WORLD CANAL CONFERENCE IN YANGZHOU, CHINA

PRESENTED BY :

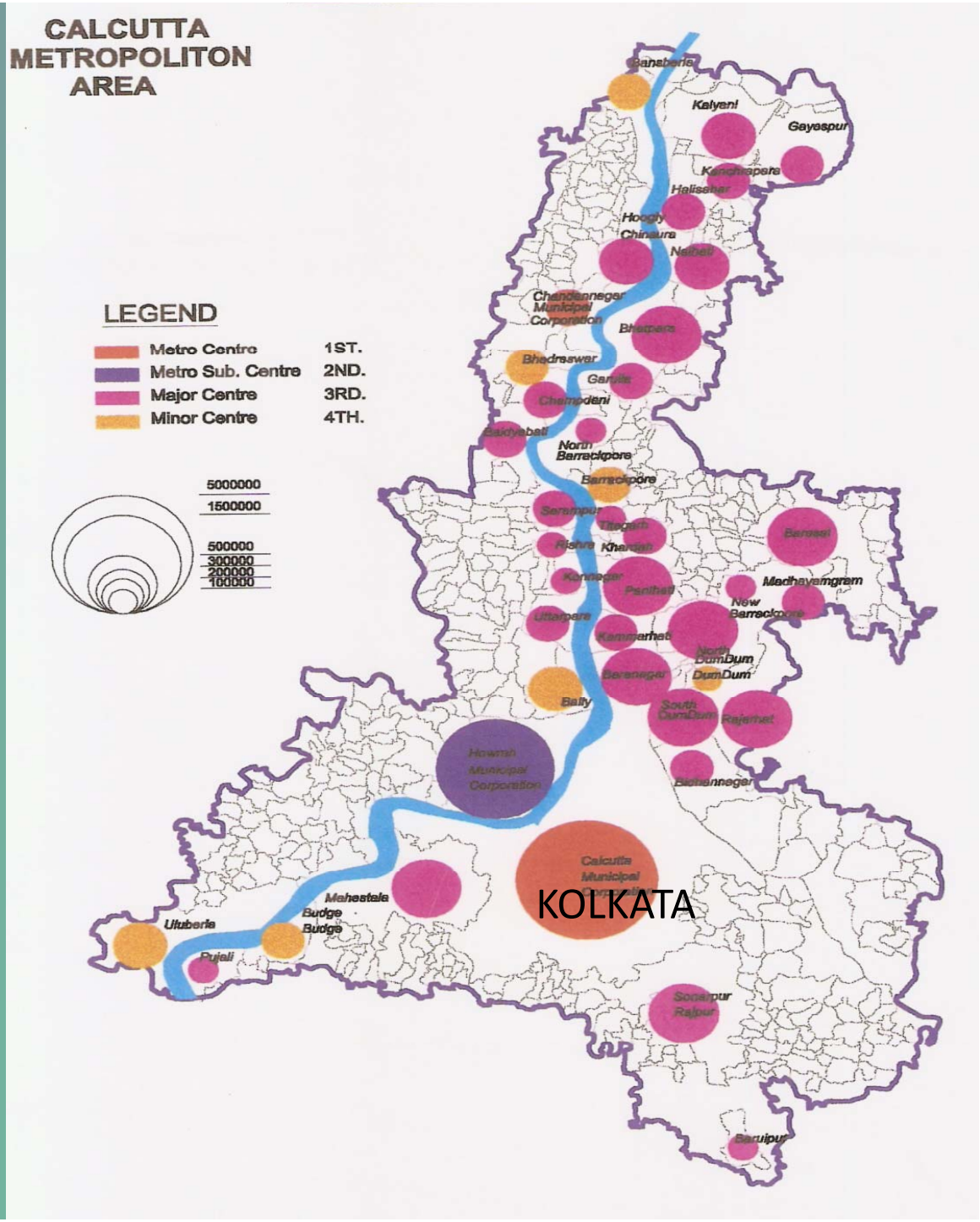
SOBHANLAL BONNERJEE

“In Bengal, the Ganges and several other great rivers form a great number of navigable canals in the same manner as the Nile does in Egypt...it is remarkable that neither the ancient Egyptians, nor the Indians, nor the Chinese, encouraged foreign commerce, but seem to have derived their great opulence from this inland Navigation.’’

