



Restoring the Blue Veins of Ghaziabad

*Reviving Waterbodies and Managing
Wastewater under AMRUT 2.0*

Vikramaditya Singh Malik, IAS
Municipal Commissioner, Ghaziabad

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Perspective**



Context – The Urban Water Crisis



- Ghaziabad, like many Indian cities, has witnessed:
 - Disappearing lakes and ponds due to urban sprawl
 - Over-extraction of ground water resources
 - Encroachment, dumping of waste, and unchecked construction
 - Recurring urban floods, waterlogging, and ecological degradation
 - Urban waterbodies once served as natural drainage, recharge zones, and cultural landmarks
- Their loss is not just environmental, but also social and economic





Vision under AMRUT 2.0



Atal Mission for Rejuvenation and Urban Transformation (AMRUT) 2.0



Objective: To make cities "water secure" by improving wastewater management and reviving waterbodies



Ghaziabad Nagar Nigam adopted a multi-pronged strategy

- Lakes and ponds Rejuvenation
- Wastewater Recycling for Industrial Reuse
- Secondary treatment wastewater Reuse for Irrigation and Construction purposes
- Nature based Solutions (NbS) [Bioremediation & Phyto-remediation] for river and drains cleaning
- Communities involvement and Awareness Campaigns

Wastewater Industrial Reuse

Ponds Rejuvenation

Nature based Solutions (Nbs)

Waste dump-yard to Urban Forest

Hindon river cleaning to enhance source sustainability

STP water reuse for Irrigation, Construction

Hindon river cleaning to enhance source sustainability

Sectoral Experts and Community Engagement

Section 1

TSTP – Municipal Bond Project





Tertiary Sewerage Treatment Plant (TSTP): At a Glance

Overview

The STP located in Indirapuram is a part of a project worth ₹319.4 crore, designed to supply purified water to the Sahibabad Industrial Area.

Key Aspects

Ghaziabad Nagar Nigam (GNN) has achieved a pioneering milestone by issuing India's first Green Municipal Bond, marking a significant innovation in the country's financial landscape

The project focuses on advanced Membrane Filtration Technologies like microfiltration, ultrafiltration, nanofiltration, and reverse osmosis for high-quality water treatment

Tertiary Sewerage Treatment Plant:
Public-private Hybrid Annuity Model (HAM) project with almost equal contribution by GNN (through municipal bonds) & balance through private concessionaire.

GNN has initiated the project in line with **AMRUT 2.0 guidelines**, which promotes the use of recycled water

The **Tertiary Sewage Treatment Plant (TSTP)** with a 68 km pipeline delivers 40 MLD of treated water to ~1,400 Ghaziabad industrial units.

Ghaziabad Municipal Corporation raised **₹150 crores** through Green Bond issuance for funding.

GNN contracted with **1400+ firms**, including **Tata and BEL**, to currently supply **11.1 MLD** of tertiary treated water.

- Groundwater overuse by Industries
- Decreased water table levels.
- Environmental issue from unsustainable water practices.



Awarded “Best Municipal Treated Water Reuse” (Water Digest 2024–25)

Awarded “Water Reuse Project of the Year” (Global Water Awards 2025)

29.58 Cr

Total Operation and Maintenance cost for the 1st year

626.36 Cr

Total Operation and Maintenance cost for 15 years (considering 5% annual escalation)

468.47 Cr

Net return at the end of 15 years

11.13%

Net Internal Rate of Return



Advanced Tertiary Treatment for Sustainable Sewage Management

Ghaziabad Nagar Nigam issued **India's first certified Green Municipal Bond**.

The project focuses on advanced **Membrane Filtration Technologies** microfiltration, ultrafiltration, and reverse osmosis for high-treatment.

Ghaziabad Municipal Corporation raised **₹150 crores** through Green Bond issuance for funding.

The **Tertiary Sewage Treatment Plant (TSTP)** with a **68 km** pipeline delivers **40 MLD** of treated water to **1,400 Ghaziabad** industrial units.

