

# MAKING RIVER-SENSITIVE MASTER PLANS

Outcome Report for a One-day Technical Workshop  
in Uttarakhand on 18th November 2021







Outcome Report for a  
One-day Technical Workshop  
on 'Making River-Sensitive Master Plans',  
with Senior/ Chief Town Planners and Consultants  
of the river cities in Uttarakhand,  
on 18th November 2021



# STRENGTHENING

## Introduction to River-Sensitive Planning

1. Background 02
2. Context 03

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## Workshop on Making River-Sensitive Plans

3. Workshop Details 04
4. Agenda 05
5. Glimpses of the Event 06
6. Session-wise Discussion and Deliberation 08
7. Participants List 14

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## Brief Overview of Guidance Documents

8. Strategic Guidelines for Making River-Sensitive Master Plans 18
9. River Centric Urban Planning Guidelines 20

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## Application of Guidance Documents

10. Draft Master Plan for Delhi (MPD) 2041 22

# BACKGROUND

Traditionally, the rivers have been at the centre of various societal practices—cultural, religious, livelihood-related, and recreational. The interaction between rivers and cities has been a multi-disciplinary one - wherein on one hand the rivers have been guiding the growth of cities along their banks, and at the same time, the development within a city has been re-shaping its rivers and associated urban landscapes. However, as dynamic systems, this relationship between rivers and cities has been changing over time. Over the years, sadly, the cities have lost their connection with the river. There is a pressing need to reconcile these rivers with the city and its surroundings.

Also, much of the current undesirable state of rivers can be attributed to disruptive anthropogenic activities. These are somehow more prevalent in urban areas (cities). Therefore, any improvement in the river's health cannot be achieved without first addressing the issues in urban areas. While the cities have largely been responsible for the deterioration of their rivers, they have a central role to play in their rejuvenation.

There is thus a dire need to relook at the ongoing river management efforts. Urban river management has to be brought to the heart of city planning. It has to be seamlessly built within the whole natural planning process. It also means that we need to have city plans which will ensure that the rivers never reach an undesirable state.



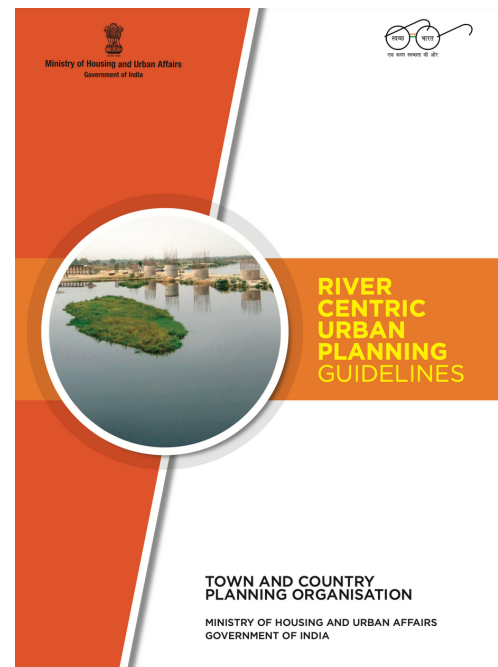
# CONTEXT

In light of the above, the Hon'ble Prime Minister of India, at the first meeting of the National Ganga Council held in December 2019, emphasised that **"There is a need for new river-centric thinking in planning for cities on the banks of rivers. River health needs to be mainstreamed into the urban planning process by developing Urban River Management Plans. Cities should be responsible for rejuvenating their rivers"**.

Responding to this call, the National Mission for Clean Ganga (NMCG) and the National Institute of Urban Affairs (NIUA) prepared an advisory on 'Strategic Guidelines for Making River Sensitive Master Plans' (1). The purpose of this guidance document is to help city planners across the basin, and the country at large, understand how to integrate river-sensitive thinking into a Master Plan. The document was officially launched on 20 June 2021 by Sh. Gajendra Singh Shekhawat, Hon'ble Minister for Ministry of Jal Shakti.

To complement the aforementioned document, the Town and Country Planning Organisation (TCPO) prepared 'River Centric Urban Planning Guidelines' (2) that are primarily focused on planning regulations in the river zone (or floodplain).

Many river cities in India are currently preparing new Master Plans or revising the existing ones. Hence, this is an opportune time for cities to be introduced to the two documents.



