by his servants or by hired labour and includes a tenant; **(g) "Owner"** in relation to any land includes any person having interest in such land; **(h) "Prescribed"** means prescribed by rules made by the State Government under this Act;
		(i) "River" includes its tributaries; and **(j) "Water Channel"** means the channel in which the flows of a river are generally confined.

		CHAPTER-II **FLOOD ZONING AUTHORITY AND IT'S POWERS**
Declaration of flood plain zoning	3.	**(1)** Where the State Government considers it necessary or expedient so to do, it may, by notification in the Official Gazette declare that flood plain zoning shall be made in the manner hereinafter specified. **(2)** The State Government may direct that a survey be made of a river for the purpose of determining the limits within which the provisions of this Act are to be applied and that proper charts and registers be prepared specifying all boundaries and landmarks and any other matter necessary for the purpose of ascertaining such limits. **(3)** The State Government may by notification in the Official Gazette appoint the Collector of the District or such other authority as the Government considers necessary, as the Flood Zoning Authority for the purposes of making a survey of the area as required under sub-section (2) and may specify in such notification, the duties to be discharged by such authority.
Powers and functions of the Flood Zoning Authority	4.	The Flood Zoning Authority shall exercise the powers and discharge the duties in accordance with the provisions of this Act and the terms and conditions specified in the notification under sub-section (3) of section 3.
		CHAPTER - III **SURVEYS AND DELINEATION OF FLOOD PLAIN AREA**
Survey	5.	**(1)** The Flood Zoning Authority shall carry out surveys of flood plains of the rivers and determine the nature and the extent of flood plains of the rivers. **(2)** The Flood Zoning Authority shall, on the basis of the survey carried out under sub-section (1) establish flood plain zones and delineate the areas which are subject to flooding including classification of land with reference to relative risk of flood plain use intended to safeguard the health, safety and property of the general public. **(3)** The Flood Zoning Authority shall prepare charts and registers indicating the areas delineated under sub-section (2).
Power to take up survey	6.	It shall be lawful for the Flood Zoning Authority or any of the officers generally or specially authorized by it in this behalf- **(a)** to enter upon and survey and take levels of any land within its or his jurisdiction; **(b)** to mark such levels, boundaries and lines by placing marks or boundary stones;

		(c) to measure the land; **(d)** to do all other acts necessary for the purposes of ascertaining the limits referred to in sub-section (2) of section 3; and **(e)** Where otherwise the survey cannot be completed and the levels taken, to cut down and clear away any part of standing crop, fence or jungle : Provided that no Flood Zoning Authority or any other officer shall enter into any building or open any enclosed court or garden attached to a dwelling-house (unless with the consent of the occupier thereof) without previously giving such occupier at least seven days notice in writing of its or his intention to do so.
Payment of damages	**7.**	**(1)** The Flood Zoning Authority or any other officer generally or specially authorized by it in this behalf, who has entered upon any land under section 5 shall, before leaving, tender compensation to the owner or occupier of such land for any damage which may have been caused and in case of dispute as to the sufficiency of the amount so tendered, the Flood Zoning Authority or such officer shall refer the matter to the State Government for its decision. **(2)** The decision of the officer under sub-section (1) shall be final and no suit shall lie in a civil court to have it set aside or modified.
		CHAPTER-IV **NOTIFICATION OF LIMITS OF FLOOD PLAINS**
Declaration of intention of State Government to demarcate flood plains areas	**8.**	The State Government may on the basis of a report from the Flood Zoning Authority or otherwise, by notification in the Official Gazette, declare its intention to demarcate the flood plain areas and either prohibit or restrict the use of land therein.
Public Notices	**9.**	**(1)** The Flood Zoning Authority shall, on the issue of notification under section 8, cause public notice of the substance of such notification to be given at convenient places in the area. **(2)** The Flood Zoning Authority shall also give notices individually to the owners of the lands situated in the area. **(3)** The Flood Zoning Authority shall exhibit records, charts, maps, registers and such other document showing the river channel, flood channel and the flood plain area, specifying the nature and extent to which the use of limits of the area is either prohibited or restricted, in the office for inspection by the General public at the timing specified therein.

Objections	**10.**	**(1)** Any person, who desires to raise any objection to the limits and either the prohibitions or restrictions specified in the public notice referred to in section 9, may within a period of sixty days from the date of publication of the notification in the Official Gazette, forward to the Flood Zoning Authority a statement in the writing setting forth his objections.
		(2) After the expiry of the period aforesaid, the Flood Zoning Authority shall issue a notice in a manner prescribed and consider the objections after giving the party concerned a reasonable opportunity of being heard in the matter. **(3)** The Flood Zoning Authority shall forward to the State Government its or his proposals together with the records referred to in sub-section (3) of section 9.
Decision of State Government	**11.**	**(1)** The State Government shall after considering the report of the Flood Zoning Authority, order such alteration in the limits of the area as it considers necessary. **(2)** The decisions of the State Government shall be final. **(3)** The State Government shall by notification in the Official Gazette, declare that the provisions of this Act shall apply to the said river with boundaries and limits as specified : Provided that the State Government shall also make arrangement for rehabilitation of Colonies already existing in the flood plain. **(4)** The areas delineated and approved by the State Government shall be deemed to be the flood plain and the limits shall, where necessary be marked either by boundary stones or other suitable marks. **(5)** The Flood Zoning Authority shall maintain the charts and registers of such areas so delineated and such charts and registers shall form part of the permanent records of the office. **(6)** The charts and registers maintained under sub-section (5) shall be furnished to the Collector of the District in which any part of the river is situated and shall be opened for inspection by the general public at such times as may be prescribed.
		CHAPTER-V **PROHIBITION OR RESTRICTION OF THE USE OF THE FLOOD PLAINS**
Power to prohibit obstruction etc. in flood plain	**12.**	**(1)** Where the State Government is satisfied that it is necessary to do so in the interest of public health, safety or property or reducing the inconvenience to the general public to prohibit or restrict the activities in the flood plain, the Government may, by notification in the Official Gazette, specify the area where such prohibition or restriction is to be enforced and the nature and extent of such prohibition or restriction :

		Provided that no notification under this sub-section shall be issued after the expiry of [1][eighteen months] from the date of publication of notification under section 8. **(2)** Upon the publication of a notification under sub-section (1), notwithstanding anything contained in any law, custom, agreement of instrument, for the time being in force, the prohibition or restriction specified in such notification shall prevail. **(3)** No person shall undertake any activity within the prohibited area or restricted area except with the previous permission of Flood Zoning Authority: Provided that where a person makes an application to the Flood Zoning Authority for permission under this sub-section to undertake any activity and the Flood Zoning Authority does not within a period of ninety days from the date of receipt of such application, communicate to the said person that permission applied for has been refused, it shall be presumed that he Flood Zoning Authority has granted such permission.
Penalty	**13.**	If any person commences or carries on or attempts to carry on any activity in the areas specified in the notification under sub-section (1) of section 12 contrary to the terms and conditions specified in such notifications, he shall be punishable- **(a)** with fine which may extend to five hundred rupees and in default of payment of fine, with simple imprisonment for the term which may extend to two months; and **(b)** with further fine which may extend to one hundred for each day during which the offence continues after the conviction under clause (a).
Power to Compound	**14.**	**(1)** Subject to such conditions as may be prescribed, any officer authorized by the State Government by a general or special order in this behalf may, either before or after the institution of proceedings under this Act, accept from the person who has committed or is reasonably suspected of having committed and offence, a sum of money not exceeding one thousand rupees. **(2)** On the payment of such sum of money, such person shall be discharged and no further proceedings shall be taken against him in respect of such offence.
Appeal	**15.**	**(1)** Any person aggrieved by any decision of the Flood Zoning Authority may prefer an appeal to an authority prescribed by the State Government in this behalf, within a period of ninety days from the date on which such decision was communicated to him: Provided that the prescribed authority may entertain the appeal after the expiry of the said period of ninety days if it is satisfied that the appellant was prevented by sufficient cause from filing the appeal in time.

1-Subs. by section 2 of UK Act no 22 of 2018.

