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**ERRATA** | ISSUE #60 | The name of the author of the article 'Showcasing Tangible and Intangible Heritage' [pages 57-59] was incorrectly published as Debashish Borah instead of **Debasish Borah**. The error is deeply regretted.

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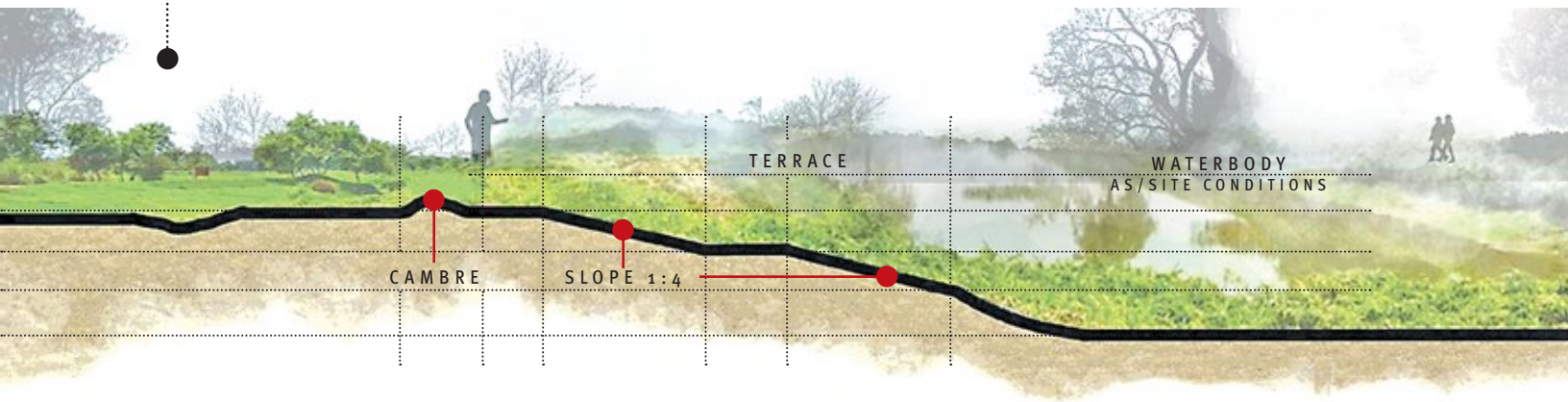
**WETLAND DEVELOPED IN  
ASITA ON THE WESTERN  
BANK OF RIVER YAMUNA**  
OLD RAILWAY BRIDGE  
TO ITO BARRAGE

**BELOW |  
SECTION OF THE WETLAND**  
*The edges of the wetland have been  
kept as natural and no civil work  
is involved in the development of  
wetlands in the River Yamuna's  
floodplains*