(1) 'Strategic Guidelines for Making River Sensitive Master Plans'  
(<https://niua.org/intranet/sites/default/files/1330.pdf>)

(2) 'River Centric Urban Planning Guidelines'

(<http://mohua.gov.in/upload/whatsnew/60b0c96d3481cRCUP%20Guidelines.pdf>)

# WORKSHOP DETAILS

## BACKGROUND

An **online Brainstorming Workshop on "Mainstreaming River thinking into a Master Plan"** was held on 27 August 2021, with the Chief Town Planners and Senior Town Planners of 23 States and Union Territories (UTs) in India. The purpose of the workshop was to collectively deliberate on the guidance documents and explore their application within river cities in the States and UTs.

Sh. Durga Shanker Mishra, Secretary, Ministry of Housing and Urban Affairs, chaired the workshop. Sh. Rajiv Ranjan Mishra, Director General, NMCG and Sh. Hitesh Vaidya, Director, NIUA, further set the stage for the discussions.

Building further on the successful deliberations from this workshop, detailed technical workshops were planned with specific river cities which are preparing their master plans.

## WORKSHOP ON 'MAKING RIVER-SENSITIVE MASTER PLANS'

Following up on this, a **one-day technical workshop on 'Making River-Sensitive Master Plans'** was hosted **in Dehradun, Uttarakhand, on 18 November 2021**, with the city officials and consultants working across the state.

The broad intent of this one-day technical workshop was to equip the planning and development officials in river cities, with a detailed understanding of planning provisions for sustainable urban river management. The workshop intended to familiarise the city officials with possible solutions for integrating river-sensitive thinking within the existing planning processes.

During the course of this workshop, participants were supported to identify planning solutions for the management of the rivers within their cities. These solutions can directly be incorporated within the existing Master Plans or the upcoming Master Plans for these cities.

## OBJECTIVES

- To have a shared understanding of the guidelines developed by NIUA, NMCG and TCPO
- To explore the application of these guidelines in cities of Uttarakhand





# AGENDA

## One-day Technical Workshop on 'MAKING RIVER-SENSITIVE MASTER PLANS' in Uttarakhand

Date : 18 November, 2021 | Venue : The Ball, Ramada Dehradun, Chakrata Road, Uttarakhand

09:30 - 10:00 Registration

### SESSION 1: INTRODUCTION

10:00 - 10:10 Welcome Remarks

10:10 - 10:20 Special Address by Secretary, UDD, Govt. of Uttarakhand

10:20 - 10:30 Setting the Context

### SESSION 2: OVERVIEW OF THE GUIDELINES

10:30 - 10:45 Strategic Guidelines for 'Making River-Sensitive Master Plans'

10:45 - 11:00 'River Centric Urban Planning Guidelines'

11:00 - 11:15 Tea Break

### SESSION 3: PREPARATION OF A RIVER-SENSITIVE MASTER PLAN

11:15 - 12:15 Preparing a River Baseline for the city

12:15 - 13:15 Delineation of the River Influence Zone, Allocation of compatible land uses, Identification of permissible activities, and Development control regulations

13:15 - 14:15 Lunch

14:15 - 15:15 Incentivising river-sensitive development through Master Plans

15:15 - 15:30 Tea Break

### SESSION 4: DISCUSSIONS & DELIBERATIONS ON RIVER-SENSITIVE APPROACHES

15:30 - 16:00 Strategies for Interlinking Blues and Greens

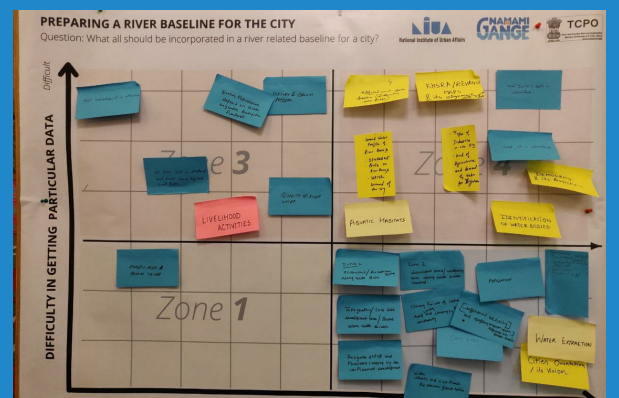
16:00 - 16:30 Showcasing Special River Projects