		(2) The prescribed authority may, after giving a reasonable opportunity to the appellant of being heard, pass such orders as it thinks fit and the decision thereof shall be final.
Revision	**16.**	(1) Where no appeal has been preferred under section 15, the State Government may, for the purpose of examining the legality propriety or correctness of any order, inquiry or proceedings of the Flood Zoning Authority, call for the records of any enquiry or proceedings of the Flood Zoning Authority and make such order in the case as it think fit : Provided that no such record shall be called after the expiry of six months form the date of such order. (2) No order of the Flood Zoning Authority shall be varied by the State Government so as to prejudicially effect any person without giving such person a reasonable opportunity of being heard in the matter.
		CHAPTER-VI **COMPENSATION**
Payment of compensation	**17.**	(1) Where any permission to undertake any activity in the flood plain has been refused to any person or where as a result of prohibition or restriction imposed on any person under this Act, such person suffers any damage, he shall be entitled to the payment of compensation not exceeding the difference between the value of the land as determined under section 23 or section 24 of the Land Acquisition Act, 1894 (Central Act No. 01 of 1894) and the value which it would have, had the permission for carrying on any activity had been granted or the prohibition or restriction had not been imposed. (2) In determining the amount of compensation under sub-section (1) any restriction to which the land is subjected to under any other law for the time being in force in regard to the right of the person claiming compensation to carry on any activity on the land or otherwise to the use of the land shall be taken into consideration.
Determining the compensation and apportion-ment by consent	**18.**	(1) The person to whom the compensation under section 17 is to be paid and the apportionment of such amount among the persons interested therein shall be determined by agreement between the Flood Zoning Authority and the person or persons claiming interest therein. (2) In default of any such agreement, the Flood Zoning Authority shall, after holding such enquiry as it considers necessary, make an award determining :- (a) the amount of compensation to be paid under section 17; and (b) the apportionment, if any, of such compensation among persons known or believed to be interested therein; Provided that where the amount of compensation exceeds ten thousands rupees, no award shall be made without the previous approval of the State Government or such other officer as the State Government may authorized in this behalf.

Compensation not admissible	**19.**	**(1)** No compensation shall be awarded -- **(a)** if and in so far as the land is subject to substantially similar restriction in force under some other law in force on the date on which the restrictions were imposed by or under this Act; or **(b)** if compensation in respect of the same restrictions imposed by or under this Act or substantially similar restrictions in force under some other law has already been paid in respect of the land to the claimant or any predecessor in interest of the claim; or **(c)** for removal of any encroachment. **(2)** If any person has unauthorized undertaken any activity, then any increase in the land value from such activity shall not be taken into account in estimating the value of land.
Application against award	**20.**	**(1)** Any person aggrieved by the Award of the Flood Zoning Authority under sub-section (2) of section 18 may, by an application in writing, apply to the State Government or such other officer as the State Government may authorize in this behalf. **(2)** Any application under sub-section(1) shall be made in such form and in such manner as may be prescribed and shall be made within forty five days from the date of communication of the award. **(3)** The application under this section shall be disposed of in such manner as may be prescribed.
Procedure and powers of authorities in deciding applications under section 20	**21.**	**(1)** An application under section 20 shall be deemed be proceedings within the meaning of section 141 of the Code of Civil Procedure, 1908 (Central Act No. 05 of 1908) and in the trial thereof, the authorities empowered to decide a reference may exercise the powers of a civil court. **(2)** The scope of inquiry shall be restricted to the consideration of the matter referred to the State Government or such other officer as the State Government may authorize in this behalf.
Decision enforceable as decree of civil court	**22.**	The decision under section 21 shall be enforceable as a decree of a civil court.
Payment under award	**23.**	On the determination of the compensation under sub-section (1) of section 18, or on the making of an award under sub-section (2) of Section 18 or, if an application is made under section 20 against such award, after decision of the authority, the compensation shall be paid by Flood Zoning Authority and the provisions of section 31 to 35 of the Land Acquisition Act, 1894 (Central Act No. 01 of 1894), shall apply to such payment.

		CHAPTER-VII **POWER TO REMOVE OBSTRUCTIONS AFTER PROHIBITION**
Power to remove obstructions	**24.**	**(1)** The Flood zoning Authority may, in accordance with the provisions of this Act, direct any owner or occupier of land to do any act or to remove any un-authorized obstructions within such time as may be specified by it and such owner or occupier shall do such act or remove the obstructions. **(2)** If owner or occupier fails to comply with the order of the Flood Zoning Authority within the time specified under sub-section (1), the Flood Zoning Authority may cause the act to be performed or cause the obstructions to be removed. **(3)** All expenses incurred by the Flood Zoning Authority under this section shall be recovered from such owner or occupier as arrears of land revenue.
		CHAPTER-VIII **MISCELLANEOUS**
Preventing Flood Zoning Authority from doing any act to be an offence	**25.**	Any person who prevents the Flood Zoning Authority in discharging any act imposed on such Authority by or under this Act, shall be deemed to have committed an offence under section 186 of the Indian Penal Code, 1860 (Central Act No. 45 of 1860).
Flood zoning Authority other officers to be public servants	**26.**	The Flood zoning Authority and other officers and employees authorized under this Act shall be deemed to be public servants within the meaning of section 21 of the Indian Penal Code, 1860 (Central Act No. 45 of 1860).
Protection of action taken in good faith	**27.**	**(1)** No suit, Prosecution or other legal proceeding shall lie against the State Government or any authority or person exercising any power or performing any duty under this Act for anything which is in good faith done or intended to be done in pursuance of this Act or an order made thereunder. **(2)** No suit, or other legal proceeding shall lie against the State Government for any damage caused or likely to be caused for any thing which is in good faith done or intended to be done in pursuance of this Act or any rule or order made thereunder.
Recovery of fine	**28.**	All fines imposed under this Act shall be recovered in the manner provided in the Code of Criminal Procedure, 1973 (Central Act No. 02 of 1974).
Power of Court	**29.**	A Civil Court shall have jurisdiction to settle, decider or deal with any question which is by or under this Act required to be settled, decided or deal with by the Flood Zoning Authority or such other officer as is authorized by the State Government in this behalf.

Power to make rules	**30.**	**(1)** The State Government may, by notification in the Official Gazette make rules to carry out the purposes of this Act. **(2)** In particular and without prejudice to the generality of the foregoing provisions, such rules may provide for --- **(a)** the manner in which charts and records shall be maintained; **(b)** the form and manner in which application under section 20 shall be made and the manner in which such application shall be disposed of; and **(c)** any other matter which has to be, or may be, prescribed.
		(3) Every rule made under this Act shall by laid, as soon as may be after it is made, before the House of the State Legislature while it is in session for a total period of 14 days which may be comprised in one session or two or successive sessions and if before the expiry of the session immediately following the session or the successive session aforesaid the House agrees in making any modification in the rule, or the House agrees that the rule should not be made, the rule shall, thereafter, have effect only in such modified form or be of no effect, as the case may be, so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.
Repeal and Saving	**31.**	**(1)** The Uttarakhand Flood Plain Zoning Ordinance, 2012 is hereby repealed. **(2)** Notwithstanding such repeal anything done or any action taken under the said Ordinance shall be deemed to have been done or taken under the corresponding provisions of this Act.

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क्रम संख्या–34 पंजीकरण संख्या–UA/DO/DDN/30/2024-2025

सरकारी गजट, उत्तराखण्ड

उत्तराखण्ड सरकार द्वारा प्रकाशित

असाधारण

विधायी परिशिष्ट

भाग–1, खण्ड (क)

(उत्तराखण्ड अधिनियम)

देहरादून, शनिवार, 16 मार्च, 2024 ई0

फाल्गुन 26, 1945 शक सम्वत्

उत्तराखण्ड शासन

विधायी एवं संसदीय कार्य विभाग

संख्या 118/XXXVI(3)/2024/02(1)/2024

देहरादून, 16 मार्च, 2024

अधिसूचना

विविध

'भारत का संविधान' के अनुच्छेद 200 के अधीन मा0 राज्यपाल ने उत्तराखण्ड विधान सभा द्वारा पारित 'उत्तराखण्ड बाढ़ मैदान परिक्षेत्रण (संशोधन) विधेयक, 2024 ' पर दिनांक 16 मार्च, 2024 को अनुमति प्रदान की और वह उत्तराखण्ड राज्य का अधिनियम संख्या: 08, वर्ष–2024 के रूप में सर्व–साधारण के सूचनार्थ इस अधिसूचना द्वारा प्रकाशित किया जाता है।

उत्तराखण्ड बाढ़ मैदान परिक्षेत्रण (संशोधन) अधिनियम, 2024

(उत्तराखण्ड अधिनियम संख्या 08, वर्ष 2024)

उत्तराखण्ड बाढ़ मैदान परिक्षेत्रण अधिनियम, 2012 (उत्तराखण्ड अधिनियम संख्या–07, 2013 समय–समय पर यथासंशोधित अधिनियम) में अग्रेत्तर संशोधन करने के लिये

अधिनियम

भारत गणराज्य के 75वें वर्ष में उत्तराखण्ड विधान सभा द्वारा निम्नलिखित रूप में यह अधिनियमित हो–

संक्षिप्त नाम, विस्तार और प्रारम्भ

1. (1) इस अधिनियम का संक्षिप्त नाम उत्तराखण्ड बाढ़ मैदान परिक्षेत्रण (संशोधन) अधिनियम 2024 है।