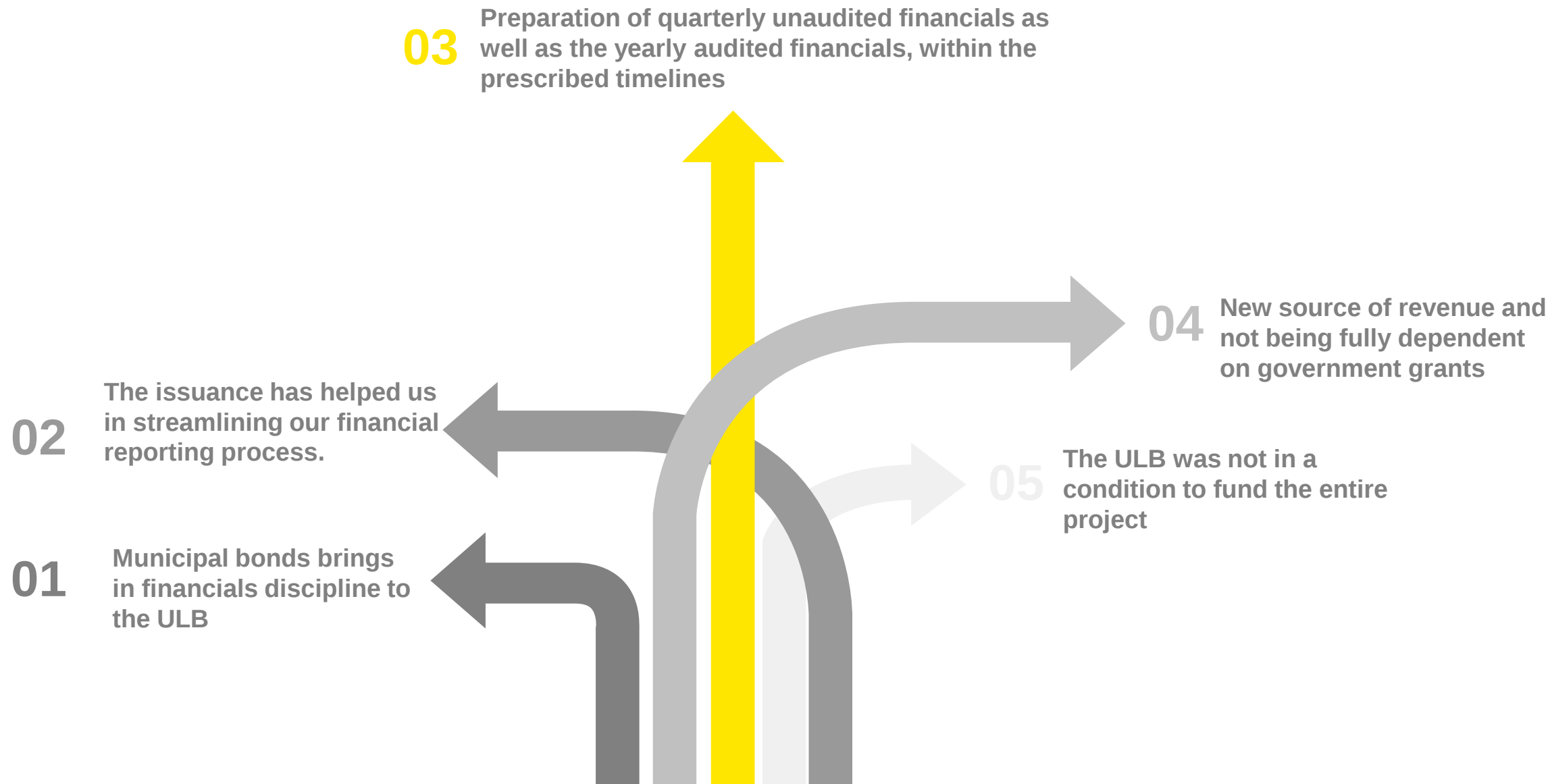
Tertiary Sewerage Treatment Plant: Public-private Hybrid Annuity Model (HAM) project with **40% municipal funding** and **60% bank financing**.

GNN contracted with **1400+ firms**, including **Tata and BEL**, to supply **11.1 MLD** of tertiary treated water.

Reduction in Carbon footprint & Enhanced Ground water Recharge



For Establishment of TSTP, GNN has issued Municipal bonds.





Financials Involved



150 Cr

319.14 Cr Project cost. Ghaziabad Nagar Nigam successfully raised Rs 150 Cr
The issue had a Base Size of 100 Cr with Green Shoe Option of 50 Cr.

8.10%

The coupon rate is 8.10% which can be termed as a highly competitive rate in the history of Municipal Bonds in India. This is payable every 6 months

40x

The issue was over-subscribed by more than four times with 40 bids totalling to Rs 401 Cr on BSE's EBP platform.