### SESSION 5: WAY FORWARD

16:30 - 17:00 Conclusions and Vote of Thanks

# CLIMPSSES OF THE EVENT





# SESSION-WISE DISCUSSION & DELIBERATION

## SESSION 1: INTRODUCTION

At the onset, Dr. Victor Shinde from NIUA set the stage by introducing the need for mainstreaming river thinking into the long-term urban planning framework in India. He introduced the work done by NIUA, NMCG and TCPO in this domain. He also briefly introduced the components of the two strategic guidelines, which can help cities in making river-sensitive Master Plans.

Sh. Shailesh Bagauli, Secretary, Urban Development Department, Govt. of Uttarakhand, joined the opening session and motivated the participants to encapsulate river-thinking in all their activities. He suggested scaling-up this initiative to all cities in Uttarakhand, and assured support from the state level authorities in doing so.



## SESSION 2: OVERVIEW OF THE GUIDELINES

The second session provided an overview of the two guidelines prepared by NIUA, NMCG and TCPO.

To begin with, Nikita Madan from NIUA presented the Strategic Guidelines on 'Making River-Sensitive Master Plans'. She talked about the key issues associated with urban rivers. She also elaborated on the planning instruments that can be leveraged, to inculcate river thinking into a Master Plan. Sharing examples from the Master Plans of Hyderabad, Noida, Calgary, New Orleans, Montrose and many others, she showed glimpses of cities' that have adopted river-sensitive behaviour in their plan.

Sudeep Roy from TCPO presented the 'River Centric Urban Planning Guidelines'. He primarily talked about the regulations applicable within the floodplains.

At the end of this session, participants shared their opinion about the applicability of the suggested regulations, within their cities. They also indicated some challenges in adopting these regulations in hilly areas.



### SESSION 3: PREPARATION OF A RIVER-SENSITIVE MASTER PLAN

This session focussed on three prime aspects of river-sensitive planning.

Nikita made a presentation on preparing the river baseline for a city, followed by a group exercise. The participants came up with a list of information that is essential to preparing a river-sensitive plan. They also discussed the sources of this information.

Vishakha Jha from NIUA talked about the delineation of the River Influence Zone, allocation of compatible land uses, identification of permissible activities, and development control regulations, once the river zone is identified. This was followed by an exercise on the identification of activities suitable for the river zone. Participants shared their experience of delineation of the river zone. They also talked about the challenges associated with the delineation of river zone in hilly regions and the delineation of meandering river channels. Another major concern shared by the participants was the existing development till the edge of the river. The idea to 'protect what you can' was floated, in order to address this issue.

Shivani Saxena from NMCG presented the possible incentivising mechanisms, for promoting the private landowners within the floodplains to develop in a sensitive manner. Through an exercise, the participants shared their opinions about taxation, credits, transferable development rights, floor area ratio, and other incentives or disincentives that can be leveraged, for promoting river-sensitive development.



#### SESSION 4: DISCUSSIONS AND DELIBERATIONS ON RIVER-SENSITIVE APPROACH

This session deliberated upon specific river-sensitive approaches that can be adopted by cities, like interlinking blues & greens, and special river projects. Participants shared about the riverfront development and other projects proposed in the city. They also discussed effective means for implementation of the plans prepared by a city.

#### SESSION 5: WAY FORWARD

As a way forward, Sh. Shashi Mohan, Chief Town Planner, Uttarakhand, suggested preparing a set of guidelines applicable for the Master Plans of the state, given the hilly terrain of the region.

Initially, this training was intended to build the capacities of city town planners and town planning consultants. However, at the training, it was recommended to sensitise the implementing agencies as well, for an efficient end-to-end solution.

It was also suggested to translate this concept into the state policies, that can be adopted by the cities.

In the end, some of the consultants shared their ideas for incorporating river-thinking into the Master Plans they are preparing.