(2) इसका विस्तार सम्पूर्ण उत्तराखण्ड राज्य में होगा।

(3) यह तुरन्त प्रवृत्त होगा।

धारा 12 का संशोधन

2. उत्तराखण्ड बाढ़ मैदान परिक्षेत्रण अधिनियम, 2012 की धारा 12 की उपधारा (1) में–

(i) परन्तुक में "अठारह मास" शब्दों के स्थान पर "चौबीस मास" शब्द प्रतिस्थापित कर दिये जायेंगे,

(ii) परन्तुक के पश्चात् निम्नलिखित परन्तुक अंत: स्थापित कर दिया जायेगा, अर्थात्

परन्तु यह और कि, यदि राज्य सरकार जनहित में निर्णय लेती है, नदी क्षेत्र के तटीय विकास कार्य एवं सुरक्षात्मक कार्य करने से इस क्षेत्र में प्रभावित होने वाली भू–सम्पदा तथा मौजूदा भवन संरचनाओं को सुरक्षित किया जा सकता है तो निर्गत अन्तिम अधिसूचना में, धारा 8, 9, 10 तथा 11 में विनिर्दिष्ट प्रक्रिया का अनुपालन करते हुये आवश्यकता अनुसार संशोधन कर सकेगी।

आज्ञा से,
नितिन शर्मा,
प्रमुख सचिव।

No. 118/XXXVI(3)/2024/02(1)/2024
Dated Dehradun, March 16, 2024

NOTIFICATION

Miscellaneous

In pursuance of the provisions of Clause (3) of Article 348 of the Constitution of India, the Governor is pleased to order the publication of the following English translation of **'The Uttarakhand Flood Plain Zoning (Amendment) Act, 2024' (Act No. 08 of 2024).**

As passed by the Uttarakhand Legislative Assembly and assented to by the Governor on 16th March, 2024.

The Uttarakhand Flood Plain Zoning (Amendment) Act, 2024

(Uttarakhand Act No. 08 of 2024)

An

Act

further to amend The Uttarakhand Flood Plain Zoning Act, 2012(Uttarakhand Act. 07 of 2013) (as amended from time to time)

Be it enacted by the Uttarakhand State Assembly in the 75th Year of the Republic of the India as follows-

Short title, extent and commencement

1. (1) This Act may be called the Uttarakhand Flood Plain Zoning (Amendment) Act, 2024

(2) It extends to the whole of the State of Uttarakhand.

(3) It shall come into force at once.

Amendment of Section 12

2. In subsection (1) of section 12 of the Uttarakhand Flood Plain Zoning Act, 2012-

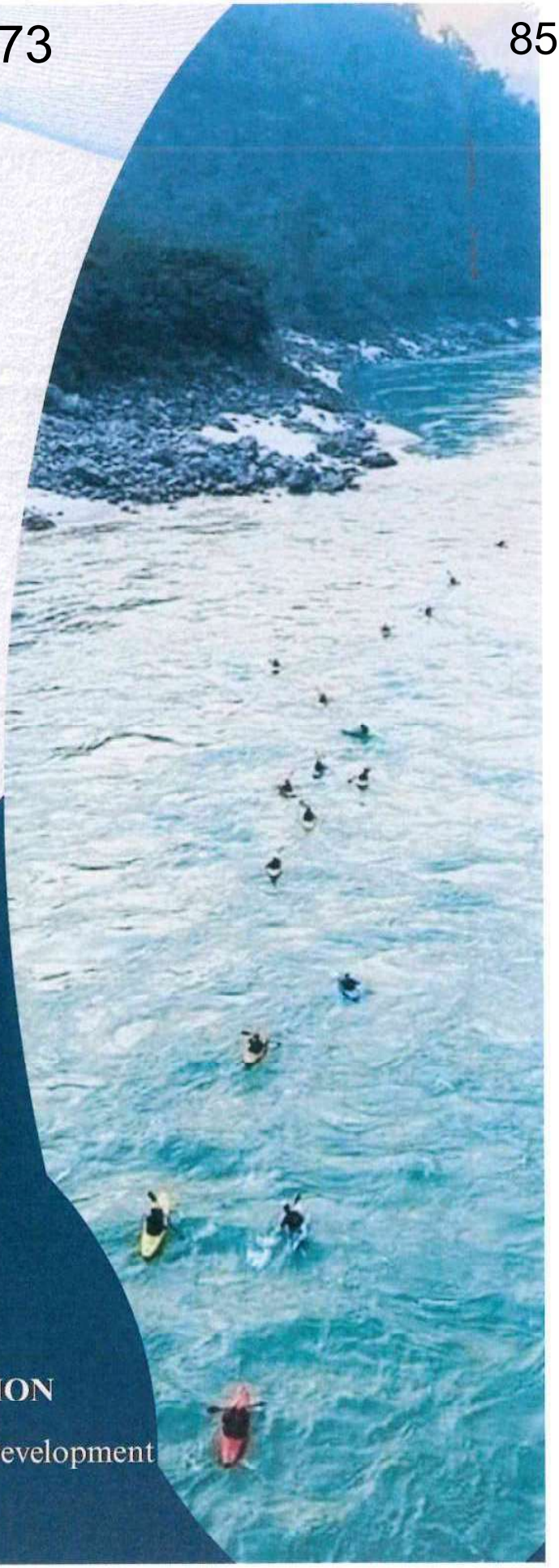
(i) In proviso, for the words "eighteen months" the words "twenty four months" shall be substituted

(ii) After the proviso, the following proviso shall be inserted namely ;-

Provided further that, if State Government take decision in public interest, that affected land and existing buildings can be protected by executing river bank development, the final notification issued, may be amended as per the requirement by following the procedure prescribed under sections 8,9,10 and 11"

By Order,

NITIN SHARMA,
Principal Secretary.



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c/CWCOfficialGoI

CENTRAL WATER COMMISSION

Department of Water Resources, River Development & Ganga Rejuvenation

Ministry of Jal Shakti

राष्ट्रीय स्वच्छ गंगा मिशन
National Mission for Clean Ganga

File No.: L-25011(11)/2/2025-LME NMCG Dated: 27th May, 2025

Subject: Implementation of Flood Plain Zoning (FPZ) for embanked rivers within the State of Bihar – reg.

Ref: Water Resources Department, Office Order dated 6th March, 2025 (copy enclosed)

Kind attention is drawn towards above referred Order of Government of Bihar regarding *the implementation of Flood Plain Zoning for embanked rivers within the State.*

In this context, following points are submitted for kind consideration:

1. The Inter-Ministerial Joint Committee (IMJC) report, already shared with the State vide letter no. File No.: TE-16019/3/2020-O/o AD (RD Tech/NMCG/895 dated 24.02.2023 underlines the importance of FPZ in the State and, inter alia, recommends as *Through various directions of NGT, States have been directed that till such time States scientifically demarcate flood plains, as an interim measure certain buffer zone (defined specifically in the NGT directions) shall be notified respectively as no construction zone and regulatory zone to prevent encroachments into riverine flood plains and maintain a baseline. This interim measure shall cease upon scientific demarcation and notification thereof of floodplains by the States."* (***Annex-I***)

2. As informed by the State vide its letter dated 11.04.2025 in connection with Monthly Progress Report (MPR) in the NGT matter OA No. 673 of 2018, a study on Flood Plain Zoning for Ganga River from Chausa to Manihari, is being conducted by the National Institute of Hydrology (NIH), Roorkee.

   This approach aligns with the recommendations of the IMJC for a scientific study. However, it is imperative that that FPZ study cover the Flood plain as defined in the NMCG Notification, 2016, and divides flood plain zones based on floods corresponding to 5-yr, 25-yr and 100-yr return periods. This study is required to be completed in a time-bound manner.

3. The FPZ Order for 'Embanked Rivers' issued by the State on 06.03.2025 is based on the recommendations of a Committee formed for this purpose. However, the Order itself doesn't clearly specify whether the defined flood plain for embanked river is based on 100-yr return period flood or not. Secondly, other banks of the river as mentioned in para 6 (b) is also not clearly defined.

   Further, it may be noted that areas outside the embankments remain vulnerable

True Copy

to the fluvial flooding in the event embankment breaches, and hence, they share the similar characteristics and risk profiles to those areas within the embankments. In view of this, it is requested that the details of the Committee formed, their recommendations, process/methodologies adopted for FPZ for embanked rivers be shared with NMCG. In this context, minutes of the meeting held in NMCG may kindly be referred to. ***(Annex-2)***

In light of above, it is requested that the matter be reviewed accordingly, and the work of FPZ be accomplished in conformity with the recommendations of inter-ministerial Joint Committee and provisions of the River Ganga (Rejuvenation, Protection and Management) Authorities Order dated 07.10.2016.