- Adam Smith

Source 2011 The Potential City PROF. CHAKROBORTY ANTARIN,

European merchants came via the Ganges and crossing the unsafe parts through mangrove forests(the Sundarbans),found the area suitable for trade. Kolkata, the British Trade Centre, was on the eastern bank unlike the rest. These settlements and other towns eventually constituted the K.M.A. in the form of a String of Beads.



CANALS WITH A FLOW

CAN BE THE CORE S OF

LINEAR PARKWAYS.

CANAL AS A WATERBODY

IN CONTRAST TO

BUILT UP CITYSCAPE

CANAL WITH GREEN BANKS

IN A CENTRAL AREA

WATER WAYS ARE TO BE RESTORED FOR MULTIPLE FUNCTIONS AND NOT FILLED UP FOR HIGH WAYS OR DESTROYED EVEN FOR ELEVATED RAILWAYS

- AFFECTS THE MICRO – CLIMATE FAVORABLY.
- RECREATIONAL FACILITIES: BOATING, SALING.
- CAN BE USED FOR LEISURE CRUISES, TOURISM.
- SUPPORTS AQUATIC BIO-DIVERSITY.

- CAN WORK AS SUPPLY LINES FOR INDUSTRIES .
- CAN BE USEFUL FOR FIRE FIGHTING etc.
- CAN HELP RAINWATER HARVESTING.
- CAN DISPOSE OFF THE SULLAGE AND RUN-OFF.

MOST IMPORTANTLY CAN BE USED FOR

TRANSPORTATION

OF GOODS & PASSENGERS

WATER TRANSPORT MEANS:

- Lesser fuel consumption.
- Lesser carbon emission.
- Lesser pollution AND
- BETTER ENVIRONMENT

CHEAPER

Cost per 100 ton kilometer	
INLAND WATERWAYS	HIGHWAY
$ 1.5	$ 5

SOURCE: **Study conducted by School of Planning & Architecture,** New Delhi, India. (’06-’07)

LESSER FUEL CONSUMPTION

	INLAND WATER	RAIL	ROAD
1 LITRES OF FUEL	180 K.M.	72 K.M.	21 K.M.

SOURCE: Study conducted by School of Planning & Architecture,
New Delhi, India. ('06-'07)

Waterways must have a prominent designated role in the transportation plan for an urban area.

Best suited for freight transport also passenger transports of special nature.

Water transportation plan must be complementary to road and rail transport and integrated with land use plan.

A DESIGN OF WATERWAYS

CRITERIA FOR PLANNING AND DESIGN

a) Identification of origin and destinations of the goods.
b) Analysis of existing waterways
c) Study & analysis of the urban form and structure of the Metropolitan area.
d) Identification of the arterial waterway routes and missing link, if any.
e) Identification of desirable new excavations.

f) Identification of the possible storage lakes.

g) Identification of problems related to supply drainage, disposal of water.

h) Identification of problem of transportation by water.

h) Setting goals for the waterways in terms of various needs and environmental improvement.

i) Identification of possible nodal points for intermodal transfers.

GOODS MOST SUITABLE FOR INLAND WATER TRANSPORT IN URBAN AREAS

- **Agricultural products** : Cereals, Hay, Vegetables
- **Forest Products** : Timber, Fruits, Flowers
- **Construction Materials** : Bricks, Stone Chips, Fly Ash Sand, Earth etc.
- **Mineral Products** : Iron Ore, Coal, etc.
- **Industrial Products** : Textiles, Chemicals, Machineries

CONTAINERISATION OF WATERWAYS CAN ATTRACT MANY NEW INDUSTRIAL PRODUCTS TO THIS MODE OF TRANSPORT

INTERMODL TRANSPORT INTERCHANGES WILL BE NECESSARY PART OF THE TRANSPORTATION PLAN INVOLVING WATERWAYS

ORIGINS AND DESTINATIONS

GOALS AND OBJECTIVES

AT CITY LEVEL:

- To improve the environment
- To create parkways along the banks
- To prevent water logging of the city streets
- To provide water for civic purposes
- To help Tourism and passenger transport

AT METROPOLITAN DISTRICT LEVEL:

- To maximise goods transport by waterways
- To direct metropolitan growth and Landuse
- To support the urban form

AT REGIONAL LEVEL:

