

**An urban river
on a gasping state:**
*Dilemma on priority of science,
conscience and policy*

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SKYLINE OF KOLKATA METROPOLIS



KOLKATA: THE METROPOLIS

'Adi Ganga': THE URBAN RIVER

- Human settlements next to rivers are the most favoured sites of habitation.
 - **KOLKATA** selected to settle on the eastern bank of Hughli River – &
- **'ADI GANGA'**, a branched out tributary from Hughli River, a tidal river, favoured to flow across the southern part of Kolkata.

Kolkata 1690

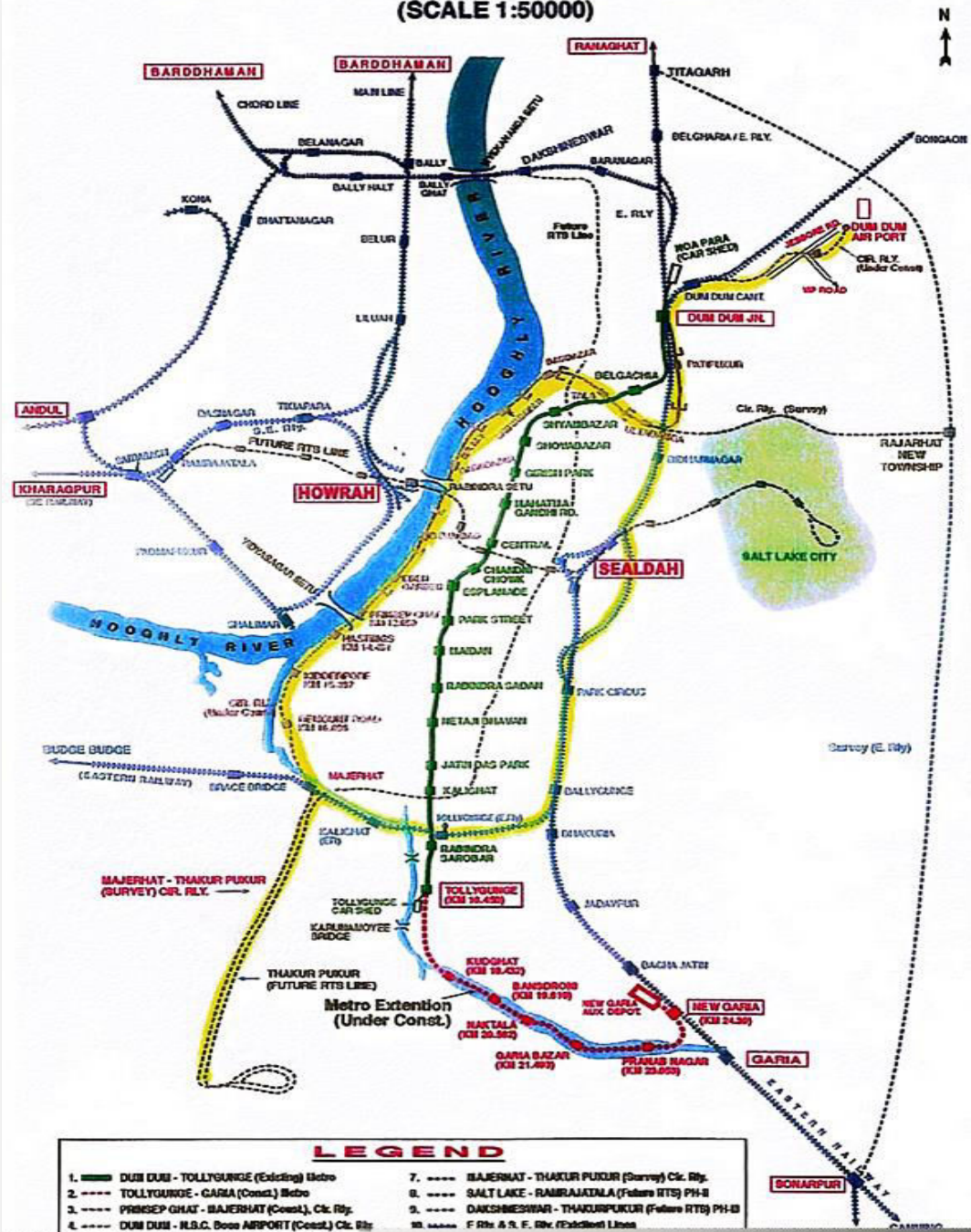


Kolkata – View from River Hughli



Present Transport Network System of KOLKATA

RAILWAY NETWORK IN AND AROUND KOLKATA (SCALE 1:50000)



ADI GANGA:

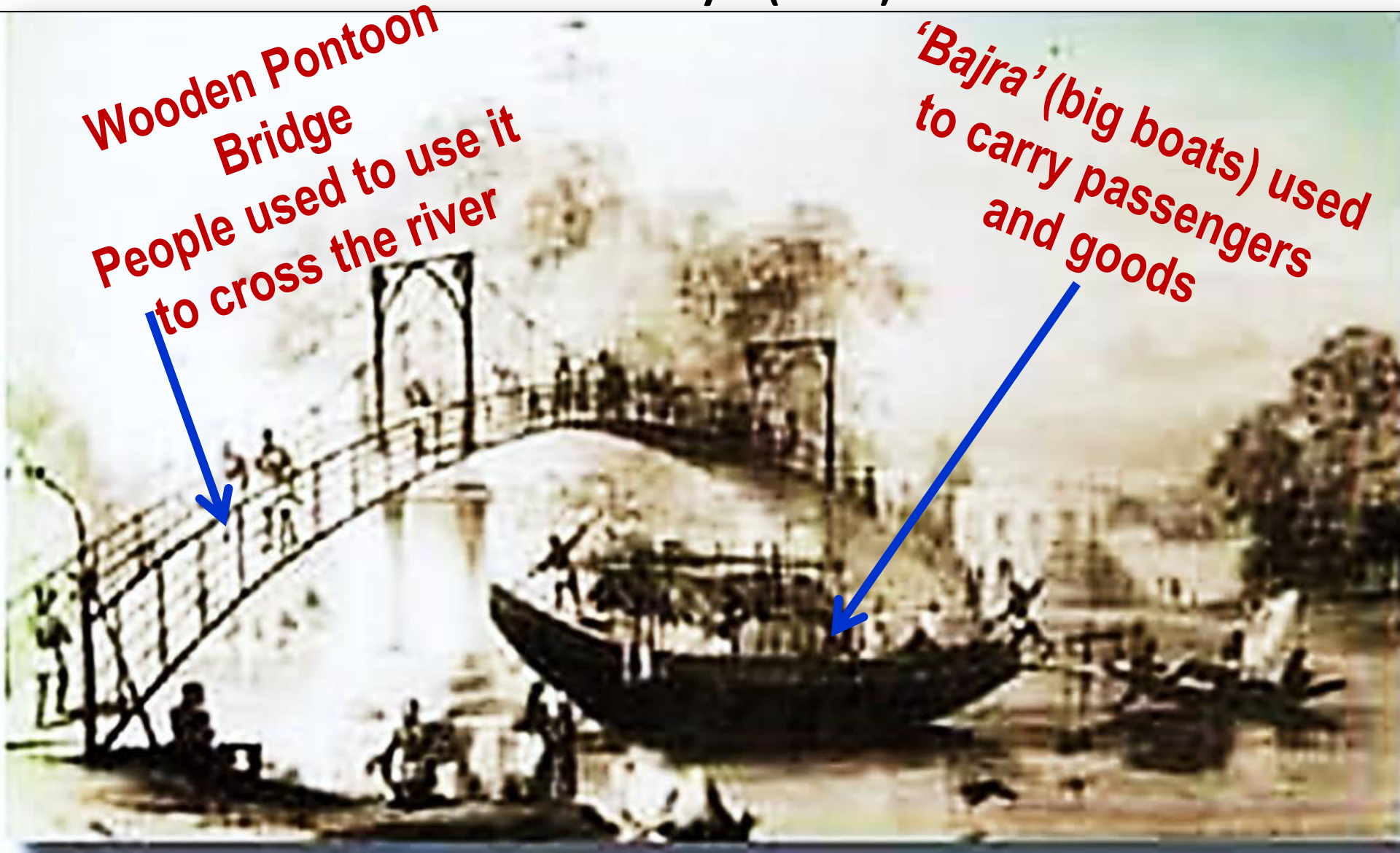
The Physical Environment &
Human Activities on it:

PAST

&

PRESENT

'Adi Ganga' once upon a time..... (British period)
an artist's impression
Charles Doyle (artist)