This issues with the approval of the Director General, NMCG.

Encl.: As above

17.05.2025

(Anup Kumar Srivastava)
Executive Director –Technical, NMCG

To,

1. **The Chief Secretary,** Government of Bihar, Government of Bihar, Main Secretariat, Patna-800015 email: cs-bihar@nic.in
2. **Principal Secretary,** Water Resources Department, Bihar, **email:** wrd-bih@nic.in

Copy (with request to co-ordinate in the matter) to:

1. Project Director, SPMG, Bihar, Patna

Copy for kind information to:

1. Chief Engineer, P&D, CWC

Letter No.- यो० एवं मो०–4(के०ज०अ०) 08–04/2008 पार्ट–V– 129
Government of Bihar
Water Resources Department

From

Alok Kumar
Joint Secretary (Engg.)

To

Shri Rajeev Kumar Mital
Director General
National Mission for Clean Ganga (NMCG)
Ministry of Jal Shakti
Government of India
E-Mail: dg@nmcg.nic.in

/Patna, dated- 18.2.2026

Sub:- **Flood Plain Zoning (FPZ) for Rivers in the State of Bihar –reg**

Ref: **Your letter No. –L-25011(11)/2/2025-LME NMCG dated- 30.01.2026**

Sir,

Please refer to the letter cited above and the discussions held in the Central Monitoring Committee (CMC) meeting dated 17.07.2025, wherein the State of Bihar was requested to undertake Flood Plain Zoning (FPZ) works in a time-bound manner in conformity with the Technical Guidelines issued by the Central Water Commission in July 2025 and in line with NMCG's communication dated 27.05.2025.

In this regard, the Action Taken by the Government of Bihar towards implementation of Flood Plain Zone Regulations is submitted as under:

- The Government of Bihar has adopted a phased approach for implementation of Flood Plain Zoning in accordance with the Technical Guidelines on Flood Plain Zoning.
- Flood Plain Zoning for embanked rivers has been implemented vide WRD, GoB Order No. 143 dated 06.03.2025. This action is in line with Clause 7.2.3(I) of the Technical Guidelines on Flood Plain Zoning.
- Flood Plain Zoning for un-embanked rivers has been proposed in line with Clauses 7.2.1 and 7.2.2 of the Technical Guidelines on Flood Plain Zoning.
- The Government of Bihar has decided to undertake a comprehensive study to facilitate scientific delineation of Flood Plain Zones, ensuring a data-driven approach to flood plain management.
- For the stretch of River Ganga from Chausa to Manihari in Bihar, the Government of Bihar has engaged National Institute of Hydrology for carrying out detailed studies for delineation of floodplain zones

corresponding to 5-year, 25-year, and 100-year return periods. The study is targeted to be completed by 02.10.2026.

- Based on the successful completion and outcomes of this study, the delineation exercise shall be extended to other rivers in the State in a phased manner.

The above is submitted for kind information and further necessary action.

Encl: As above.

Yours faithfully

18/02/26

(Alok Kumar)
Joint Secretary (Engg.)

Annexure – 3

Minutes of Meeting (MoM)

Subject: Minutes of the meeting on the Actionable Points for NMCG/State of Bihar in compliance with Hon'ble NGT Order dated 21.01.2026 in the matter of O.A. No. 200/2014 – M.C. Mehta vs. Union of India

Date: 17th April 2026
Venue: Conference Hall, NMCG
Chair: Shri Brijendra Swaroop, Executive Director (Projects), NMCG
Participants: Officials from NMCG and Government of Bihar (List attached at Annexure-I)

A detailed review meeting was convened to deliberate upon the observations made by the Hon'ble National Green Tribunal (NGT) with respect to the State of Bihar in the above-mentioned matter. The meeting focused on understanding the concerns raised by the Hon'ble Tribunal, examining the actions taken by the State Government, and identifying further actionable points to ensure compliance with statutory provisions and environmental safeguards.

At the outset, NMCG apprised the participants of the background of the case and the specific directions issued by the Hon'ble NGT. The State Government representatives were requested to present their status and clarifications on each of the observations.

Observation No. 1: Demarcation of Floodplain Zones of River Ganga and its Tributaries

Hon'ble NGT Observation: The Hon'ble Tribunal observed that the Government of Bihar's order dated 06.03.2025, which restricts floodplain zoning to embanked river stretches, is not in conformity with the provisions of the Ganga Authority Notification, 2016. The Tribunal directed that floodplains must be demarcated scientifically in accordance with Clause 3(l) of the Notification, i.e., based on areas inundated during the highest flood levels or corresponding to a 1-in-100-year flood event.

NMCG Submissions and Clarifications:

i. NMCG informed that in order to support States/UTs in undertaking scientifically robust floodplain zoning, "Technical Guidelines on Flood Plain Zoning" were issued in July 2025.

ii. These guidelines emphasize the ecological and hydrological importance of floodplains and provide a structured framework for their classification, protection, and management.

iii. The floodplains are categorized into three zones based on return period analysis:

   a. Protected Zone (1-in-5-year flood),

   b. Regulatory Zone (1-in-25-year flood), and

   c. Warning Zone (1-in-100-year flood).

iv. The guidelines also clearly define permissible and prohibited activities in each zone and provide guidance for special scenarios such as embanked rivers, overlapping floodplains, and existing infrastructure.

v. NMCG highlighted that floodplains extend beyond embankments and cannot be restricted within them.

vi. Through communications dated 27.05.2025 and 07.08.2025, the State Government was directed to align its floodplain zoning exercise with the Ganga Authority Notification, 2016 and the issued guidelines.

vii. Subsequently, vide letter dated 30.01.2026, NMCG reiterated the urgency of the matter and requested submission of an Action Taken Report.

State Government Response:

i. The State informed that a comprehensive floodplain study has been initiated for the Ganga river stretch in Bihar through engagement of NIH, Roorkee.

ii. The study involves hydrological and hydraulic modelling for scientific delineation of floodplain zones.

iii. The expected timeline for completion of the study is October 2026.

iv. It was further stated that the results of the study will facilitate evidence-based planning, regulation of activities in floodplains, and prioritization of interventions.

v. The State also indicated that the matter is being coordinated with the Water Resources Department for necessary action and policy alignment.

Discussion and Way Forward:

i. NMCG emphasized the need for expeditious completion of the study and timely submission of interim progress reports.
ii. The State was advised to ensure that the final delineation strictly adheres to the provisions of the Ganga Authority Notification, 2016 and the NMCG guidelines.
iii. It was also suggested that pending completion of the study, precautionary principles may be adopted in regulating activities within suspected floodplain areas.

Observation No. 2: Location of Digha STP

Hon'ble NGT Observation: The Hon'ble Tribunal expressed concern regarding the construction of the Digha STP within the floodplain of River Ganga, observing that such construction may be in violation of Clause 4(ix) of the Ganga Authority Notification, 2016, which envisages riverbanks and floodplains as construction-free zones. The Tribunal further noted that such installations may be prone to flooding and could potentially contribute to pollution during high flood events.

State Government Response and Justification:

i. The State Government elaborated that Patna city has been divided into six sewerage zones based on topography and natural drainage patterns.
ii. The Digha zone has a natural gradient towards the river Ganga, making it hydraulically suitable for locating an STP at the downstream end.
iii. The Digha STP has therefore been constructed at the lowest point of the catchment to facilitate gravity-based conveyance, minimizing pumping requirements and operational costs.
iv. The site selection also considered proximity to the sewage generation area, thereby reducing the need for extensive sewer networks.
v. Adequate land was available at the site, and its location near the river ensures efficient disposal of treated effluent.
vi. The STP has been designed and constructed such that it does not obstruct the active river channel and is located away from the main current.

vii. Recognizing the floodplain context, several protective measures have been implemented, including raising the plinth above High Flood Level (HFL), provision of embankments, and other flood protection works.

viii. The STP plays a crucial role in intercepting untreated sewage from drains and treating it before discharge, thereby improving river water quality.

ix. The State also reiterated that the ongoing floodplain study by NIH, Roorkee will provide further clarity, and any additional safeguards required will be implemented accordingly.

NMCG's Views and Observations: Digha STP

i. NMCG noted that the site selection was undertaken by the State Government based on sound engineering principles, particularly the importance of gravity-based flow in sewerage systems.

ii. Locating the STP at the lowest point of the catchment is consistent with standard design practices and enhances operational efficiency.

iii. NMCG has not raised any objection to the selected site, considering that it meets key technical criteria and functional requirements.

iv. The proximity of the STP to the river provides a practical advantage in terms of treated effluent disposal, reducing the likelihood of recontamination and eliminating the need for long outfall pipelines.

v. The location also enables effective interception of terminal drains discharging into the river, thereby maximizing pollution control benefits.

vi. The adopted approach is in line with the "end-of-pipe treatment" concept, which has been recognized by the Hon'ble NGT as an effective strategy for river pollution abatement.

vii. However, NMCG emphasized that flood risk management measures must continue to be reviewed and strengthened, particularly in light of the ongoing floodplain study.