19.50 Cr

GoI has incentivized us by contributing Rs. 19.50 Cr as grant for issuance of bonds worth Rs. 150 Crore. GoUP has also incentivized the issue giving IDF backing



Financials Involved



1.5 Cr

Property Tax and State Finance Commission Grants have been escrowed and approx. Rs. 1.2 Crore and Rs. 1.5 Crore are kept aside every month from these Collections and transferred to the Trustee monitored Interest Payment Account and Sinking Fund Account every month, for ensuring timely buildup of funds for payments on due dates

7

installments

Principle will be paid in 7 equal annual instalments starting from the end of the 4th year i.e. from 6th April 2025

Metered
Connection

Revenue Model - Sale of Treated Water to the Industries through metered connection and revenue sharing in the ratio of the investment made by the partners

PPP - HAM

Public-Private Partnership (PPP)-Hybrid Annuity Model (HAM) to set up a Tertiary Treatment plant for Ghaziabad Nagar Nigam



Financials Involved

29.58 Cr

Total Operation and
Maintenance cost for
the 1st year

626.36 Cr

Total Operation and
Maintenance cost for
15 years (considering
5% annual
escalation)

45.9

Per KL on
commissioning
(first year)

680 Cr

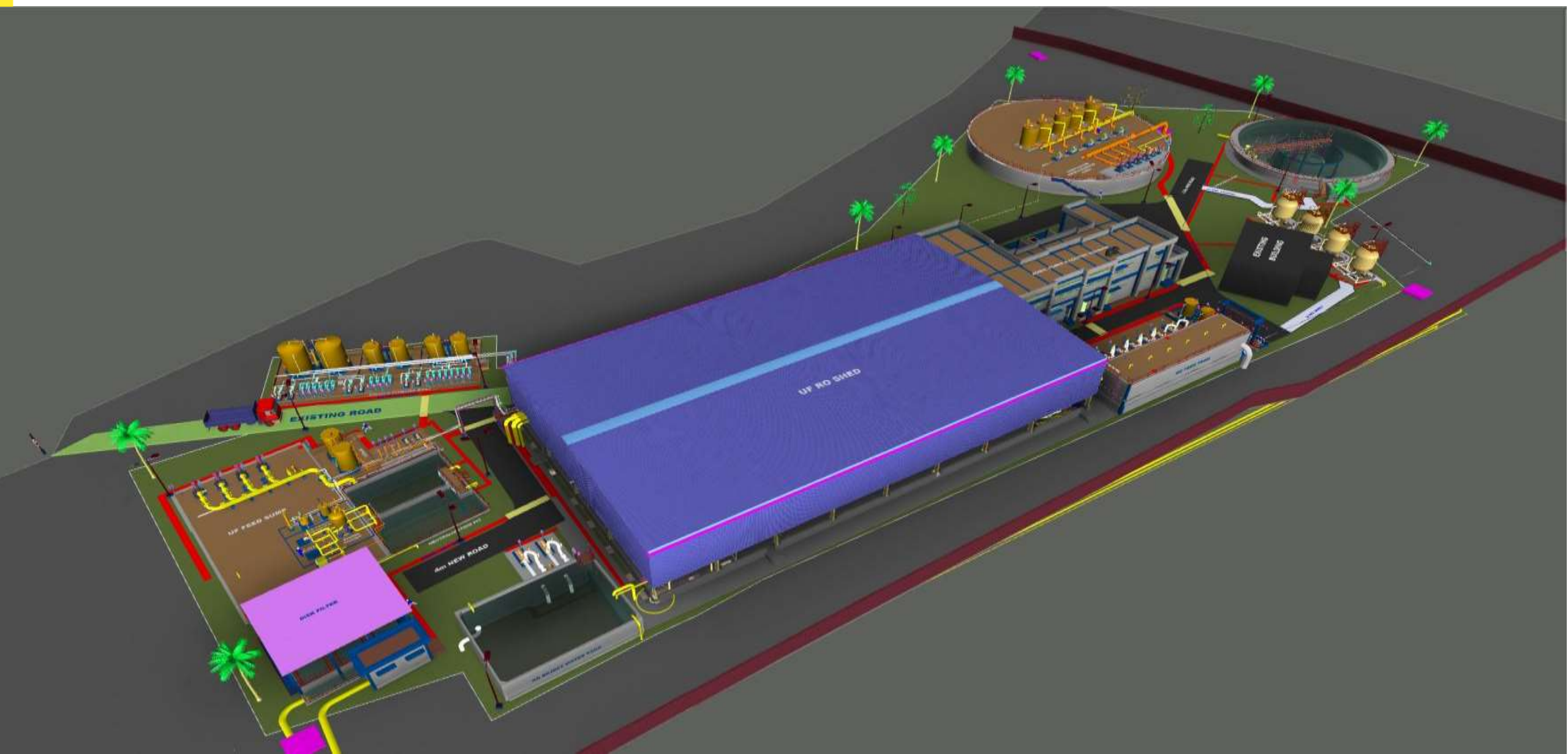
Net return at the
end of 15 years
(considering 5%
annual escalation)