- To maximise goods transport
- To help balanced regional growth

THE KOLKATA METROPOLITAN DISTRICT 2012

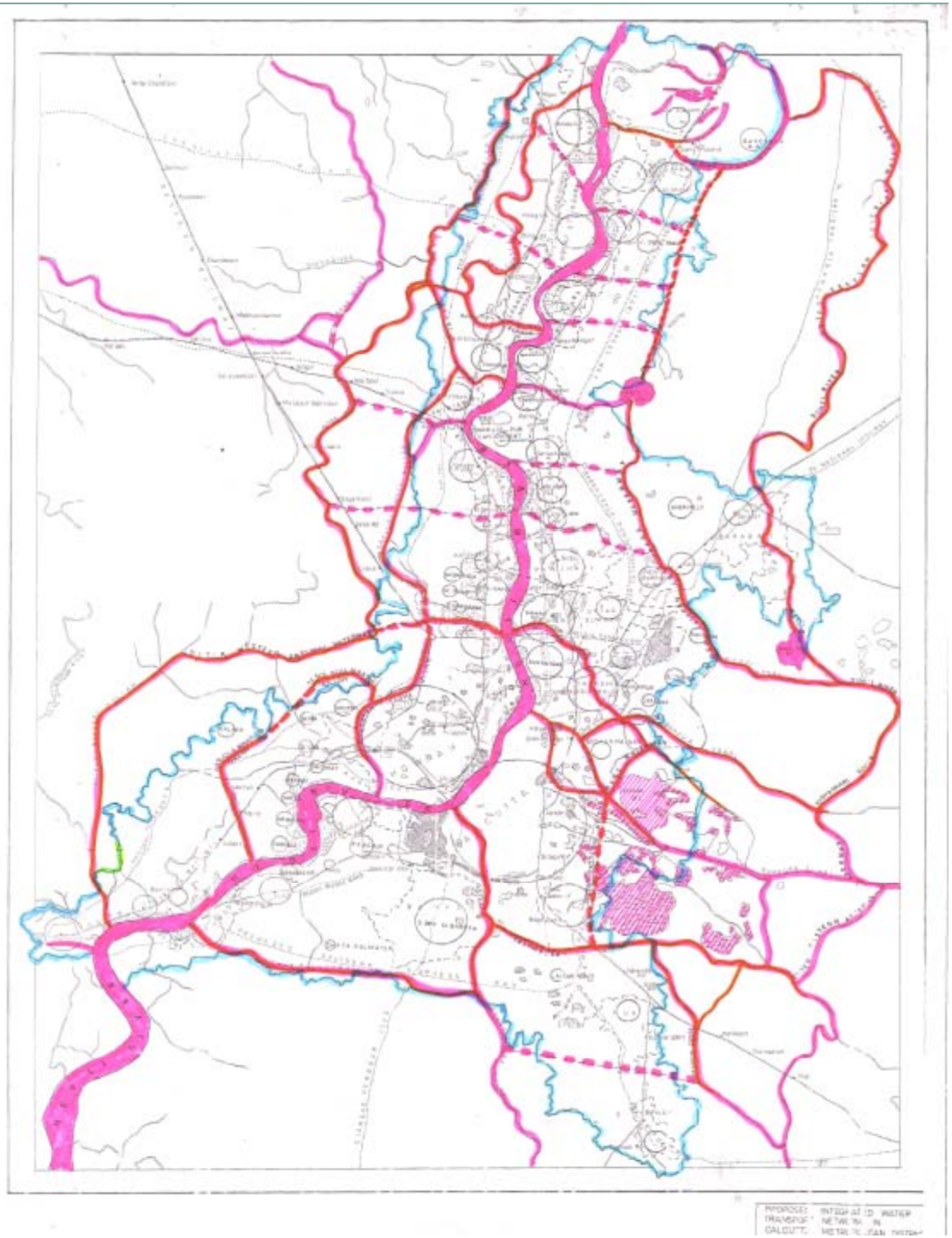
- 1860 sq. km. area
- 80 km. of Riverbank on each side in a "string-of-beads" form
- 37 municipalities, (3 of them large)
- Semi-urban and Semi-rural areas
- 14 million people