Conclusion and Way Forward:

i. NMCG concurred with the justification provided by the State Government and considered the siting of the Digha STP to be technically sound.

ii. It was agreed that the findings of the ongoing floodplain study shall be reviewed upon completion, and any additional measures required for ensuring long-term safety and compliance shall be undertaken by the State.

The meeting concluded with a vote of thanks to the Chair.

******

Annexure-I: List of Participants

NMCG:

1. Shri Brijendra Swaroop, Executive Director (Projects) – In Chair
2. Shri Anup Kumar Srivastava, Executive Director (Technical)
3. Shri Rahul Dwivedi, Director (Projects)
4. Dr. Pravin Kumar, Director (Technical)
5. Shri Rajat Gupta, Sr. Waste Management Specialist
6. Shri Vijay Kumar Yadav, Civil Engineer
7. Shri Rachit Andley, Project Manager
8. Shri Ajitabh, Consultant (Legal)

Government of Bihar:

1. Shri Animesh Parashar, Divisional Commissioner, Patna-cum-MD, BUIDCo
2. Shri Ramashankar Prasad, Chief General Manager, BUIDCo
3. Shri Surender Mehta, General Manager, BUIDCo

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vii. However, NMCG emphasized that flood risk management measures must continue to be reviewed and strengthened, particularly in light of the ongoing floodplain study.

Conclusion and Way Forward:

i. NMCG concurred with the justification provided by the State Government and considered the siting of the Digha STP to be technically sound.

ii. It was agreed that the findings of the ongoing floodplain study shall be reviewed upon completion, and any additional measures required for ensuring long-term safety and compliance shall be undertaken by the State.

The meeting concluded with a vote of thanks to the Chair.

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3. Shri Surender Mehta, General Manager, BUIDCo

बिहार शहरी आधारभूत संरचना विकास निगम लि.
Bihar Urban Infrastructure Development Corporation Ltd.
(बिहार सरकार का उपक्रम)

पत्रांक: Buidco/Legal/MC Mehta/437/2021-1117
दिनांक 20/04/2026

पता : पश्चिमी बोरिंग कैनाल रोड / West Boring Canal Road,
पटना / Patna - 800 001, दूरभाष / Phone :- 0612 -2558412,
ई मेल / E-mail : mdbuidco@gmail.com, website :
CIN - U45200BR2005SGC013080

सेवा में,

परियोजना पदाधिकारी सह-अपर निदेशक,
नगर विकास एवं आवास विभाग,
बिहार, पटना।

विषय: **MC Mehta Vs. Union of India & Ors. Original Application No.-200/2014 से सम्बन्धित प्रतिवेदन के सम्बन्ध में।**

प्रसंग: **BGCMS का पत्रांक 244, दिनांक- 10.04.2026**

महोदय,

उपर्युक्त विषयक प्रासंगिक पत्र के संदर्भ में सूचित करना है कि माननीय **NGT OA No. 200/2014 MC Mehta vs UOI & Others** के **कंडिका–2 (ii) The second issue which is noticed in the matter relates to setting up of Digha STP in the flood plain of River Ganga on its right bank** का प्रतिवेदन निम्नांकित है –

- Patna city has been divided into six sewerage zones based on topography and natural drainage gradients. Out of these six zones, the Digha zone naturally drains towards the river Ganga. As per the preliminary planning reports, the siting of sewage treatment plants has been guided by the principle that the STP should be located at the lowest feasible point of the respective catchment so that sewage can be conveyed by gravity, thereby minimizing pumping requirements and associated operational costs.

  Accordingly, the Digha STP has been constructed at the identified low-lying location, aligned with the natural gradient of the Digha zone towards the river Ganga. This approach is consistent with standard STP siting criteria, wherein hydraulic efficiency and gravity-based flow are prioritized to ensure optimal system performance. Additionally, the site selection has considered proximity to the sewage catchment area, thereby reducing the need for long conveyance networks and associated infrastructure costs.

- It is also relevant to note that while selecting the STP location, due consideration is generally given to factors such as land availability, accessibility, environmental safeguards, and provision for safe disposal of treated effluent. In the case of Digha STP, adequate land was available at the identified site, and its proximity to the river facilitates convenient discharge of treated effluent in compliance with prescribed standards.

P.T.O

- In contrast, for the remaining [illegible] the natural gradient does not lead towards the river, the STPs have been appropriately located away from the river and sited based on local drainage conditions, in line with the principle of minimizing pumping and ensuring operational efficiency.
- It is pertinent to note that the Digha STP has been planned and constructed in such a manner that it does not obstruct or restrict the active channel of the river Ganga. The facility is located at a safe distance from the main river current, thereby ensuring that the hydraulic regime of the river remains unaffected. However, the surrounding area of the STP is subject to backwater effects during high flood conditions in the monsoon season. In view of this, adequate protective measures have already been incorporated into the project design and execution. These include plinth level elevation above the High Flood Level (HFL), provision of embankment/retaining structures, and other flood protection works to safeguard the plant infrastructure against inundation and associated risks.
- Further, as per standard siting practices, care has been taken to ensure that the STP location does not adversely impact nearby habitations and that sufficient buffer and protection measures are in place. The site remains accessible for operation and maintenance, with necessary infrastructure support.
- The STP plays a significant role in environmental management by intercepting and treating wastewater from drains that would otherwise discharge untreated into the river. The treated effluent meets prescribed standards and is discharged into the river, thereby contributing positively to the improvement of river water quality and overall river health.
- In addition, the Government of Bihar has initiated a comprehensive floodplain study along the Ganga river stretch through the National Institute of Hydrology (NIH), Roorkee. This study aims to scientifically delineate floodplain zones based on hydrological and hydraulic assessments and is expected to be completed by October 2026. The outcomes of this study will enable the State to take informed decisions regarding land use planning, infrastructure development, and prioritization of interventions within floodplain areas.
- Once the floodplain zones are delineated, the findings will be reviewed in the context of existing infrastructure, including the Digha STP. If any additional mitigation or protection measures are found necessary for the STP site based on the study outcomes, the same shall be undertaken to further enhance the safety and resilience of the facility.

In view of the above, the siting of the Digha STP is technically justified based on natural drainage considerations and established STP location criteria, and adequate safeguards have been incorporated to address flood-related risks. The ongoing floodplain study will further support informed decision-making and any additional measures, if required, shall be taken accordingly to ensure long-term sustainability and safety of the asset.

विश्वासभाजन।

20/04/2026

मुख्य महाप्रबंधक (द0)
बुडको, पटना।

No. TE – 15014/ 2/ 2021 – TECH CONSTRUCTION NMCG (Comp No. 270884)

भारत सरकार,
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास एवं गंगा संरक्षण विभाग
राष्ट्रीय स्वच्छ गंगा मिशन
*****

प्रथम तल, मेजर ध्यानचंद नेशनल स्टेडियम,
इंडिया गेट, नई दिल्ली - 110002
दिनांक: **8th December 2025**

सेवामें,
The Project Director,
State Mission for Clean Ganga - West Bengal (SMCGWB),
Unnayan Bhavan, DJ-11, Sector-II,
3rd floor Block A, Salt Lake, Kolkata-700091

Subject: Administrative Approval and Expenditure Sanction for the project "Interception and Diversion (I&D) of Drains with Construction of Sewage Treatment Plant (STP) for Pollution Abatement of River Mahananda in Siliguri Municipal town, West Bengal" under Namami Gange Mission - II, at an estimated cost of Rs. 361.86 crores (Rupees Three Hundred Sixty One Crores and Eighty Six Lakh only) including GST and 15 years Operation & Maintenance under Hybrid Annuity Based PPP mode – reg.

महोदय,

The undersigned is directed to convey the grant of Administrative Approval and Expenditure Sanction (AA&ES) for the project on "**Interception and Diversion (I&D) of Drains with Construction of Sewage Treatment Plant (STP) for Pollution Abatement of River Mahananda in** in Siliguri Municipal town, West Bengal" under the National Ganga Plan (NGP) – Non-EAP budget head of Namami Gange Mission – II, with 100% central sector support at an estimated cost of **Rs. 361.86 crores (Rupees Three Hundred Sixty One Crores and Eighty Six Lakh only) including GST**, of which Rs. 169.12 crores for Capex and Rs. 192.74 crores for 15 years O&M**, to be implemented on Hybrid Annuity Based PPP mode**, with the following major components:

a) Total I&D structures - 25
b) Lifting stations – 4 nos.
c) Construction of STPs:
   i. 27 MLD STP (right bank of river)
   ii. 22 MLD STP (left bank of river)
d) Rising main- 5805 m

e) I&D Network- 5770 m
f) 15 years of Operation and Maintenance;
g) ESAMP, Public Outreach and GAAP.