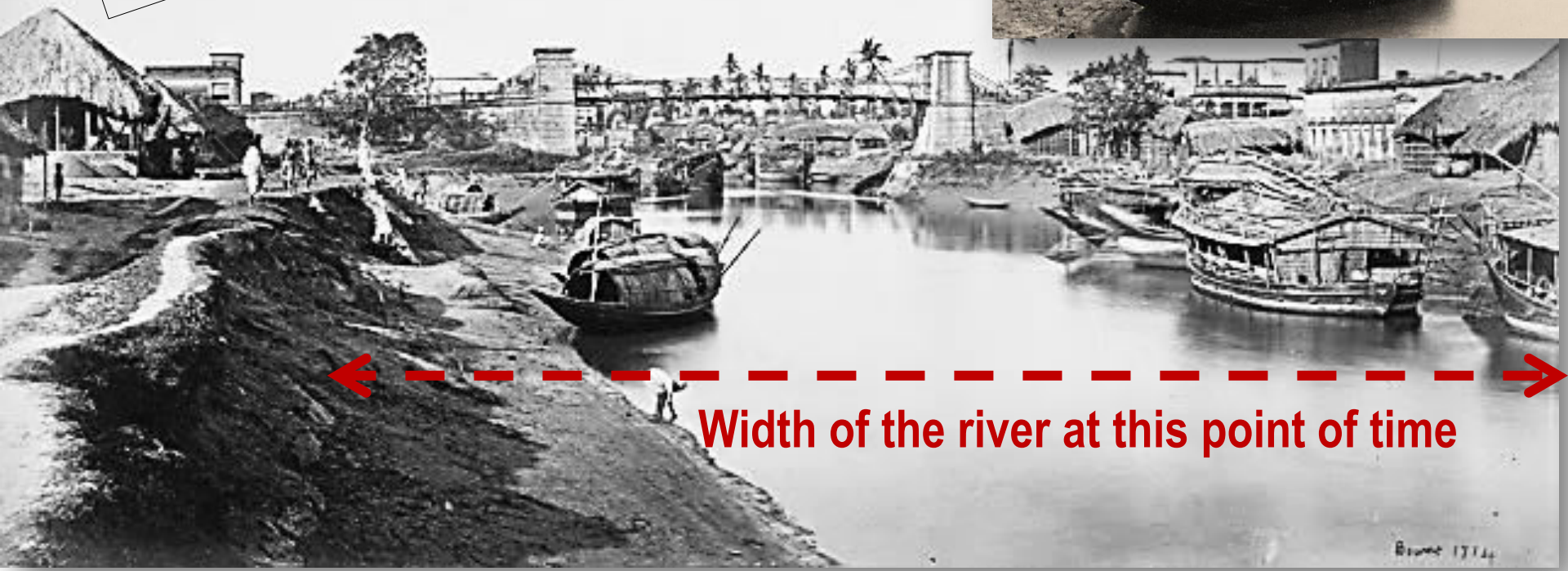


**Wooden Pontoon
Bridge**
**People used to use it
to cross the river**

**'Bajra' (big boats) used
to carry passengers
and goods**

'Adi Ganga' - The heritage river at Kalighat - 1860

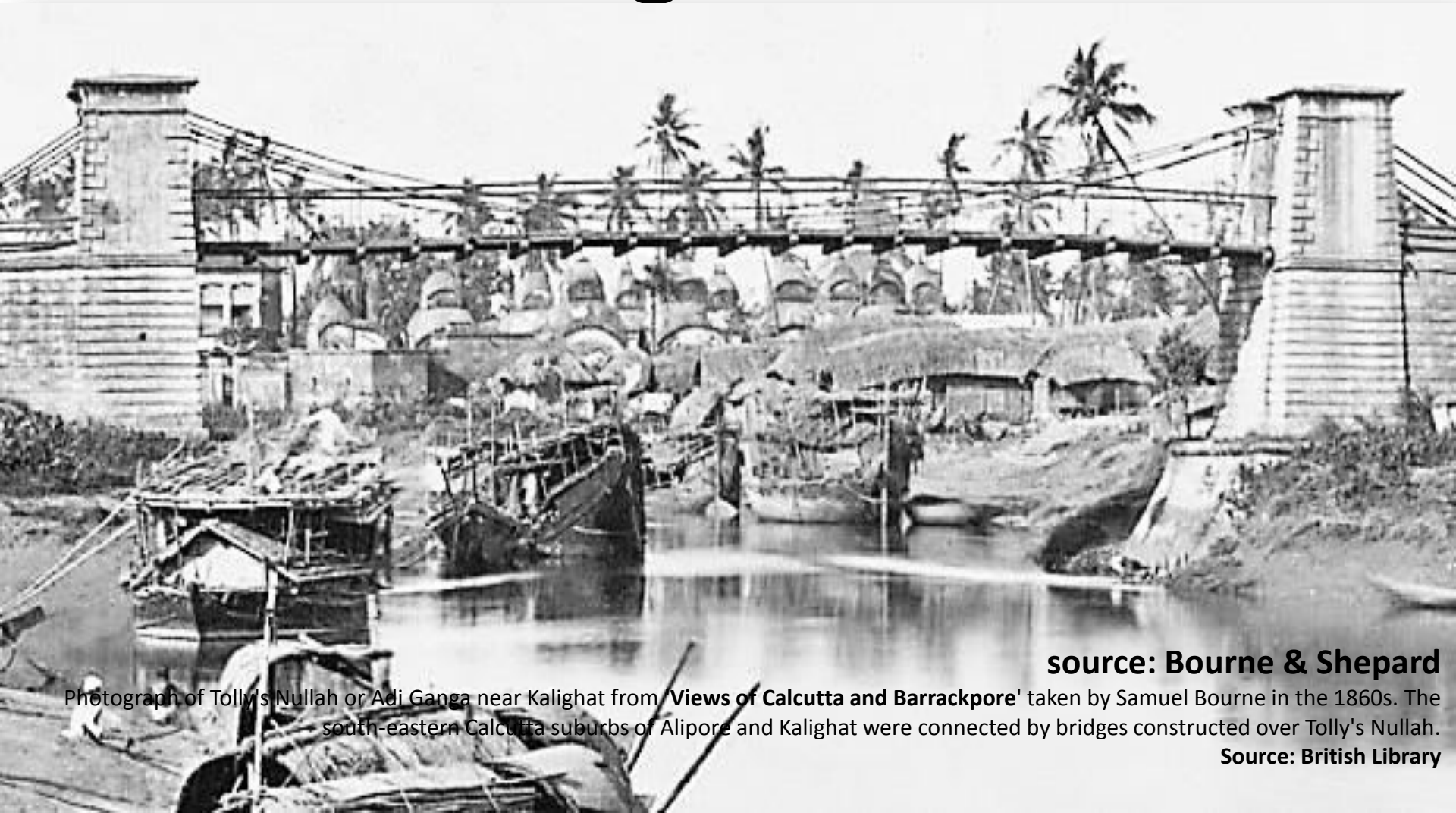
A busy vibrant river -
River trade in 'bajra' (big boats)
are a common feature



Width of the river at this point of time

Adi Ganga

At Kalighat - 1865



source: Bourne & Shepard

Photograph of Tolly's Nullah or Adi Ganga near Kalighat from 'Views of Calcutta and Barrackpore' taken by Samuel Bourne in the 1860s. The south-eastern Calcutta suburbs of Alipore and Kalighat were connected by bridges constructed over Tolly's Nullah.