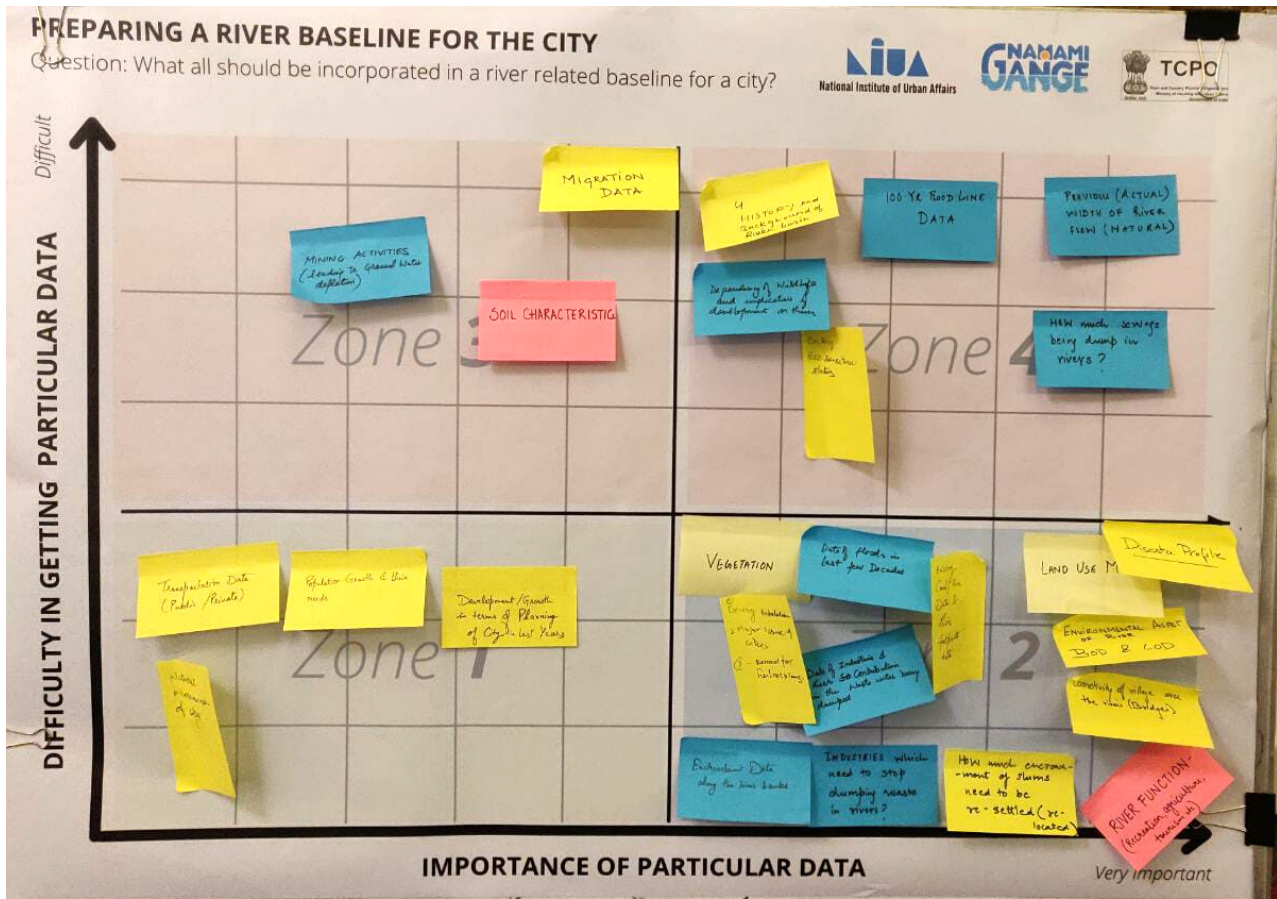
## SESSION EXERCISES

Throughout the workshop, the participants were engaged in multiple brainstorming exercises. These exercises were meant to engage participants, in the process of integrating river-thinking in the Master Plans of Uttarakhand.

The exercises brought out the data required for preparing a baseline for the Master Plan of a river city. Through these exercises, a list of permitted, regulated and prohibited activities in the floodplains was also generated. The exercises further helped in identifying the possible incentives, that can be adopted by the Master Plans for promoting river-sensitive behaviour. To the extent possible, all this was contextualised for the river cities in Uttarakhand.







# PARTICIPANTS LIST

Secretary, Urban Development Department, Govt. of Uttarakhand and the Chief Town Planner of the state were present themselves, to overlook the involvement of state officials.