11.13%

Net Internal Rate
of Return



3D visual of the TSTP



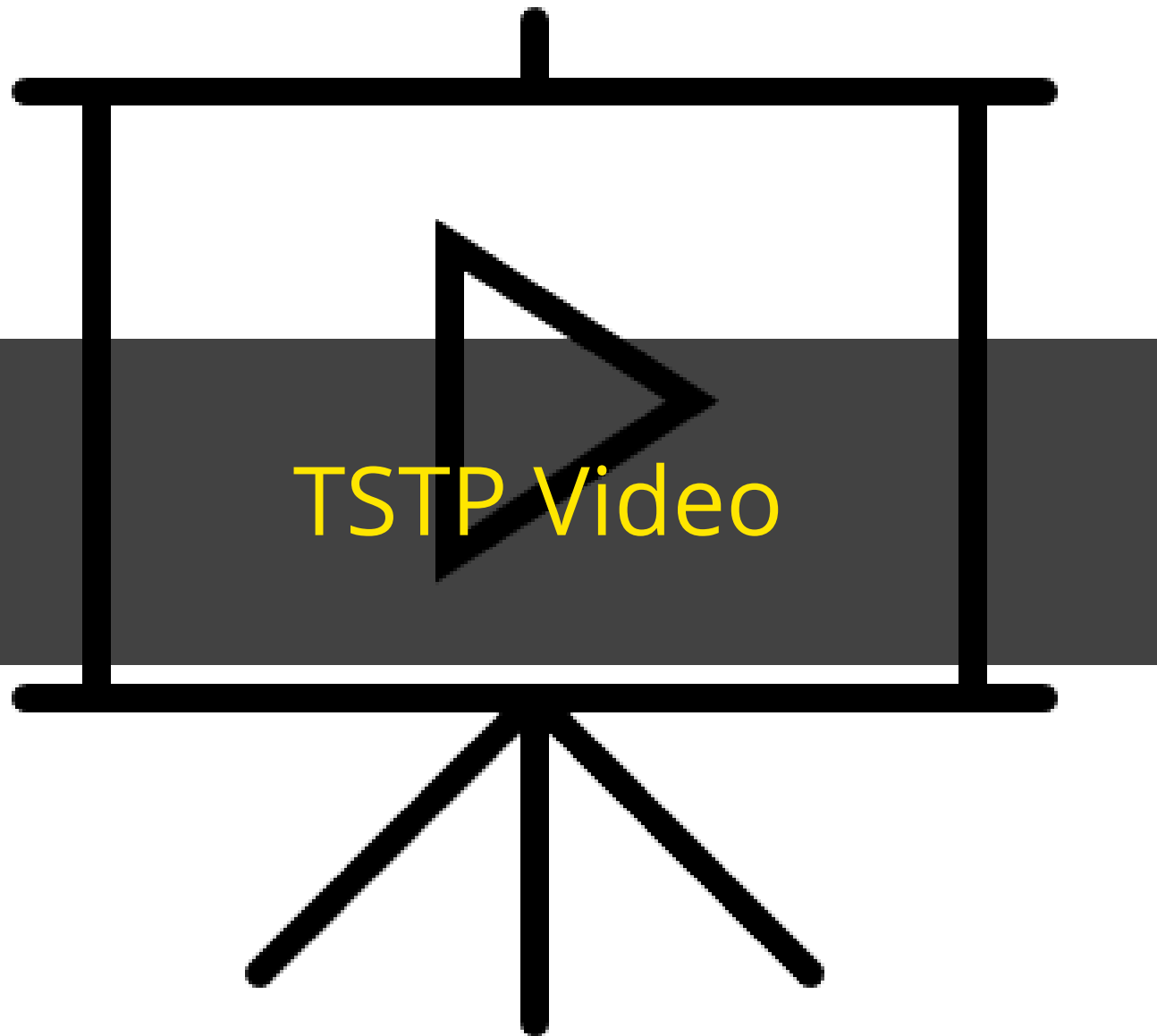
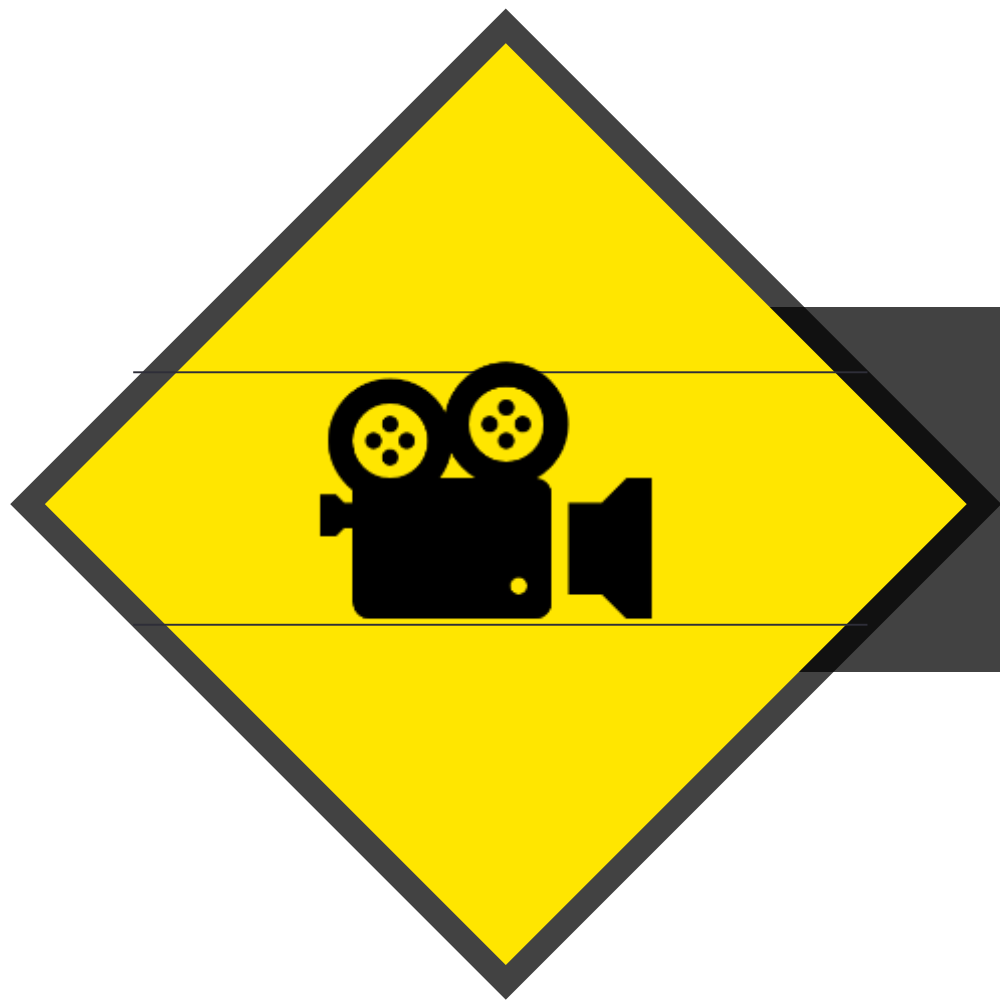
TSTP - Gallery