Source: British Library

'ADI GANGA' & KALIGHAT TEMPLE - an artist's impression in -1887

Kalighat Temple - its bathing ghats (steps), drinking water collection & ritual performing place....



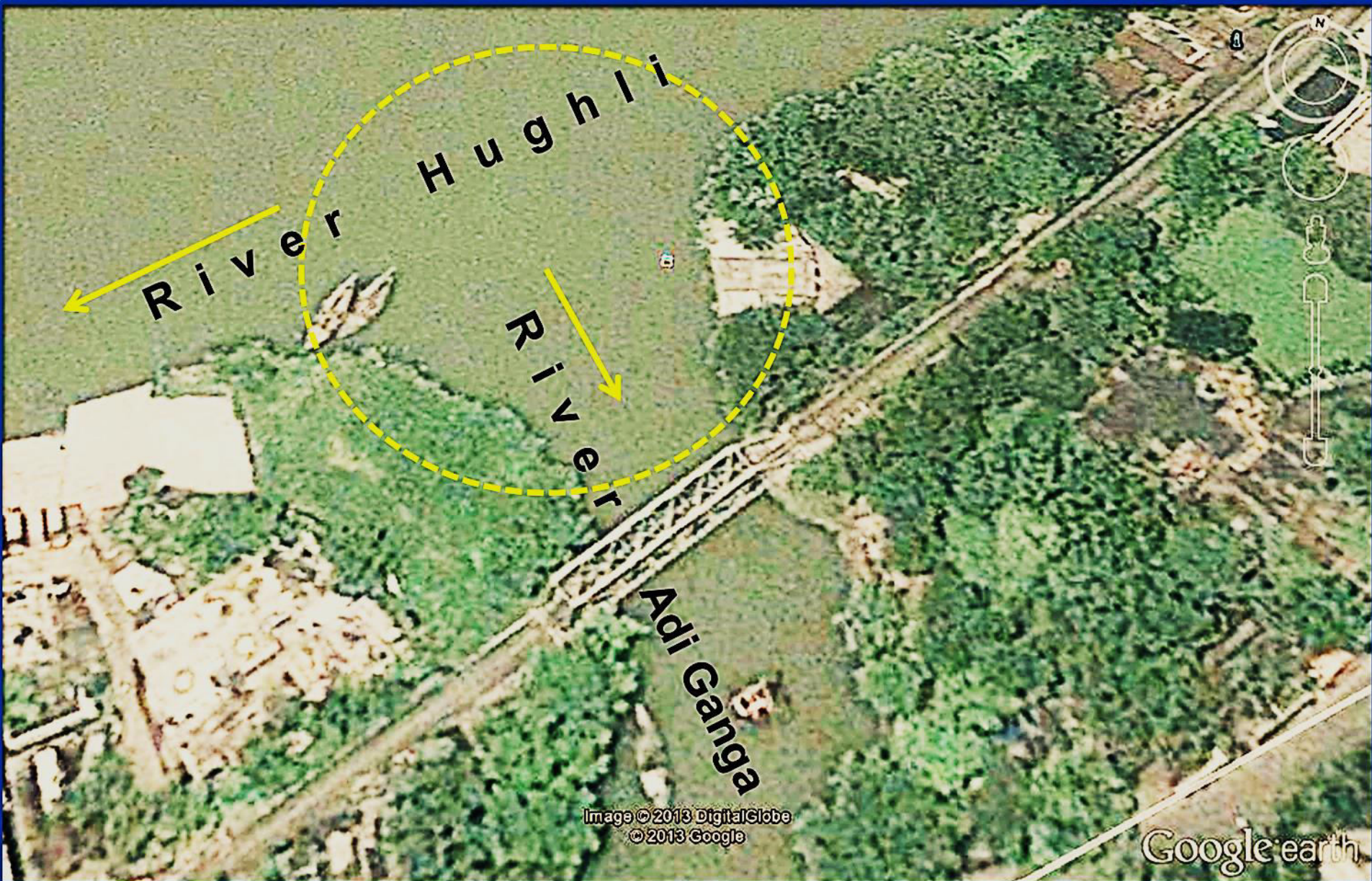
PAST Human Activities on it:

- Transport
- Trade
- Bathing
- Daily Domestic Works
- Performance of Religious Rituals



Present Physical Scenario of Adi Ganga

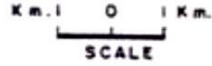
(To discern the extant physical condition and spatial scales)



88° 15'

88° 25'