The workshop was attended by a number of senior planning officials from the Urban Development Department and the Department of Town & Country Planning, Uttarakhand. Consultants involved with the preparation of new Master Plans for the cities in Uttarakhand, were also present. In addition, the workshop was joined by a couple of planning students and officials involved with the implementation of the plans.











**'Making River Sensitive Master Plans**  
18<sup>th</sup> November 2021, Thursday  
Time: 9:30- 17:00 hrs

**Registration Sheet**

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7	S.P. Tiwari	TCPD	A. Sr	11	
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# Strategic Guidelines for MAKING RIVER-SENSITIVE MASTER PLANS

Healthy rivers are an absolute necessity for productive and liveable cities. Cities need to plan their development activities with due consideration for the River, respecting the threshold of disturbance that it can handle naturally.

This will not only help in the long-term conservation and preservation of the River; it will also help leverage the economic, social, and environmental value of the River sustainably.

Unfortunately, the Master Plans of many river cities in India have not captured the river-specific considerations adequately.

The document elaborates on seven avenues within Master Plans that can address various river-related urban challenges.

Some of these are conventional instruments typically associated with Master Plans. In the context of river planning, these include land use assignment for the River and the river zone, development control regulations within the river zone, and norms & standards for activities conducted in the river zone.

Some avenues have a strategic focus, such as localising river-related directions stipulated in national policies; and developing sectoral strategies for specific aspects of river management like removing encroachments in the river zone in an empathetic manner.

Others are recommendations and directions for creating the grounds for big-ticket river-related projects like riverfronts, river tourism, and river navigation, among others.

Creating an  
Enabling Environment  
for River-Sensitive  
Planning



### **Creating a Master Plan Vision for the River**

Clarify the city's ambition in this regard by setting out a broad vision of how the city views its connection with the River within the plan period.



### **Developing the River Baseline**

Ascertain the 'status quo' of the condition of the River, its interaction with the city, and its contextual setting within the region.



**LOCALISING NATIONAL POLICIES AND INITIATIVES**

that have a bearing on river conservation, development and management

1

2

**TOWN-SPECIFIC SECTORAL STRATEGIES**

for issue-specific consideration of river management within the planning process




**LAND USE ASSIGNMENT**


for delineating the river zone, assigning land use & use zone categories, and prescribing permissible & non-permissible activities

3

4

**DEVELOPMENT CONTROL REGULATIONS**

for FAR, ground coverage and height restrictions in the river zone

**NORMS AND STANDARDS**

for prohibiting polluting and detrimental activities that have an impact on the river

5

6

**RECOMMENDATIONS AND DIRECTIONS**

for holistic action and interventions on river management




**SPECIAL PROJECTS**

for enhancing the citizen-river connect

7

# 7

## PLANNING INSTRUMENTS

for integrating river thinking into Master Plans

# RIVER CENTRIC URBAN PLANNING GUIDELINES

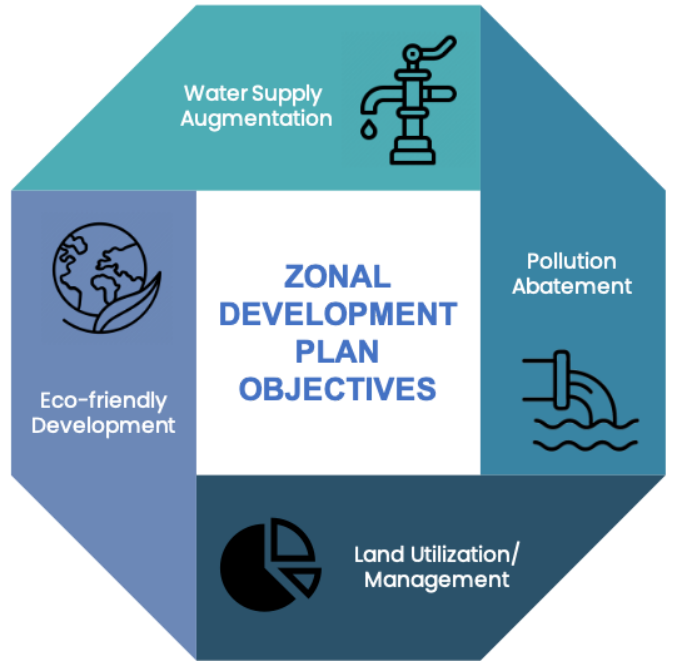
The purpose of this guidance document is to assist city stakeholders in taking action to conserve, preserve, and sustainably manage the river zone. The document reflects on the following aspects primarily.