THE KOLKATA METROPOLITAN DISTRICT 2012

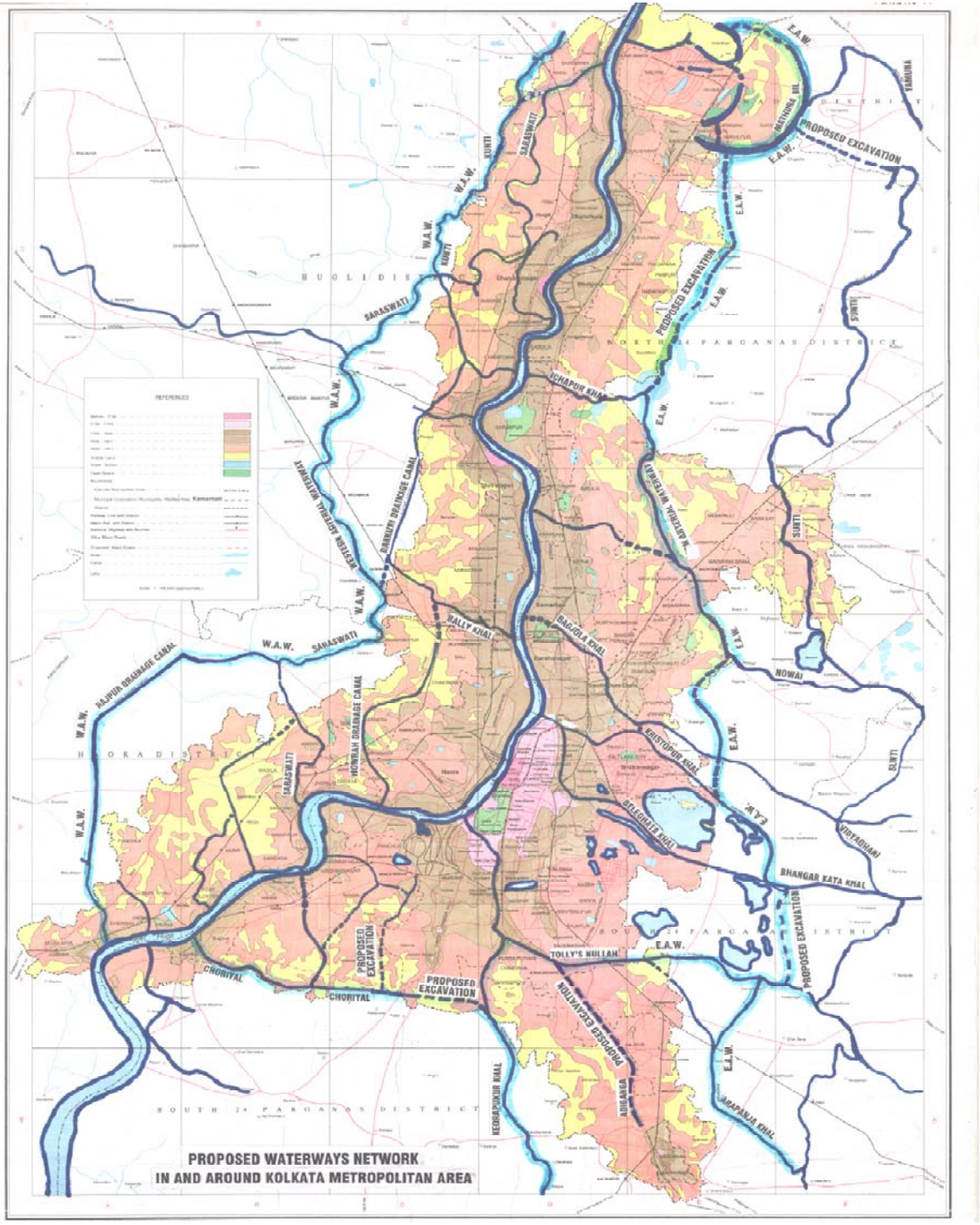
- ½ million cars.
- 50 MT. goods traffic.
- 8% of area for roads.
- 280 km. of railway network with 85 stations.
- 1800 km. of waterways (47 km. manmade)