GEOMORPHOLOGICAL MAP OF CMC AREA (BASED ON REMOTE SENSING STUDY)



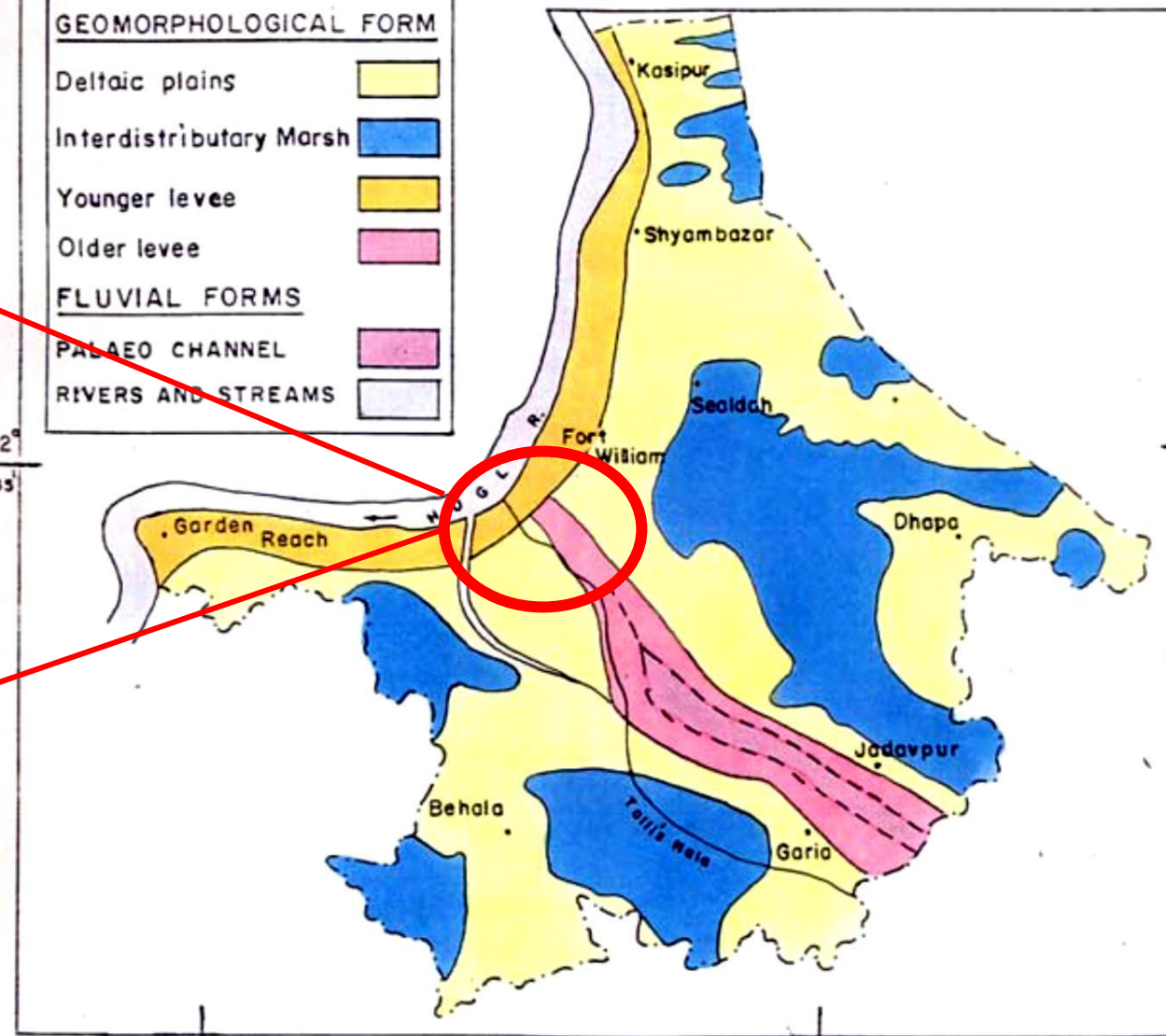
INDEX

GEOMORPHOLOGICAL FORM

- Deltaic plains (Yellow)
- Interdistributary Marsh (Blue)
- Younger levee (Orange)
- Older levee (Pink)

FLUVIAL FORMS

- PALAEO CHANNEL (Pink dashed line)
- RIVERS AND STREAMS (White line)



22° 35'

22° 35'

88° 15'

88° 25'



Time Progresses -

Adi Ganga Transforms

Laws of Physical Science

❖ **Tidal water flow** in the river is responsible for heavy siltation in the river bed.

❖ **Death** of Bidyadhari River also responsible for its sluggish flow and natural degeneration.

❖ **Flight of main Ganga** to the easterly direction leaving Adi Ganga behind.

PRESENT

Human Activities on Adi Ganga:
A Question on Peoples'
Conscience

Urbanization **Progresses** & Adi Ganga **Transforms**

Population – *their Changing attitudes and Changing Environment:*

❖ Kolkata evolved into the metropolitan city (185 Sq. Km)

❖ **Population** - from a few hundreds to **44,96,694** in **2011**) and **Density** reached into **24,306** persons/sq. km.