2. The summary of cost is given at **Annexure – I**.

3. Administrative Approval and Expenditure Sanction for the project is granted, subject to General & Technical conditions as per **Annexure – II**, Specific conditions and directions of EC as per **Annexure – III** and Financial conditions as per **Annexure - IV**. The schedule of the project implementation is given in **Annexure - V**.

4. The period of completion of the project is 24 (Twenty-Four) months, which includes 21 months for construction and 3 months for trial run. The bidding shall be completed within 4 (Four) months from the date of issue of AA&ES. The procurement of goods and services shall be made strictly as per the General Financial Rules 2017, as amended from time to time, and the relevant Procurement Manuals of the Department of Expenditure.

5. The sanctioned cost of the project will be borne from the 'National Ganga Plan – Non-EAP Creation of Capital Assets budget head of Namami Gange Mission – II and expenditure incurred will be booked under the component "Nirmal Ganga – Infrastructure Development and Asset Creation – Pollution Abatement Management - Sewerage Infrastructure - Sewage Treatment Plants (STP) - (Hybrid Annuity Model")". The NMCG/ Government of India reserves the right to withdraw the sanction at any stage if it is convinced that the fund has not been properly utilized or appropriate progress is not being made.

6. Any cost escalation over and above the sanctioned cost attributable to the State Government, including due to delay in land acquisition, change in scope post-approval, etc., will be borne by the State Government. The guidelines applicable to NGM-II Projects will be applicable to this Project.

7. The Operations and Maintenance (O&M) provisions will be reviewed after 7 years based on compliance with various General and Specific conditions stipulated in Annexures II & III, by State Government/ SMCG, including insurance of assets created, reuse of treated water, levy of user charges, sewage cess etc.

8. In case of violation of any of the conditions of the AA&ES/ grant or in case of closure or dissolution of the grantee organization, the Government shall take possession of all the assets of the organization acquired out of the

Government grants and use them in any manner deemed appropriate or to recover from the organization the value of such assets at its discretion.

9. The AA&ES will lapse, in case the land identified for the project is not acquired within a period of 4 months from the issuance date.

10. This AA&ES is issued based on the appraisal and sanction of the Executive Committee vide its 67th EC meeting held on 14th November 2025, as well as the approval of Director General - National Mission for Clean Ganga vide eoffice Note #80 dated 05.12.2025 and concurrence of ED (Finance), NMCG vide eoffice Note #76 dated 05.12.2025.

Digitally signed by Sant Ram
Date: 08-12-2025 12:17:30

(सन्त राम)
उप निदेशक (एनएमसीजी)

जानकारी एवं आवश्यक कार्यवाही हेतु प्रतिलिपि:

1. The Chief Secretary, Government of West Bengal, Nabanna,13th Floor, 325, Sarat Chatterjee Road, Mandirtala, Shibpur, Howrah - 711102
2. The Chief Executive Officer, Kolkata Metropolitan Development Authority (KMDA), Unnayan Bhavan, DJ-11, Sector-II, 3rd Floor Block A, Salt Lake, Kolkata - 700091
3. The Commissioner, Siliguri Municipal Corporation, PC5J+J25, Baghajatin Rd, Ward 17, Subhas Pally, Siliguri, West Bengal - 734001

जानकारी हेतु प्रतिलिपि:

1. PS to Hon'ble Minister – Jal Shakti, Shram Shakti Bhawan, New Delhi – 110001
2. PPS to Secretary, DoWR, RD & GR, Shram Shakti Bhawan, New Delhi-110001
3. PPS to Director General, NMCG
4. PS to DDG/ ED (Projects) / ED (Finance) / ED (Technical) / ED (Admin.), NMCG, New Delhi
5. Prof. Asis Mazumdar, Professor, School of Water Resources Engineering, Jadavpur University, Kolkata - 700032
6. Sanction Folder/Guard File
7. MIS Cell NMCG for uploading the AA & ES on official website of NMCG

Annexure-I

Summary of cost for the project proposal of "I&D and STP scheme for Siliguri Municipal town, West Bengal"

(Amount in Rs. Lakh)

S No.	Items	Quantities	Approved Cost (Rs in Lakhs)	Remarks
A	**Capital Cost**			
A.1	**Civil Works**			
A.1.1	**I&D (Weir, Approach Channel, Grit Chamber & strengthening of drain)**			
A.1.1.1	I&D of drains and Diversion sewer line	21 Nos. at left bank & an additional 4 Nos at right bank	31.37	
A.1.1.2	Sewers by open trench method	5120 m	688.76	
A.1.1.3	Manholes	246 Nos.	527.02	
A.1.1.4	HDD Cutting	650 m	289.12	
A.1.1.5	Bituminous Road restoration	11082 m^2	141.19	
A.1.1.6	Concrete Road restoration	1041 m^2	14.12	
A.1.1.7	Earthen Road restoration	3816 m^2	1.33	
Sub Total A.1.1 - I&D Civil Cost			**1692.91**	
A.1.2	**Sewage Pumping Station (SPS)**			
A.1.2.1	Construction of an IPS including Screen Chamber & allied works (LS-1)	8.20 MLD	122.93	
A.1.2.2	Construction of an IPS including Screen Chamber & allied works (LS-2)	18.36 MLD	97.35	
A.1.2.3	Construction of an IPS including Screen Chamber & allied works (LS-3)	4.72 MLD	68.7	
A.1.2.4	Construction of an IPS including Screen Chamber & allied works (LS-4)	0.43 MLD	57.01	
Sub Total A.1.2 - SPS Civil Cost			**345.99**	

S No.	Items	Quantities	Approved Cost (Rs in Lakhs)	Remarks
A.1.3	**Laying of Rising Main**			
A.1.3.1	Cost of Laying of Rising Main	5565 m	700.27	
A.1.3.2	Cost of pipe carrying Steel Bridge over Panchanoi river	35 m span	45.94	
A.1.3.3	Cost of Laying of Effluent Main	240 m	36.12	
Sub Total A.1.3 - Rising Main Civil Cost		**5805 m**	**782.33**	
A.1.4	**Sewage Treatment Plant (STP)**			
A.1.4.1	Construction of STP (27.0 MLD) with Co-treatment arrangement of fecal septage at right bank, including MPS, Site Development and all Allied Works, Online Monitoring and SCADA works (MCS)	27.0 MLD	2447.05	
A.1.4.2	Construction of STP (22.0 MLD) with Co-treatment arrangement of fecal septage at left bank, including MPS, Site Development and all Allied Works Online Monitoring and SCADA works (MCS)	22.0 MLD	1735.33	
Sub Total A.1.4 - STP Civil Cost			**4182.38**	
Sub Total of A.1 (Civil Cost)			**7003.61**	
A.2	**E&M Works**			
A.2.1	**Sewage Pumping Station (SPS)**			
A.2.1.1	E&M items in an IPS including Screen Chamber & allied works (LS-1	8.20 MLD	138.93	
A.2.1.2	E&M items in an IPS including Screen Chamber & allied works (LS-2)	18.36 MLD	428.19	
A.2.1.3	E&M items in an IPS including Screen Chamber & allied works (LS-3)	4.72 MLD	265.9	
A.2.1.4	E&M items in an IPS including Screen Chamber	0.43 MLD	73.03	

S No.	Items	Quantities	Approved Cost (Rs in Lakhs)	Remarks
	& allied works (LS-4)			
Sub Total A.2.1 - SPS E&M Cost			**906.05**	
A.2.2	**Sewage Treatment Plant (STP)**			
A.2.2.1	STP at right bank including MPS & All Allied Works including SCADA etc.	27.0 MLD	2522.24	
A.2.2.2	Solar Photovoltaic Power Plant for 27 MLD STP	100 kWp	53.73	
A.2.2.3	STP at left bank including MPS & All Allied Works including SCADA etc	22.0 MLD	2122.52	
A.2.2.4	Solar Photovoltaic Power Plant for 22 MLD STP	100 kWp	53.73	
Sub-Total A.2.2 - STP E&M Cost			**4752.22**	
Sub-Total of A2 E&M Cost			**5658.27**	
Sub-Total (A): Basic Capital cost			**12661.88**	
B	**Centage (applicable on Basic Capital Cost)**			
B.1	Cost of Project preparation @ 4% as per NGRBA guidelines on Capital Cost		506.48	A maximum 4% each of AA&ES basic capital cost/ awarded capital cost (whichever is lower) is admissible towards (a) DPR preparation and (b) supervision fees. However, payments for DPR preparation and supervision fees to Executing Agencies (EAs)/ Consultants are to be made as per actuals based on the scrutiny of supporting documents
B.2	Cost of Supervision @ 4% as per NGRBA guidelines on Capital Cost		506.48	