TSTP Gallery





TSTP Video



Section 2

Source Sustainability &
Access to Portable Water





Water Supply Arrangements : At a Glance



क्र० सं०	विवरण	मात्रा
1	नगर क्षेत्र में पेयजल कवरेज	75%
2	नगर की कुल जनसंख्या(वर्ष 2011 के अनुसार)	16,48,643
3	वर्तमान अनुमानित जनसंख्या	25,00,000
4	नगर क्षेत्र में पेयजल संयोजनों की संख्या	346460
5	वर्तमान में पेयजल की माँग (2025)	375 एम०एल०डी०
6	कुल जल का उत्पादन	332 एम०एल०डी० (100+232एम०एल०डी०)
7	एन०आर०डब्लू०	35%
8	प्रति व्यक्तित जल उपलब्धता	132 एल०पी०सी०डी०
9	वर्तमान में आपूर्ति किये जा रहे जल की मात्रा	332 एम०एल०डी०
10	वर्तमान में पेयजल की कमी (2025)	43.30 एम०एल०डी०
11	पेयजल पाईप लाईन की लम्बाई।	2612 किलोमीटर
12	कुल क्रियाशील ओवर टैंड टैंको की संख्या एवं क्षमता	51 नग
13	जेड०पी०एस० / भूमिगत जलापयों की संख्या	29 नग
14	कुल डीपवैल नलकूपों की संख्या	324
15	कुल मिनी नलकूपों की संख्या	1050
16	कुल टैन्ड पम्पों की संख्या	6982
17	पेयजल की आकस्मिक व्यवस्था हेतु टैक्टर, टैंकरो की संख्या	वाटर टैंकर 86, टैक्टर 14



Pond Restoration & Rejuvenation



1

Pond at Morta, Ghaziabad

Funding Source: Amrut 2.0

Tentative Capacity: 47,000 Liters

2

Pond at Nayphal, Ghaziabad

Funding Source: Amrut 2.0

Tentative Capacity: 58,000 Liters

3

Pond at Sadarpur, Ghaziabad

Funding Source: Amrut 2.0

Tentative Capacity: 1,20,000 Liters

4

Sadarpur Pond by Welfare Society

Funding Source: CSR

Tentative Capacity: 40,40,000 Liters

8 Ponds
Rejuvenated

Capacity ~
94,15,000 L

Amrut 2.0 &
CSR Funding

Increased Capacity
under Amrut 2.0

~
52,000 Litres

5

Kanjipura Pond at Ghaziabad

Funding Source: CSR

Tentative Capacity: 15,00,000 Liters

6

Duhai Pond near Railway line, Ghaziabad

Funding Source: CSR

Tentative Capacity: 10,90,000 Liters

7

Duhai Pond (Industrial Area), Ghaziabad

Funding Source: CSR

Tentative Capacity: 21,00,000 Liters

8

Avantika Pond at Ghaziabad

Funding Source: CSR

Tentative Capacity: 4,60,000 Liters



Gallery – Pond Rejuvenation

Before



After



Before



After



Before



After





Rainwater Harvesting Structures under Jan Sanchay Jan Bhagidari 1.0



Approximately 11,000 RWH structures have been completed by Nagar Nigam Ghaziabad as on date



Aquifer Recharge through Rainwater Harvesting Structures



- Rainwater Harvesting Systems installed in Community Parks & Public Buildings
- Ongoing integration with stormwater drains to divert clean runoff into recharge pits.
- Helps replenish Ground water levels & reduce Urban Flooding.
- Enhances soil moisture for Green spaces & Urban farming
- Complements City's circular water Economy
- Resident Welfare Associations engaged to maintain RWH systems
- Awareness Campaigns conducted in Schools, parks & societies.





Gallery: Rainwater Harvesting Structures





Hindon River cleaning through Bio-Remediation & Phyto Remediation Process



- **Phyto-remediation:** Use of specific plant species to absorb and break down pollutants
- **Bio-remediation:** Deployment of microbial solutions to degrade organic contaminants
- **Oxidation systems and nano-silica treatments** to enhance purification efficiency
- Significant improvements have been observed in water quality parameters such as **BOD (Biochemical Oxygen Demand)** and **COD (Chemical Oxygen Demand)** in influent samples.

- **Targeted Locations:**
City Forest, Karhera, Nandgram, Hindon Vihar, Arthla, Kaila Bhatta, Pratap Vihar, Rahul Vihar, Dasna





Drain Cleaning by Bio-Remediation & Phyto Remediation Process



प्रताप विहार जल प्रणाली

GPS Location of Point 3- 28.64677, 77.40756



इंदिरापुरम जल प्रणाली

GPS Location of Point 1- 28.65205, 77.37717



करहेड़ा जल प्रणाली

GPS Location of Point 2- 28.68358, 77.38917



डासना जल प्रणाली

GPS Location of Point 1- 28.62311, 77.43804



राहुल विहार जल प्रणाली

GPS Location of Point 1- 28.63729, 77.40026



सिटी फारेस्ट जल प्रणाली

GPS Location of Point 1- 28.70289, 77.41261





Hindon River Drain Cleaning : Proposed Works



- ▶ A proposal has been prepared for the cleaning of Hindon river flowing in the area under Ghaziabad Municipal Corporation limits by removing weeds and floating material and aquatic vegetation etc. through De-Weeder. The said work will be started after the rainy season.