❖ The metropolis contains some **141 wards (2011)** within its of which some **21 wards** are **directly adjacent** to the Adi Ganga channel. Number of households are **10,24,928 (2011)**.

Population – *their Changing attitudes and the Changing Environment*

- ❖ After Independence of India there was a **mass exodus** of people (in thousands) from the erstwhile East Pakistan (now Bangladesh) who settled on any vacant land.
- ❖ People also **settled on the banks of Adi Ganga** and thereby created squatter settlements with least facilities of livelihood.
- ❖ Today's degenerated condition of transforming the drainage into a filthy drain is due to their **misuse and lack of conscience.**

Degeneration of Adi Ganga: Lack of Peoples' Conscience



Paying homage to 'SUN' God after taking a dip in the 'holy' river water



Washing and doing domestic works

Human Encroachment -

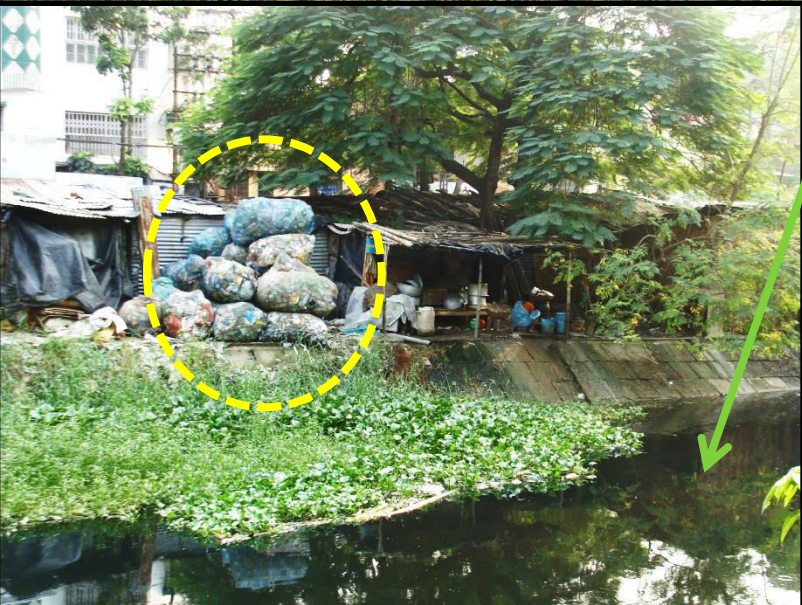
In some form or other....



Construction of house building pillars on the river bed.



Adi Ganga



Heaped up stored materials for selling purpose and the public toilet.



Use and Misuse of Water

Temporary toilets

Daily Household Works



Amidst all **self - created** the **dirt and filth** daily 'house hold' work is carried on.....and will be carried on.....perhaps !!!

Degenerated Adi Ganga



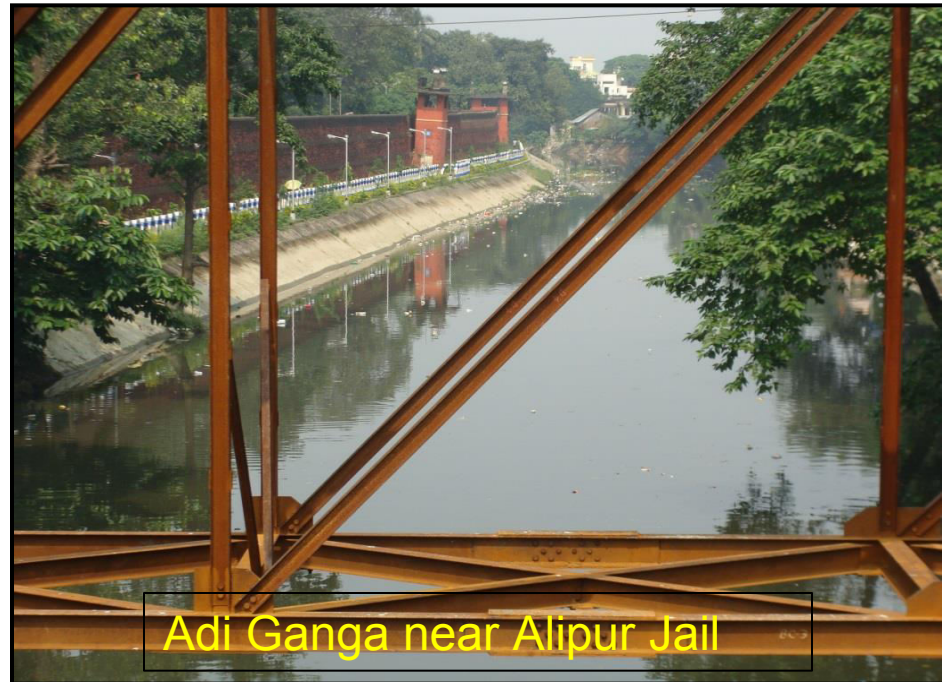
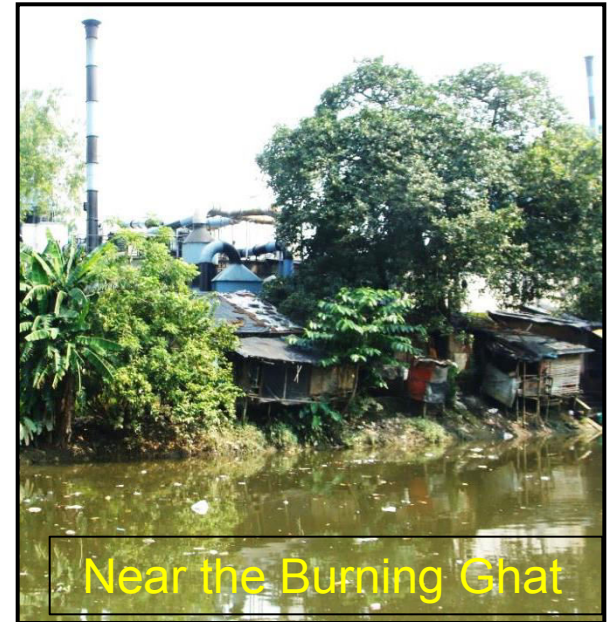
2017