S No.	Items	Quantities	Approved Cost (Rs in Lakhs)	Remarks
				furnished by them for such claims (Reference: NMCG circular
Sub-total (B): Centage			**1012.96**	
C	O&M cost for 1st 15 years, excluding power charges		**7138**	Admissible components include costs towards Manpower, Maintenance, Chemicals etc.
D	Power charges for 1st 15 years		**10850.72**	To be reimbursed on actual basis by NMCG.
E	**Other Work Components (Without GST)**			
E.1	Utility Shifting Cost		79.82	To be reimbursed as per actual based on details to be provided.
E.2	Way Leave Charges		12.71	To be reimbursed as per actual based on details to be provided.
Sub Total (E): Other Work Components			**92.53**	
F	**Other Components (GST applicable)**			
F.1	Communication and Public Outreach		29.4	Provision is indicative. Payment will be as per actuals within the ceiling indicated.
F.2	GAAP		10	Provision is indicative. Payment will be

S No.	Items	Quantities	Approved Cost (Rs in Lakhs)	Remarks
				as per actual within the ceiling indicated.
F.3	ESAMP Cost		10	To be reimbursed on actual basis by NMCG. The cost provisions related to interventions on noise control, dust bins and good environment condition etc. and are the responsibility of the contractor.
F.4	Project Design & Vetting		42.37	Approved amount of Rs. 50 Lakh includes GST i.e., Rs. 42.37 Lakh + Rs. 7.63 Lakh. The GST on this component is included in GST in S No. H. Payment will be as per actuals based on Design and Drawings.
Sub Total (F): Other Components			**91.77**	
G	**Statutory Duties**			
G.1	Labor Cess	1% of Basic Capital Cost	126.62	
Sub Total (G): Statutory Duties			**126.62**	
H	**GST**			
H.1	GST on A +B+ F		2477.99	
H.2	GST on O&M cost, excluding power (C)		1284.84	Power costs are excluded as these are to be reimbursed as per actuals.

S No.	Items	Quantities	Approved Cost (Rs in Lakhs)	Remarks
				Services supplied by way of transmission & distribution of electricity is exempt from GST vide Department of Revenue Notification No. 12/2017-Central Tax (Rate) dated 28.06.2017 read with circular no. 34/8/2018 dated 01.03.2018.
Sub Total (H): GST			**3762.83**	
I	Project Engineer's Cost			
I.1	Cost towards hiring of Project Engineer 3% of (capex cost + GST on capex cost i.e., Rs. 14941.02 Lakhs)		448.23	Indicative amount. Payment will be as per the contract with the selected agency.
Sub Total I: Project Engineer's Cost			**448.23**	
Total Cost of the project (A+B+C+D+E+F+G+H+I), including Project Engineer's Cost			**36185.54**	
Total Project Cost (Say in crores)			**361.86**	

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Annexure - II

General & Technical conditions:

1. The State Mission for Clean Ganga West Bengal (WBSMCG), which is a registered society, shall be responsible for the overall planning, management and effective implementation of the project at the state level.
2. 'Siliguri Municipal Corporation" shall be the Urban Local Body (ULB) responsible for ensuring commitment to ownership, commitment to reforms for sustainable O&M, and community involvement.
3. The Kolkata Metropolitan Development Authority (KMDA) shall be the Executing Agency (EA) of the project to be implemented under the guidance of the WBSMCG, in coordination and consultation with the ULB and overall monitoring of the National Mission for Clean Ganga (NMCG) as per provisions laid down in the NGRBA programme framework.
4. The project will be implemented in Hybrid Annuity Based PPP mode with Operation & Maintenance support for a period of 15 years. The O&M works would include basic cleaning works, service management for the proposed service area of I&D and STP operation. After 15 years, the operation and maintenance of the plant shall be the responsibility of the State Government.
5. Sustainable revenue generation from beneficiaries, re-use of treated effluent and waste to energy, etc. shall be explored by the State Government to reduce the O&M cost and build the necessary capacity of ULB to incur the O&M cost beyond 15 year's O&M period.
6. Necessary capacity building for the concerned ULB shall be initiated and a detailed action plan for such capacity building may be provided by the State Government to NMCG within 6 months from the issuance of AA&ES.
7. EA/ State Government needs to ensure possession of suitable land parcels expeditiously for grounding the works in time.
8. Towards implementation of the project, synergy shall be ensured with other Central/ State sponsored programmes like AMRUT etc. and shall be aligned with the city sanitation plan.
9. The project shall be implemented within 24 months (including 3 months trial run) from the effective date as per the implementation schedule given in **Annexure-V**. All the bidding activities and award of work shall be completed within 4 months from the date of AA&ES.
10. All infrastructure projects need to conduct project-specific IEC activities and a detailed plan for such activities to be submitted to NMCG.
11. "Namami Gange" signage shall be placed at all the project sites approved under the Namami Gange programme.
12. Adequate provision shall be kept in the bid document to invite bids with GST-inclusive cost.
13. In the agreement/ bid document, the latest effluent standard as per the NGT order shall be followed. The treated sewage must meet the standards prescribed by NGT.

14. WBSMCG needs to take steps to prepare bid documents in line with the Model Bid Document (MBD) for projects funded under the National Ganga Plan.
15. The activities proposed under the project shall conform to all Environmental Legislation and the NGRBA programme framework.
16. After the implementation of the project, no untreated municipal/ domestic wastewater should be discharged into the river from Siliguri town.
17. Standard procedure as indicated in the CPHEEO manual on Sewerage & Sewage Treatment, NGRBA Guidelines and codes of practice of BIS will be strictly followed during project implementation.
18. Detailed design & implementation of the I&D system, pumping stations, STP, Effluent Channel and Rising Main should be based on an extensive survey. Proper investigation should be carried out before execution to achieve economy in the proposal as well as to avoid any shortfall in the design. The choice of technology should be left open and decided during the bidding process.
19. Progress of implementation of the project shall be closely monitored by the State Government of West Bengal /SMCG, to ensure that the project is completed within the stipulated period. In addition, the progress (Physical & Financial, including funds utilization certificates) needs to be reported to NMCG on a regular basis and as and when requested.
20. The project should encourage the reuse of treated wastewater. A plan and implementation schedule for water reuse needs to be provided before bidding.
21. The actual project cost shall be the awarded cost. The state government needs to seek "No Objection" from NMCG for the Technical & Financial bid evaluation.
22. The State is advised to consider appropriate user charges monthly for the sewerage system to recover at least O&M cost. Suitable sewage cess/tariff/tax and sewer connection fee may be imposed on the beneficiaries to recover the O&M cost. However, State/ ULBs must target to recover the full project cost for sustainable O&M.
23. It is the responsibility of the WBSMCG and Executing Agency to ensure adequate training to all personnel engaged on construction and O&M activities for the quality of construction and O&M of works.
24. WBSMCG and KMDA shall ensure regular monitoring of the project in accordance with the NGRBA framework.
25. Guidelines issued by the Ministry of Finance, the Ministry of Home Affairs and other governing organizations regarding disaster management as applicable be adhered to during project execution.
26. WBSMCG shall ensure the appointment of an agency for third-party inspection (TPI)/ evaluation of the project.
27. All components of the project shall be completed within specified time limits and the resources and outputs and outcomes are to be ensured as envisaged in the approved project Completion Report shall be submitted to NMCG on completion of the project.
28. Any additional component relevant to the project or any component requiring modification or deletion, may be added or modified or deleted,

as the case may be, only with the prior approval of the Competent Authority.