Hindon River Drain Cleaning : Proposed Works



- ▶ A target has been set to clean all untapped drains within Ghaziabad Municipal Corporation limits through organic method by adding organic enzymes through In Situ method. Necessary action has been taken for this and EOI (Expression of Interest) is also being issued. After selection of a qualified working agency as per rules, the work will be done on priority basis.





Hindon River Drain Cleaning : Proposed Works

- ▶ For the natural treatment of all untapped drains within Ghaziabad Municipal Corporation limits, contact has been established with the consultancy firm of Shri Indra Kumar Jha, IIT Mumbai. In this regard, Shri Indra Kumar Jha along with his team has inspected the drains and shall prepare an action plan for cleaning the drains naturally etc. and further action will be taken.
- ▶ Out of 09 untaped drains under Ghaziabad Municipal Corporation limits, a proposal for taping 07 drains namely Nandgram, Hindon Vihar, Pratap Vihar, Rahul Vihar, Kaila Bhatta, City Forest and Dasna drains through IND technique under Amrit Yojana was prepared for Rs 42,245.37 lakh and sent to the Government for approval. Presently, after partial amendment in the said work by Uttar Pradesh Jal Nigam, a new proposal is being prepared and sent under Namami Gange Yojana.





Gallery – Water Quality Testing by women SHGs

Women SHGs engaged for Water Quality Testing at Household level



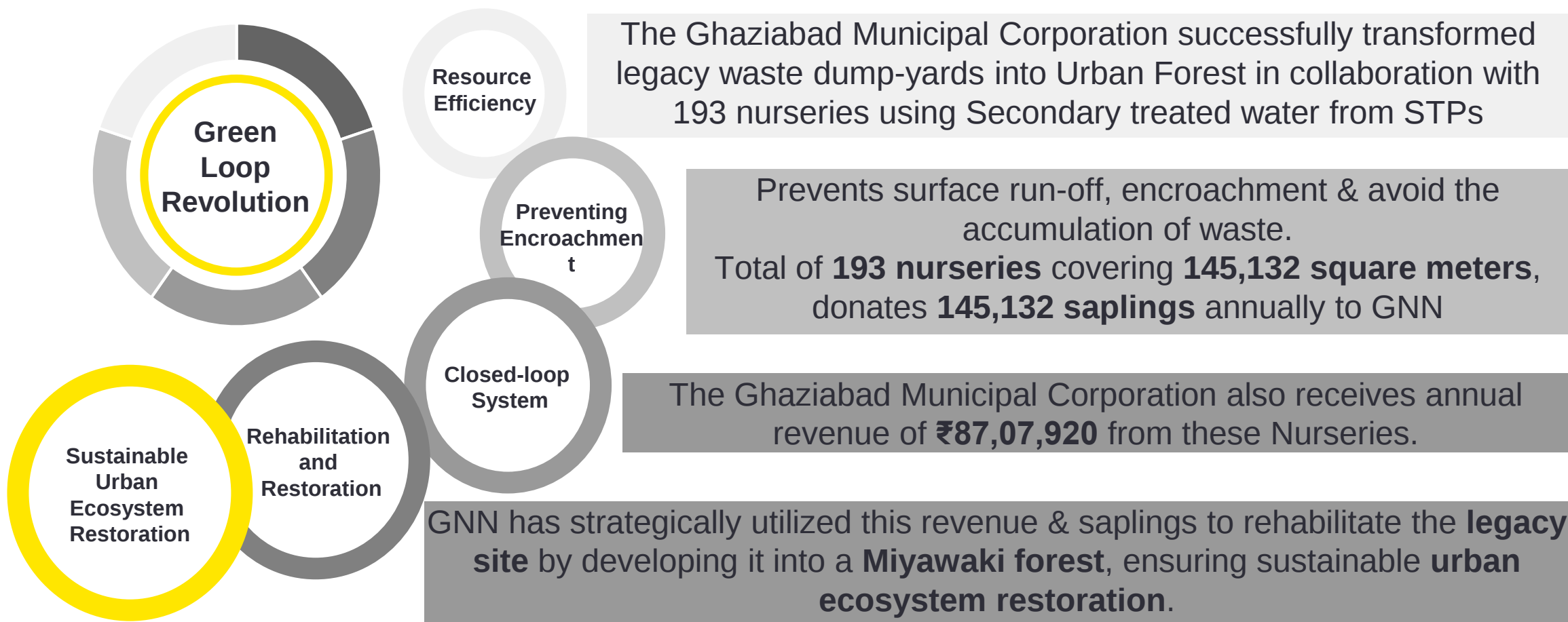
Section 3

Miyawaki Initiative: Urban
Dump yard to Urban
Forest





Miyawaki Urban Forest: Green Initiative by GNN



Successful Miyawaki plantation of **3,83,461 trees** was done by freeing **208643.53 square meters** of land from encroachment at **17 places** in Indirapuram & Vijay Nagar.



Urban Forest: Green Initiative by GNN