Landscape and Environment Planning Department  
Delhi Development Authority

# RESTORATION AND REJUVENATION OF RIVER YAMUNA FLOODPLAINS

| NEW DELHI



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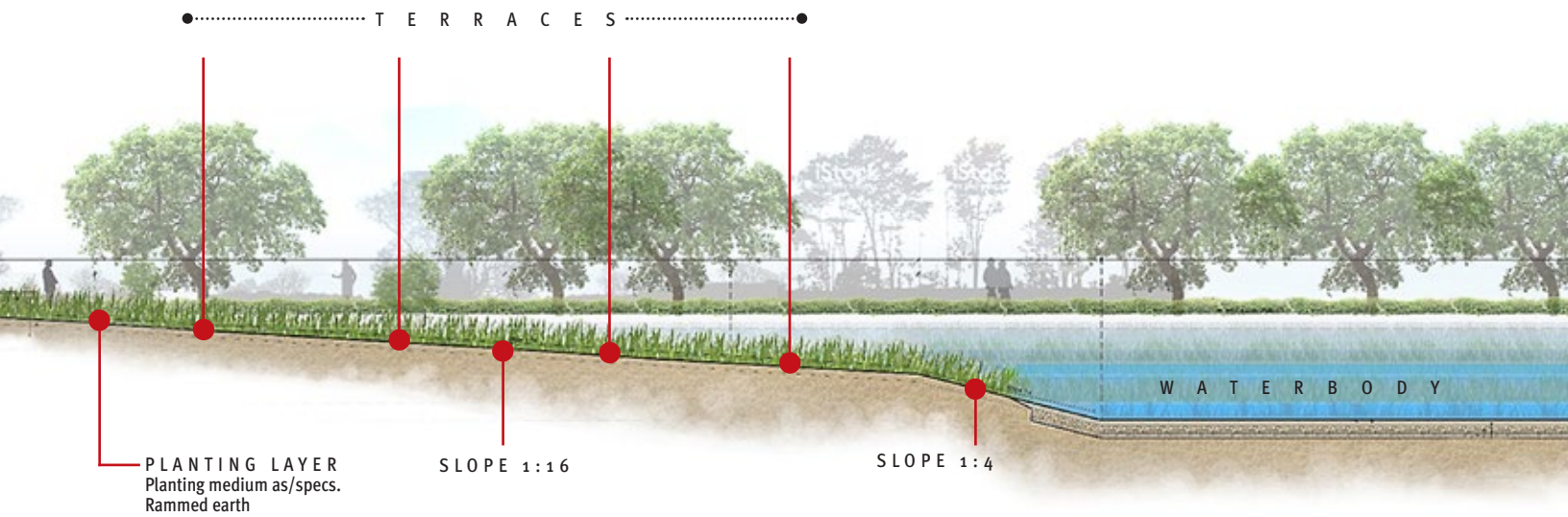
**Kriti Goel**  
Landscape Architect

River Yamuna has an extremely rich riparian ecosystem with vast floodplains on both its eastern and western banks with an extent of 200 metres to several kilometres. The river flows on the eastern edge of the city of Delhi, from the north to the south [covering approximately 52 kilometres] from Palla to Jaitpur.

It is notable that 70% contribution of the pollution is from the 22 kilometre urban stretch of Wazirabad to Okhla Barrage. During the annual flooding, water is released from Hathnikund Barrage [upstream of Wazirabad] in large quantities. It mixes with the water from the drains already flowing into the river forming sludge. The first 300 meters of the belt along the river in the floodplains is severely affected by the sludge deposits. Moreover, numerous barrages, bridges and other infrastructure projects have dissected it, disturbing the natural flow and hydrology of its floodplains. These interventions have led to the narrowing of the river channel and also depleting the wetlands drastically, the prime reason for flooding during the monsoons.

As per the directions of National Green Tribunal NGT for the restoration and rejuvenation of the floodplains of the river, Delhi Development Authority has prepared an Action Plan.





**WETLAND PROPOSED ON  
THE WESTERN BANK OF  
RIVER YAMUNA  
BARAPULLAH  
TO DND FLYWAY**

**ABOVE |  
SECTION OF THE WETLAND**

*The design of the wetland is such that approximately 1-1.3 metres of water always remains in the wetland during the dry season after the annual evaporative losses, the area not under water [terraces] can be utilized at this time as a public space. During monsoons the water level raises to fill the entire wetland.*

In 2015, a Comprehensive Plan for Zone 'O' was prepared, identifying and mapping potential areas for wetlands, biodiversity parks and greenways for the public at large. Varying sub-surface conditions led to an extensive study of the ground conditions. Soil and water sampling tests were conducted at various segments along the stretch. Efforts are now being made to revive the existing wetlands along with creating new ones as per site conditions. The main objectives are to increase the storm water run-off catchment area of the floodplains, so as to prevent floods and encourage flora and fauna by interspersing them with riparian forests and grasslands. The regulatory recommendations by experts have formed the basis of the planning for the restoration and rejuvenation of these fragile areas. It includes a 300 m wide green buffer area along the river with its edge planted with riparian species. A belt of 100-150 meters along the peripheral roads is proposed to be developed as greenways [a continuous trail of natural pathways and cycle tracks along with provision of spaces for passive activities] dotted with various public amenities.