KOLKATA METROPOLITAN DISTRICT IS WELL ENDOWED WITH RIVERS AND NATURAL WATER WAYS TOTAL LENGTH OF APPROX 1800 KMS

THE CENTRAL SPINE IS THE GANGA



THE PROPOSED SCHEME SHOWING MAIN WATER WAYS

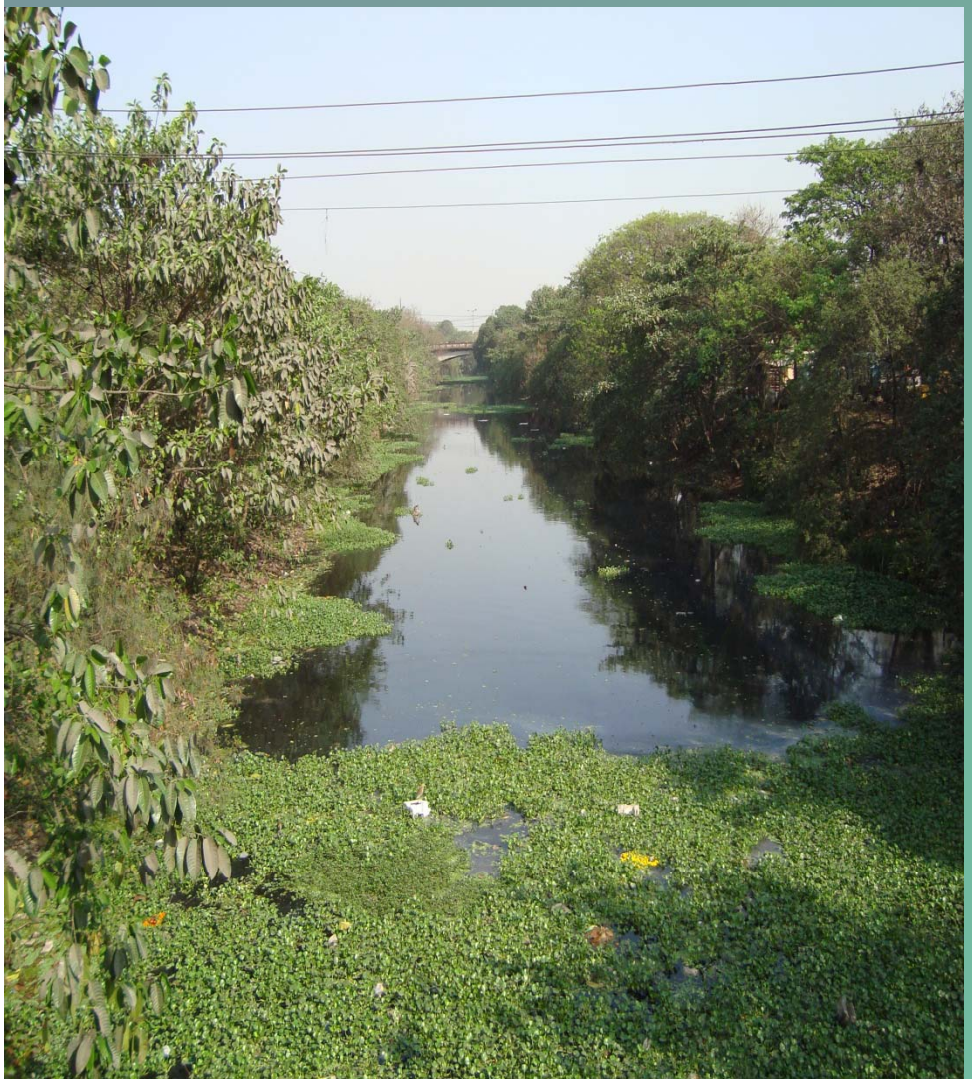


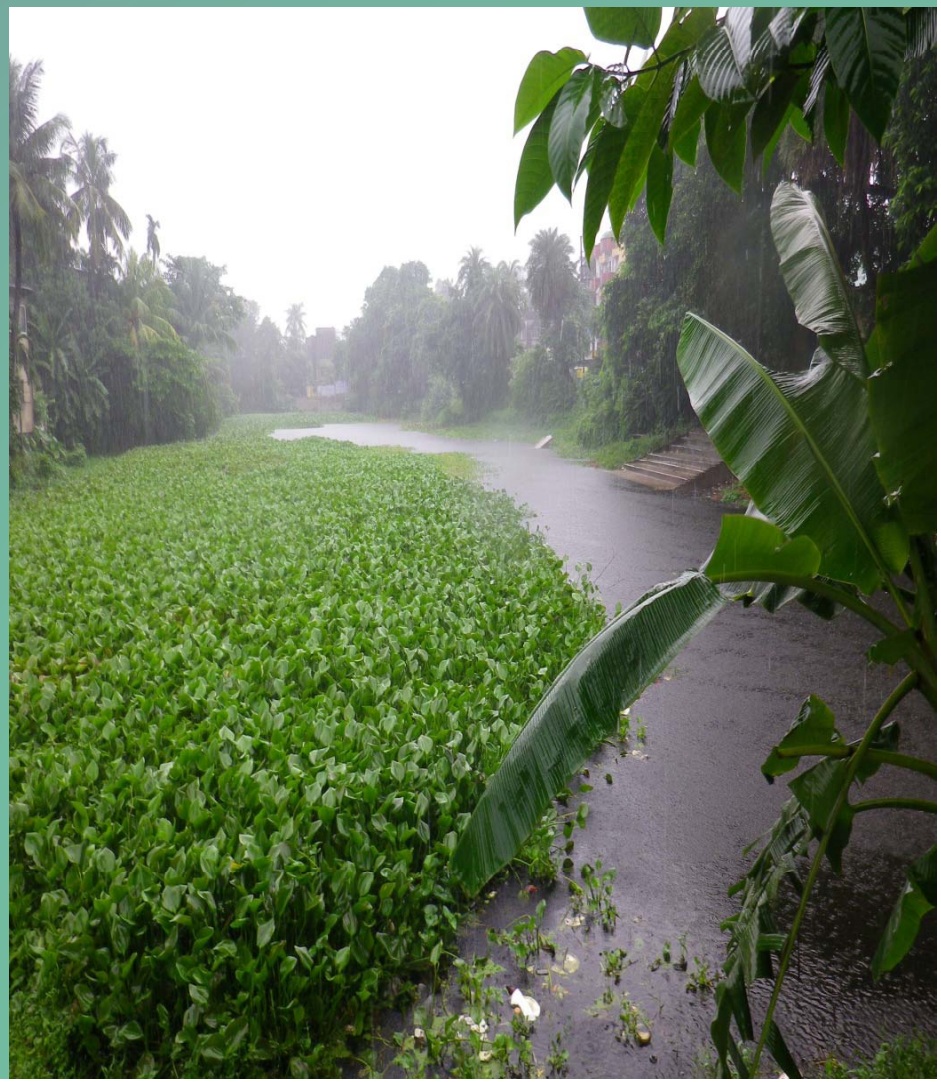
THE WARTERWAYS DEGRADED

AS ROAD AND RAIL TOOKOVER THE TRADE

SLUMS GREW UP ALONG THE CANALS

CANAL S ARE COVERED WITH UNDESIREABLE PLANTS





UNCINTROLLED MISUSE LED

TO WORST ENVIRONMENTAL POLLUTION

1993 – Seminar on Water Resources in West Bengal

organised by

School of Water resources Jadavpur University

'Inland Water Transport in West Bengal

Approach To An Integrated System

In

Kolkata Metropolitan Region &

Kolkata Metropolitan District

paper presented by S.BONNERJEE &
M.CHATTERJEE

1996 – "The River Hoogly (Ganga) and the Canal system offer enormous potential to provide alternative passenger services on a North-South axis (Hoogly=Ganga) and provide East-West and Circular possibilities Using the "CANAL SYSTEM"

PROF. JOHN WHITELEGG
SCHOOL OF THER BUILT ENVIRONMENT
JOHN MOORES UNIVERSITY, LIVERPOOL,U.K

1997 – Seminar on " Restoration of Canal Waterways in & Around Calcutta"
Under the auspices of Dufferin Rajendra Old Cadets Association, Calcutta

1997 – Calcutta Environmental Management Strategy and Action Plan (CEMSAP)
Dept. of Environment, Govt. of West Bengal
assisted by UK Overseas Development Administration

1998 - Kolkata Environment Improvement Project
Executive Agency Kolkata Municipal Corporation, AIDED by ADB
cost 401.37 million US dollars

1998 – "The River & The City"

organised by Sea Xplores' Institute, Kolkata

2000 – ICICI – Winfra (IWIN)

assisted by British Waterways

A techno-economic feasibility report on aiming at Reclamation & Development of transport route along a canal

2003 – South Asian Regional Conference – Water & Cities

organised by Centre for Built Environment, Kolkata

2009 – KEIP II

A Multi–Agency Endeavour to arrest Environmental Degradation and improve the Quality of life in Kolkata