29. Staff that may be employed for the preparation, execution, or operation of the project by the EA are not to be treated as employees of the WBSMCG/ NMCG. The deployment of such staff at the time of completion or termination of the project will not be the concern or liability of the WBSMCG/ NMCG.
30. Optimal utilization of the assets relating to the project and created under the Ganga Action Plan or any other Central /State Plan shall also be ensured by the WBSMCG /EA/ ULB.
31. All data, records, documents and material related to the project shall be stored properly and cataloged by the WBSMCG/ EA for reference and retrieval including regular uploading /disclosure/updating of such data on the website.
32. The State /WBSMCG/EA shall ensure that all provisions of the RTI Act 2005 are adhered to as far as information pertaining to the project is concerned.
33. The State /SPMG/ULB shall ensure that the public is informed in Siliguri town regarding the implementation of the project and soliciting their cooperation and views as applicable.
34. For the provisions made under IEC activities, the WBSMCG shall make suitable arrangements with Siliguri Municipal Corporation for executing the 'Communication and Public Outreach' programme under its supervision towards sensitization of people for abatement of pollution.
35. NMCG shall not be responsible for any damage due to natural calamities or any other reasons. State Government is advised to insure the assets at their own cost after suitable risk assessment.
36. All the specific conditions and generic conditions mentioned in the AA&ES shall be complied by the WBSMCG through their Executing Agency. The WBSMCG will ensure fulfillment of such conditions before finalizing the bid(s) by the EA.
37. The Monthly Physical Progress Reports (MPPRs) shall be submitted by the 10th day of every month regularly by the EA to the WBSMCG and by the 20th day of every month regularly by the WBSMCG to the NMCG. The Quarterly Physical Progress Report (QPPRs) shall be submitted to the WBSMCG and NMCG within 30 days from the end of each quarter.
38. The signing officers shall indicate her/his name and designation in full in capital letters and commencement of processing the case, ink-signed MPPR must follow by Post.
39. The WBSMCG and District Ganga Committee shall monitor the project from time to time and shall also monitor the implementation performance of the EA – KMDA.
40. The WBSMCG shall ensure the appointment of agency (ies) for third-party inspection (TPI). The EA through the WBSMCG shall submit copies of the TPI Reports along with their responses/comments to the NMCG. Release of funds will be subject to compliance with TPI reports.
41. Conditions/ commitments indicated in the Executive Committee (EC) memo/ minutes and other related documents shall be strictly adhered to in the project implementation and management. Copy of EC memo,

minutes and other documents are already circulated. The WBSMCG will ensure the fulfillment of such conditions before finalizing the bid(s) by the EA.

42. City-level Citizen's Monitoring Committees (CMC) shall be constituted in Siliguri town to serve as a transparency mechanism on the flow of project/ programme related information to citizens and key stakeholders and to garner their feedback on project/programme processes, as described in the NGRBA programmed framework, social audit will be conducted by the CMC as per the provisions of the NGRBA programme framework.
43. The interception and diversion of drains is an interim measure intended to reduce the immediate pollution load entering the rivers. While this approach helps prevent untreated wastewater from directly reaching the water bodies, it does not replace the need for a systematic and sustainable wastewater management solution. Therefore, these temporary arrangements should be viewed only as short-term interventions to safeguard river water quality until a comprehensive and permanent system is developed.
44. To achieve lasting results, the State Government and Urban Local Bodies (ULBs) should develop a comprehensive sewerage network using their own resources or other suitable funding sources. The STPs and pumping stations created under the Namami Gange Programme are intended to support and integrate with such networks. Once a full sewer system is established, these assets will function optimally. This will ensure proper conveyance and treatment of wastewater. Ultimately, the entire town will benefit from a complete and efficient sewerage system.
45. The NMCG may depute any person to visit the WBSMCG/ EA to monitor its work and accounts of the SMCG. Full cooperation shall be provided by the executing agency to the persons deputed for inspection.
46. The Director General, NMCG shall monitor the overall progress of the project periodically from time to time.

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Annexure - III

Specific conditions on Administrative Approval and Expenditure Sanction for the project on 'I&D and STP scheme for Siliguri municipal town, West Bengal'

1. State to confirm in writing that (a) after implementing this project, no untreated drains will fall in the river from the town and (b) no drone survey could be carried out due to the denial of permission from authorities due to high alert category location of Siliguri.
2. The bidding shall be completed within 4 (four) months from the date of issue of AA&ES and the total time for completion of the project from the 'Effective Date' will be 24 months (21 months for the construction period and 3 months for trial run).
3. The bids shall be invited on a technology-neutral basis.
4. Land NoC shall be provided by the State prior to bidding.
5. Any cost escalation due to change of land, change in location, additional scope post EC approval and any other factors attributable to the State Government shall be the responsibility of the State Government.
6. The observations of NMCG and TPA would be complied with by the State Government/ Executing Agency prior to finalization of the bid document/ at the time of execution and also during the O&M period.
7. O&M beyond project scope, i.e. after 15 years, shall be the responsibility of State Government/ ULB at its own cost.
8. State government will pari-pasu implement the project for the utilization of treated wastewater from the project for irrigation, industrial purposes as per the State policy.
9. Installation of trash arresting rack and its regular O&M at the mouth of all drains shall be made. Provision (60 KLD) for handling co-treatment of septage/ Faecal sludge shall be made in the STP facility and shall also be made part of bid document/ project proposal for implementation.
10. Provision for sludge digester and power generation from biogas shall be included in the bid document (scope of work).
11. The State Government shall endeavor to install solar power to reduce the load on O&M costs related to power charges by making suitable incorporations in the bid document.
12. The State Government shall ensure the compliance of treated water quality as well as other environmental norms (such as compliance with prescribed noise level etc.) in the STP area shall be assessed upfront and suitably addressed during the design stage.
13. The project has been considered to be funded under the National Ganga Plan – Non-EAP component.

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Annexure - IV

Financial Conditions:

1. Flow of Funds:

I. This being a project on Hybrid Annuity Mode, fund flow to the concessionaire from the Escrow Bank Account will be as per the Concession Agreement.

II. In accordance with the concession agreement, under Hybrid Annuity based PPP mode, 40% of the project capital cost after adjustment for change in price indices, will be paid on achievement of agreed milestones as per Concession Agreement. Balance 60% of the capital cost, adjusted by the applicable price indices, along with interests as per the Concession Agreement, will be paid over the concession period of 15 years. Further, power charges and Operation & Maintenance (O&M) charges will also be paid as per the Concession Agreement. The concessionaire is entitled to receive quarterly payments of Annuity, power charges and O&M during the concession period. While power charges are reimbursable on actual basis, the O&M charges shall be adjusted for variation in price indices as per the Concession Agreement.

III. Funds for the project implementation will be allocated by the NMCG in accordance with the provisions of Concession Agreement through an Escrow Account opened by NMCG for this purpose. NMCG, Project Executing Agency, the Concessionaire and the Escrow Bank shall enter into an Escrow Agreement as per the provisions of Concession Agreement. Payment to the concessionaire from the Escrow account shall be in accordance with the provisions of the Escrow Agreement and Concession Agreement only.

IV. NMCG will deposit and maintain in the Escrow Bank Account, a minimum balance as per the provisions of the Concession Agreement.

V. During the construction period, the Project Executing Agency shall issue certificate of payment to the Escrow Bank on achievement of construction milestones by the Concessionaire in accordance with the provisions of Concession Agreement.

VI. During O&M period the Payment Certificate shall be issued by the Project Executing Agency to the Escrow Bank on achievement of Key Performance Indicators as per the provisions of the Concession Agreement.

VII. Escrow Bank will release payments to the Concessionaire upon the receipt of the Payment Certificate issued by the Project Executing Agency.

VIII. Any interest earned in the Escrow Bank Account to be remitted back and will be deposited in the Consolidated Fund of India within 3 months of the financial year close. It will be the responsibility of the executing agency to issue requisite mandate letter to the Escrow Bank.

2. Audit:

I. The Comptroller & Auditor General of India at his discretion shall have the right of access to the project related books of accounts of the Executing agency/Concessionaire/Project Engineer for the purpose of Audit.
II. The books of accounts of the Executing agency/Concessionaire/Project Engineer, relating to this project, shall be open to audit by the Internal Auditor and External Auditor of National Mission for Clean Ganga.
III. WBSMCG to ensure that all financial documents related to the project are maintained by the EA and Concessionaire for submission to NMCG/ Audit on demand.

3. Submission of Payment Certificate:

WBSMCG to ensure that Payment Certificates are furnished by the Project Executing Agency to the NMCG in the prescribed format as per the Concession Agreement, and supporting documents are retained by the EA.

4. Other Aspects:

I. It is the responsibility of the WBSMCG/EA/Concessionaire/ ULB to ensure that the assets are exclusively used for the purpose for which grant is sanctioned and to maintain the assets and their records properly.
II. Any of the assets acquired/created out of the project shall not be disposed of, encumbered, or utilized for any purpose other than that for which sanctioned without prior approval of the Government.
III. The Implementing/Executing Agency will furnish a list of assets created/procured out of grants received from NMCG annually and at the end of the construction phase.
IV. The WBSMCG concerned through EA, shall ensure close monitoring and evaluation of progress of the project. SMCG also to monitor implementation performance of the EA.
V. NMCG may depute any person to visit the EA/Concessionaire for the purpose of monitoring its work and accounts. Full cooperation shall be provided by EA/Concessionaire to the persons deputed for inspection.

5. General Financial Rules, 2017:

All relevant provisions of General Financial Rules, 2017, as amended from time to time, will be applicable to WBSMCG/EA/Concessionaire.

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Annexure – V

Indicative Project Implementation schedule – I&D and STP scheme for Siliguri Municipal town, WB