Section 4

Community Engagement





Gallery - Community Engagement Initiatives

Water conservation Program & Tree Plantation Drive





Gallery - Community Engagement Initiatives

Awareness Workshops at Schools & Societies





Gallery - Community Engagement Initiatives

IEC Activities in GNN Municipal Area



Section 5

GNN: Future Perspective





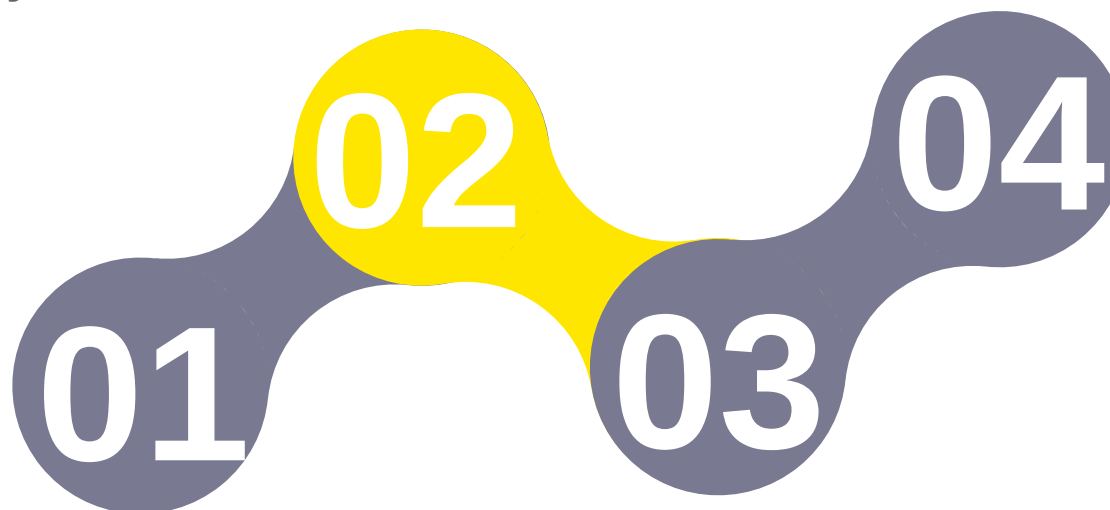
Ghaziabad Nagar Nigam: Future Perspective



Make Ghaziabad a
Water Secure City



Ensure 24 X 7 Water Supply



Ensure Functional
Household Connections
to all households



Automation of water supply
systems & Use of data backed
planning & decision making

The objectives outlined will be accomplished through a **circular economy approach** to water, which includes **conserving water sources, revitalizing water bodies and wells, recycling and reusing treated wastewater**, and **harvesting rainwater**, all while **engaging the broader community**.



Water & Wastewater: Vision 2047



Vision Statement: To achieve 100% sustainable, equitable, and climate-resilient water access for all citizens of Ghaziabad by 2047.

Key Goals by 2047:



Sustainable Water Supply

- 60% Shift from Groundwater to Surface water
- 100% RWH coverage in public & private buildings
- Rejuvenation of all natural ponds and lakes



Smart Infrastructure

- Smart water metering & leak detection systems
- 100% non-revenue water (NRW) reduction by 2047
- Expanded wastewater recycling for industrial use



Environmental Resilience

- Climate-proof water systems (flood/drought-ready)
- Revitalization of Hindon River
- 80% shift towards Waste to Wealth

“Every Pond Reclaimed is a Flood Prevented.”
Let's not lose another river, another lake.

Ghaziabad Nagar Nigam is committed to
bringing its blue heritage back.



गाजियाबाद



Thank You