Degenerated environment
*in front of
the Kali
Temple.*

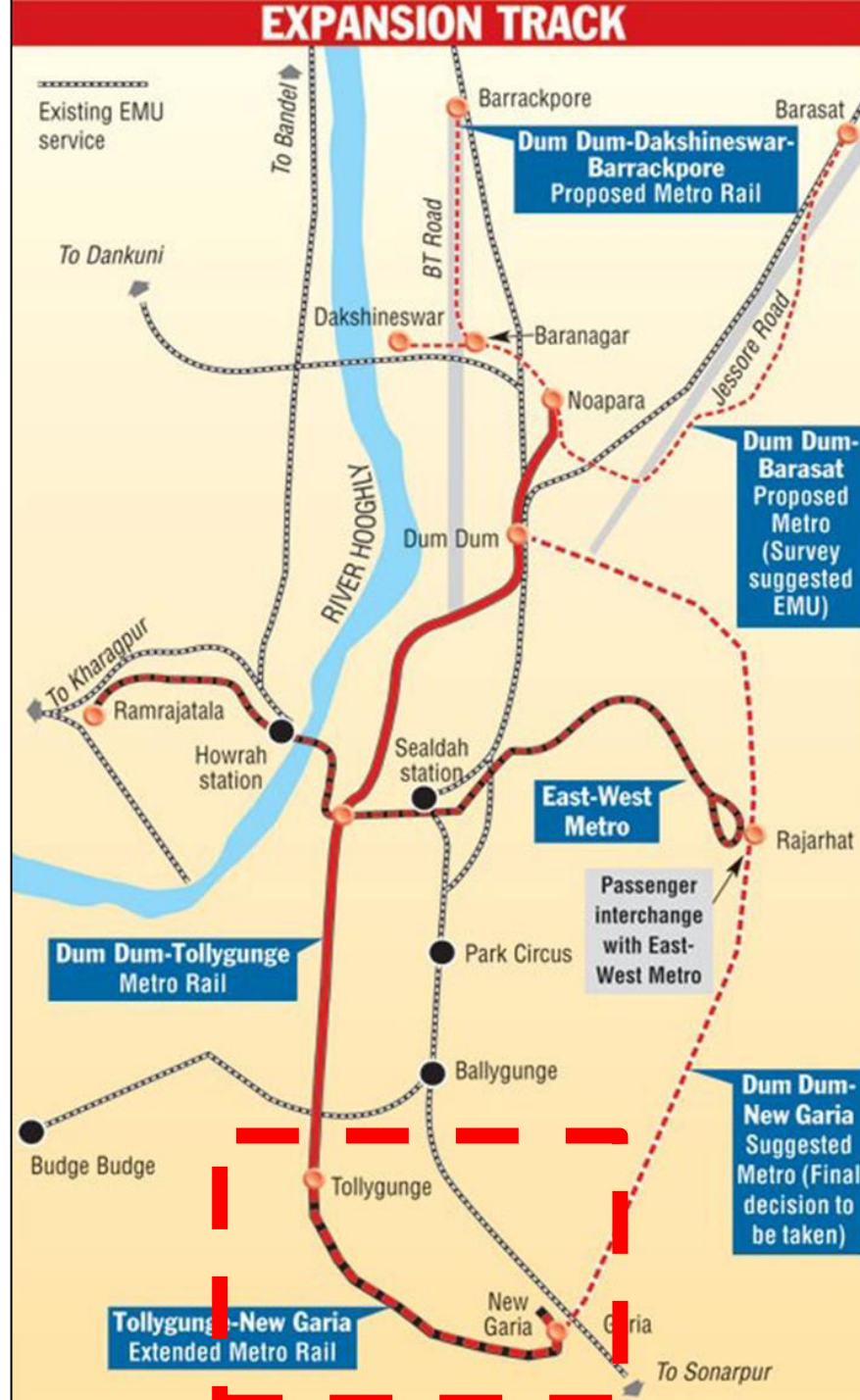
Stagnant
and floating
wastes are
seen.

Adi Ganga

At Different Points



KOLKATA Metro Railway on ADI GANGA



Construction of **METRO RAILWAY** pillars across the river ADI GANGA



Ferry service **across** the
river ...