**WETLAND DEVELOPED  
NEAR BARAPULLAH ON  
THE WESTERN BANK  
BARAPULLAH DRAIN  
TO DND FLYWAY**

THIS PAGE [FIRST ROW]  
*Waterbody works in progress*



**WETLAND DEVELOPED  
IN ASITA  
OLD RAILWAY BRIDGE  
TO ITO BARRAGE**

THIS PAGE [MIDDLE ROW]  
*Overall view of Asita East and  
its waterbody*  
FACING PAGE [BELOW] &  
THIS PAGE [THIRD ROW]  
*Site photographed before 2017,  
Pre-monsoon in 2018 and  
During monsoon season in 2019*







Other measures include the restoration and deepening of the existing low lying areas as natural wetlands. The authority has developed a large capacity [44,663 cubic meters] of such wetlands between Old Railway Bridge and ITO Barrage. Rows of dense riparian grasses have been planted on the edges of the wetlands that have been segmented into terraces. The area of each of these has been calculated as per the monthly average evaporative losses. Designed to carry the maximum peak flow during the monsoons, their depth allows them to retain a fair amount of water even in the dry season. It is envisioned that, along with being significant ecological zones, these areas will also be used as public spaces by the city population in the coming years.

THIS PAGE |

**OTHER WETLAND DEVELOPED IN ASITA ON THE WESTERN BANK OF RIVER YAMUNA**

OLD RAILWAY BRIDGE  
TO ITO BARRAGE

TOP ROW | View of the wetland: Before and Pre-monsoon photographs

MIDDLE & BOTTOM ROWS | Development and landscaping works: Before and After





THIS PAGE | **PLANTATION**

Riparian vegetation used along the Western banks of River Yamuna

## LIST OF TREES AND GRASSES PLANTED IN ASITA [WESTERN BANK] OLD RAILWAY BRIDGE TO ITO BARRAGE

### TREES

*Acacia catechu* [Khair]  
*Acacia nilotica* [Babul]  
*Butea monosperma* [Flame of Forest]  
*Cassia fistula* [Amaltas]  
*Dalbergia sissoo* [Shisham]  
*Ficus infectoria* [White Fig]  
*Ficus religiosa* [Peepal]  
*Madhuca indica* [Mahua]  
*Mallotus philippensis* [Kamla]  
*Manilkara hexandra* [Khirni]  
*Lagerstroemia thorelli* [Crape Myrtle]  
*Mitrangyna parvifolia* [Kadam]  
*Salix babylonica* [Weeping Willow]

*Syzygium cumini* [Jamun]  
*Syzygium heyneanum* [Kath Jamun]  
*Terminalia arjuna* [Arjuna]  
*Terminalia bellerica* [Baheda]

### GRASSES

*Cyperus scariosus* [Umbrella Grass]  
*Cynodon dactylon* [Doob]  
*Pennisetum setaceum* [Green Pennisetum]  
*Pennisetum ruppelii* [Red Pennisetum]  
*Vetiveria zizanioides* [Vetiver Grass]  
*Grewia* [Serulate Leaf]  
*Eragrostis* [Birdwood Grass]

*Ardisia* [Shoebuttan Ardisia]  
*Cenchrus setigerus* [Buffel Grass]  
*Typha angustifolia* [Indian Reed Mace]  
Sedges [Buttonhead Pipewort]  
*Phragmites karka* [Tall Reed]  
*Saccharum spontaneum* [Kans Grass]  
*Cenchrus ciliaris* [Dhaman Grass]  
*Cymbopogon flexuosus* [Lemon Grass]



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