THE SPINE OF THE WATER WAYS SYSTEM

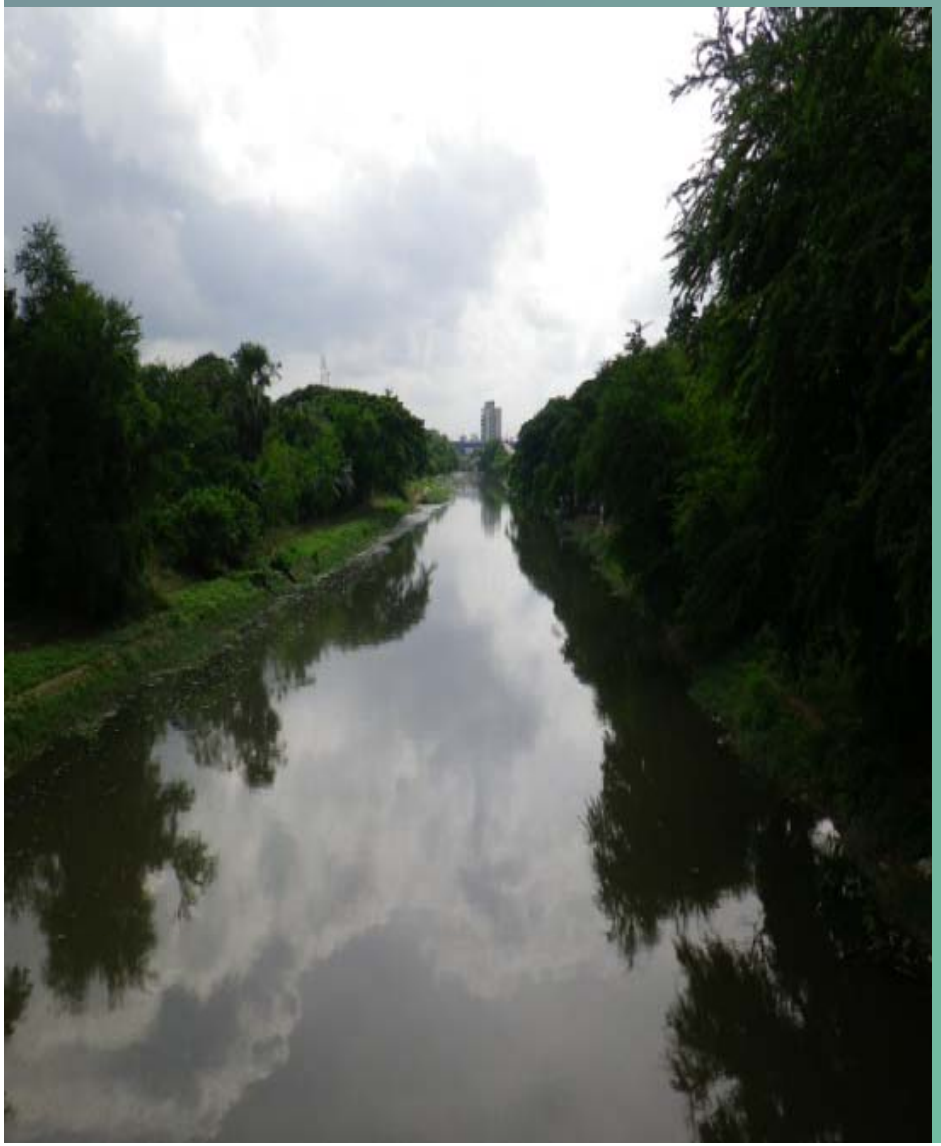
THE GANGA

BELEGHATA KHAL
CLEANED AND BANKS CLEARED

NOWAI KHAL

BAGJOLA KHAL

KRISHTAPUR KHAL



THE SARASWATI

AN ANCIENT TRADE ROUTE TO BE RESTIRED AS A PART OF THE WESTERN ARTERIAL WATERWAY

THE MATHURA BIL

THE GREAT HORSE-SHOE LAKE PROPOSED TO BE A PART OF EASTERN ARTERIAL WARTERWAY AND A STORAGE RESERVOIR

THE BALANCE SHEET

COSTS

- Dredging and desolation.
- 2.5m x 1800 km = 4.5 million cu.m. of excavations.
- Development of canal banks.
- Construction of infrastructure for drainage & supply.
- Reconstruction of bridges.
- Construction of jetties and lock gates.
- Construction of Intermodal transport interchange.
- Landscaping and beautification.

For 1800 km. total cost $ 1 billion

THE BALANCE SHEET

BENEFITS

- Better Environment.
- Better Drainage.
- Cheaper water supply.
- Lesser fuel consumption with lesser pollution.
- Lesser congestion on road.
- More jobs – 3000 per kilometer of operation of waterway.
- Lesser number of accident.

A new look, a new dimension to the Urban Texture of Kolkata.


THANK YOU