- 01 Need for preparing river centric Master Plans and Urban River Management Plans
- 02 Need for a framework for river water conservation and development of river waterfront.
- 03 Devising development regulations /zoning for urban stretches adjoining a river.
- 04 Recommending suitable planning strategies for river water management and riverfront development.
- 05 Transforming riverfronts as multipurpose zones place where people can live, work and utilize it through improvements in public access and the addition of green spaces.

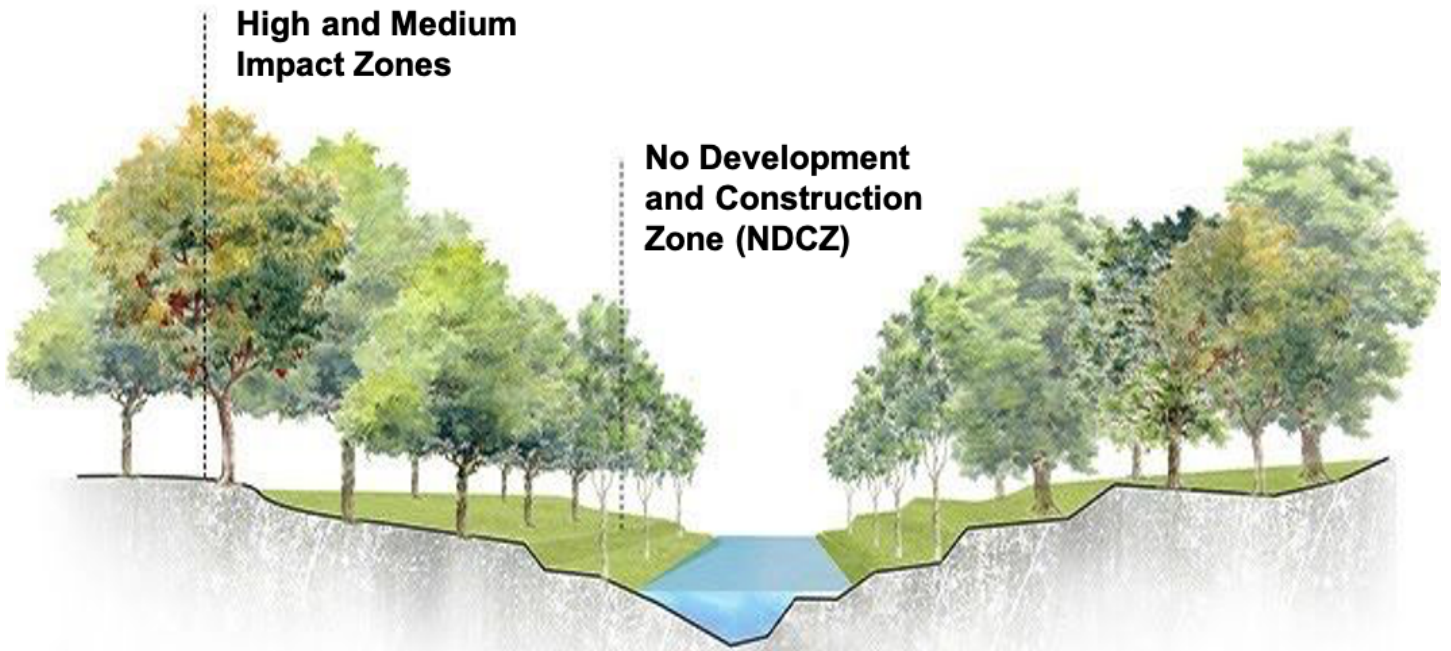


# RIVER ZONAL DEVELOPMENT PLAN

Zonal Development Plan for river flowing through the city may be prepared to address the following objectives:



# URBAN RIVER ZONING REGULATIONS



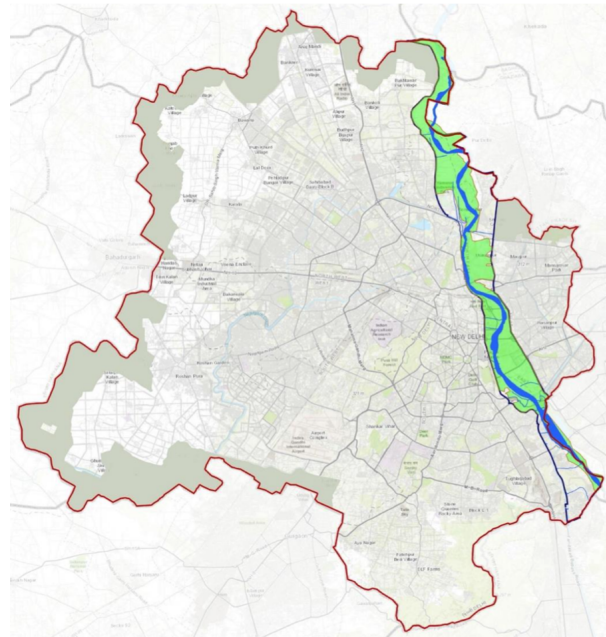
- The competent authority shall identify and designate suitable distance/s from the NDCZ on either bank keeping local topographical conditions in mind, to be called **high impact and medium impact zones**.
- In plains, this zone may range from 1 to 3 km from river zones.
- These areas may be taken up for urban with regulations on building height and ground coverage as per the local topographical requirements.

- The competent authority shall determine an **NDCZ** on either bank for each River
- It shall not be less than the "Active Flood Plain"
- Parks/Gardens, playgrounds, sports facilities, swimming pools, Open-air theatres, etc., may be permitted in this zone.

# DRAFT MASTER PLAN FOR DELHI (MPD) 2041

The Delhi Development Authority (DDA), in association with the National Institute of Urban Affairs (NIUA), is preparing the Master Plan for Delhi (MPD) 2041. The guidance documents mentioned in this report have been extensively adopted in the draft MPD-41.

Delhi has adopted a two-pronged approach to rejuvenate the River Yamuna and bring it back to the forefront. This includes specific strategies for management of the river zone as well as broader integrated water management strategies across the city.



## Strategies to prevent water pollution

- Strictly prohibit the discharge of untreated wastewater or industrial effluent into the Yamuna, water bodies, or drains. Augment treatment capacity, conformance to minimum discharge standards, and expanded coverage in unsewered areas.
- Direct the Delhi Jal Board to expedite Interceptor Sewer Project to capture 242 MGD of untreated effluent from 108 sub-drains before entering the Yamuna.
- Recognize that the city has very little control over the environmental flow in River Yamuna and directs the concerned authorities to take this matter up at an inter-state level.
- Strictly prohibit solid waste management facilities and landfills near the rivers and water bodies.

## Strategies to manage the Yamuna floodplain

- Delineation of the Yamuna floodplain based on 1 in 25-year flood. No permanent construction is allowed in this floodplain.
- Direct DDA to prepare a Comprehensive Yamuna Development Plan in consultation with other concerned agencies, to ensure sustainable development in the river zone.
- Assign a separate use zone category to the River and the floodplain.
- Earmark specific locations in the floodplains for socio-cultural and agriculture activities
- Encourage the use of eco-friendly materials for any temporary built structures.

### Strategies to prevent depleting green cover

- Mandate 300 m wide green buffer along the river edge, where ever feasible, with wild grass upto 25-30m from the river edge and tree cover beyond.
- Enhance and strengthen the green-blue network with natural drain green buffers, scrublands, existing buffers, floodplains, or vacant government land.
- Direct agencies to take up special greening projects such as biodiversity parks, amusement parks, children’s play areas, nurseries, etc.
- Mandate blue-green factor, computed by evaluating particular green and blue features provided in the site and building design, for all new projects and developments.