Metro Railway pillars
along the river

Final **decision** by the Railway Authority...

- ✓ Following a **Railway Act from 1989** it **defied** the Environmental **Protection Act of 1986** and sought no environmental clearance.
- ✓ **1989 clause** gives railway the **power to** “ make or construct in or upon, across, under or over any lands or any streets, hills, valleys, roads, railway, tramways or any other **rivers, canals, brooks, streams or other waters** or any drains, water pipes, gas pipes. oil pipes, sewers, electric supply lines or telegraph lines such as temporary or permanent, inclined-planes, bridges, tunnels, culverts, embankments, aqueducts, roads, lines of railways, passages, conduits, drains, piers, cuttings and fences, in-take wells, tube wells, dams, river training and protection works **as it thinks proper**”.

Condition of **ADI GANGA**

Beyond the reaches of *'development'* and
urbanization



To the end
of its
journey as
the urban
touch
weakens
the **GREEN**
touch
begins.....
Water is
more clean
here.....

Government Policy and perspective:

- The *Master Plan of 1925* proposed construction of the drainage system of *Adi Ganga*
- The *Irrigation and Waterways Department* proposed its excavation by manual labour in the upper reaches
- *Central Pollution Control Board* studied the degradation of the river Ganga and pointed out the factors like –
 1. *sewage outfalls,*
 2. *bank side defecation,*
 3. *garbage and carcass dumping,*
 4. *discharge of untreated or inadequately treated industrial effluents,*
 5. *non-biodegradable toxic pollutants,*
 6. *pesticides runoff.*

Government Policy and perspective:

- Based on this *Ministry of Environment and Forest* in February **1985** declared the model programme for inland water quality enhancement under *Central Ganga Authority* named as - '***Ganga Action Plan***' (***GAP***).
- The ***Kolkata Municipality Development Authority (KMDA)***, the nodal authority of GAP in West Bengal has drawn up a development scheme under the Center's Ganga Action Plan.
- ***National River Conservation Directorate*** approved Rs. 29 crore and the State government also allotted Rs.6 crore more for revitalizing the *Adi Ganga / Tolly's Nullah* in **1996**. The Calcutta High Court ordered to complete the work within eighteen months **but it never materialized.**

Government Policy

and perspective:

- *Calcutta Environmental Management Strategy Action Plan (CEMSAP)* undertook the latest plan in **1997**
- In **2000**, the *Urban Development* department of West Bengal government also emphasized the need of rejuvenating the canal by mechanized and manual dredging
- *Calcutta Port Trust, State Irrigation Department and K.M.C.* together have chalked out a blueprint of Rs. 50 crore project for rejuvenation and beautification of *Adi Ganga*. The scheme will be a part of '*Mission Clean Ganga 2020*'.

But the crores spent on excavation and de-siltation the canal has literally gone down the drain.

Because of silt deposition in *Adi Ganga* backflow of water through sewers during high tides in areas where either the lock gates are kept open or there are no such gates suffer from temporary water logging.

Proposal/Protests/Legal steps

Taken on the Decision of Expansion of Metro Railways

- By the **end of 1999**, Railway Authority made plans to allow Metro Railway expansion from Tollygunge station to New Garia that would dissect Adi Ganga with **300 pillars** constructed at distance of **20 metres** on the centre of the river bed.
- In **July 1999**, Rebati Ranjan Bhattacharyya, an environmental activist, wrote a letter against it to the Rly. Authority.
- In **April 2000**, Mohit Roy followed the same by publishing an article in *'The Statesman'* newspaper. Several prominent literati supported him. He described it as a **'heritage river'**.
- In **October 2000**, *'India Today'* referred 'Adi Ganga' as: *"a 15 km toilet dispenser, an unbroken river of sludge, stink and toxins."*
- Controversies raised concern in the National River conservation Directorate.
- In **March 2001**, Subhas Dutta, an eminent environmentalist, initiated to file a case in the High Court in Kolkata.

Litigations/Acts/Protests against Government's Policies:

- High court judgement based on five documents (Acts of five Departments) by one individual social worker and environment activist Shri. Subhas Dutta versus Union of India and others on 16th April, 2001. Where it is described as Public Interest Litigation asking to restrain from extending it on the project of construction of Metro Rail through the river bed of 'Adi Ganga'.
- The Acts based on are –
 - a) The Environment (Protection) Act, 1986**
 - b) Section 11 in The Railways Act, 1989**
 - c) The Railways Act, 1989**
 - d) The Judges (Protection) Act, 1985**
 - e) The Forest (Conservation) Act, 1980**

Science, Conscience & Policy

need to go hand in hand

Kolkata metropolis is developing and will continue to develop but not at the cost of a natural resource like a flowing river. A flowing river has a great impact on human life. It is not the water itself but the biological lives it sustains, the economy that floats and moves, the ecology that balances the nature, the culture that pivots around or the society that grows and enriches from it.

A large, leafy tree stands in the center of the image, its reflection clearly visible in a pond below. The pond is covered with lily pads and other aquatic plants. The background shows a lush green landscape with more trees and a clear sky. The text "Thank you" is overlaid in the center of the image.

Thank you