### Strategies to augment groundwater table

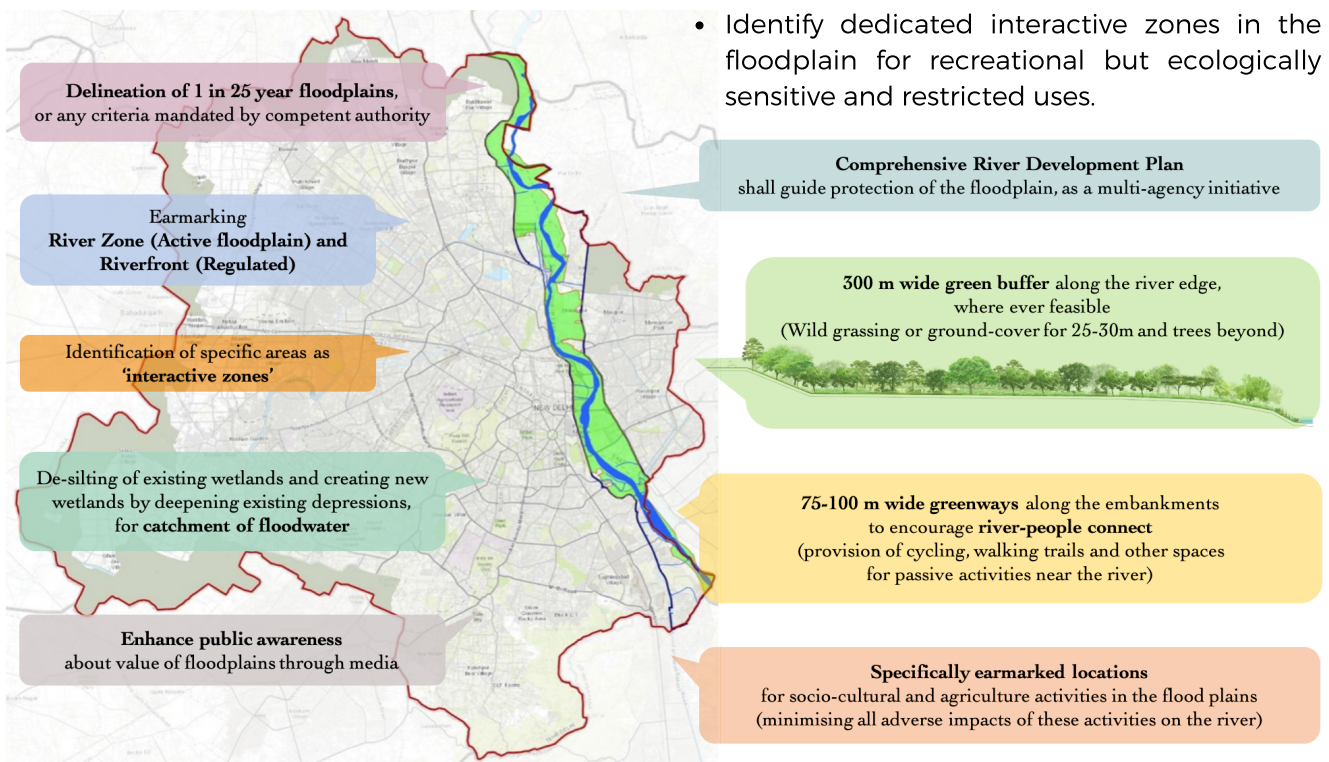
- Adopt WSUD elements such as bio-swales, vegetated filters, pervious stormwater drains, rain gardens, semi-permeable pavements, public parking areas, and public spaces as per ground conditions.
- Maximise stormwater retention through storage or indirectly through groundwater recharge.

### Strategies to protect degrading water bodies

- Take up all water bodies above 1 Ha for protection and preparation of database.
- Assign a separate use zone for water bodies and natural drains
- De-silt wetlands and create new wetlands by deepening existing depressions
- Large-scale use of treated wastewater for rejuvenation/ creating artificial water bodies.
- Direct the concerned agencies to establish a protocol for continuous monitoring of water quality in the lakes and water bodies.

### Strategies to improve Citizen River Connect

- Green mobility corridor comprising 75-100 m wide greenways along embankments, with walking/ cycling trails, and passive recreational spaces.
- Eco-friendly activities within the buffers of drains, such as open-air exhibitions, performances and arboretums, community gardens, boating, restaurants, heritage trails.
- Nudge civic behavior by creating awareness and aggressively branding the value of river ecosystems.
- Identify dedicated interactive zones in the floodplain for recreational but ecologically sensitive and restricted uses.



# CONTACT

For any further details, please feel free to get in touch with us.

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 National Institute of Urban Affairs (NIUA)

 National Institute of Urban Affairs

## National Mission for Clean Ganga (NMCG)

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