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KOLKATA
BODIES OF WATER

Introduction

The value of water is often neglected until there is a lack or excess of it.

In a city, there is hardly a matter that is more everyday than water. In Kolkata, seasonal monsoon flooding causes the entry of water in all parts of people's living to be a day-to-day experience. More than that, Kolkata needs to supply its seven million people with water everyday, a major challenge for developing countries in the world. However Kolkata, just as any megacity of the advanced economies in the world, needs to reject the amounts of wastewater from its grounds.

In dealing with the turnover of water created by its millions of people, Kolkata unmasks any western world water treatment system as insufficient when confronted with increasing quantities and commitment to ecological viability in water processing. How does a megacity in a developing country find its way to detach its residuals from it, without any noticable budget and technological infrastructure for water management?

It is not the supply of fresh water – Kolkata is mainly served by upland flow from river Hooghly - but the waste water that is the greatest concern. In an urban environment, where people's consumption of water is not absorbed by a black-baoxed technological purification infrastructure, the topography of the city ground vitally determines the flow of drainage since the start of settlement.

Geomorphological process and human interventions caused the topograhy of Kolkata to slope to the East. The city follows this direction when expanding from its initial spot of settlement, the levee of river Hooghly. Taking advantage of the slope, the Eastern area is used as sewage outfall since the times of British dominion. What turned out to be an efficient way of deviating drainage water from the ground of the city, has been further established to a complex biologically operating system.

The formation of lakes, East Kolkata Wetlands, lay ground for a multifunctional resource recovery system completely activated by its locals. The benefits amongst others are biologically purified water, waste degradation by aquaculture and agriculture, the generation

of food products, creation of employment opportunities, trade, mitigation of the monsoon flood and an area of living with the least density and congestion allover the city. Outcomes, that by far transcend the basic needs of developing countries.

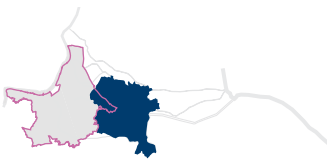
Given the trend of exponential increase of population, Kolkata's system proves to be backed up by water logistics, that do not primarily draw on maintenance heavy technology but a security that meets the capacity of recovery and storage for growth expectations raging over the next fifty years. For twentyfive years, it has been a playground for NGO's and a subject for polticians to assert their concern to. It is so unique that certain experts spend more than a generation of their lifetime on stopping its decay. The title of being „the world's largest ensemble of sewage-fed fish ponds" is likely to be spoken of even after most of the wetland is filled up, „The loss of the knowledge it carries will be unsaid." (D. Ghosh)

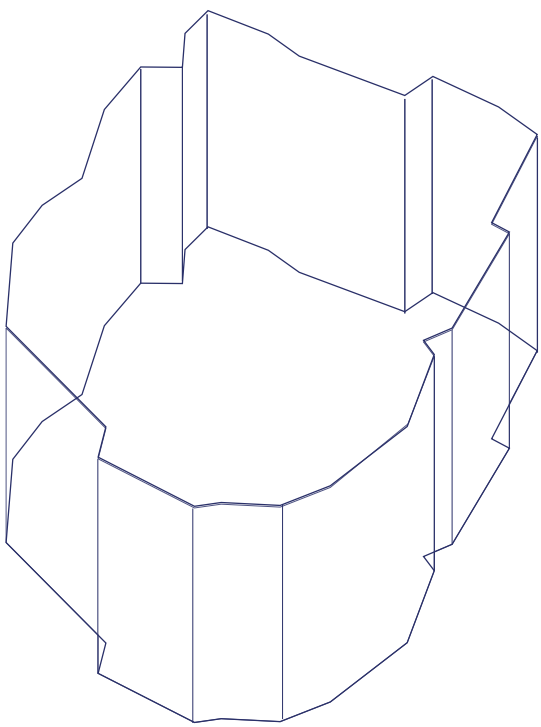
It is a sink that swallows all kinds of wastes of the city, in a completely unsorted and unprocessed way equalizing all preconditions, and that releases products via up-cycling this waste; It is a holistic landscape inverting the city's pollutants to goods.

It is not a nostalgic landscape in the hinterland of the city that exists at its own pace and detached from urban influence. The wetlands' ecological and economical functioning is dependant on the waste outfall produced in the city, regardless of the fact that the waste is mixed with the city's harmful refuses. The wetland locals set out for fishing even in the morning on the festival day of God Kali, so as to have enough fish for themselves and for market sale in Kolkata. The existing boundary as initiated by Ramsar convention sets out to provide an enclosure for a humane and valuable piece of nature but fails to be valid on site. The Wetlands area are attested the highest land value in Kolkata. The ephemeral character of the plots is conceivable at the wetland's fringes where water area is increasingly filled up for purposes of building development.

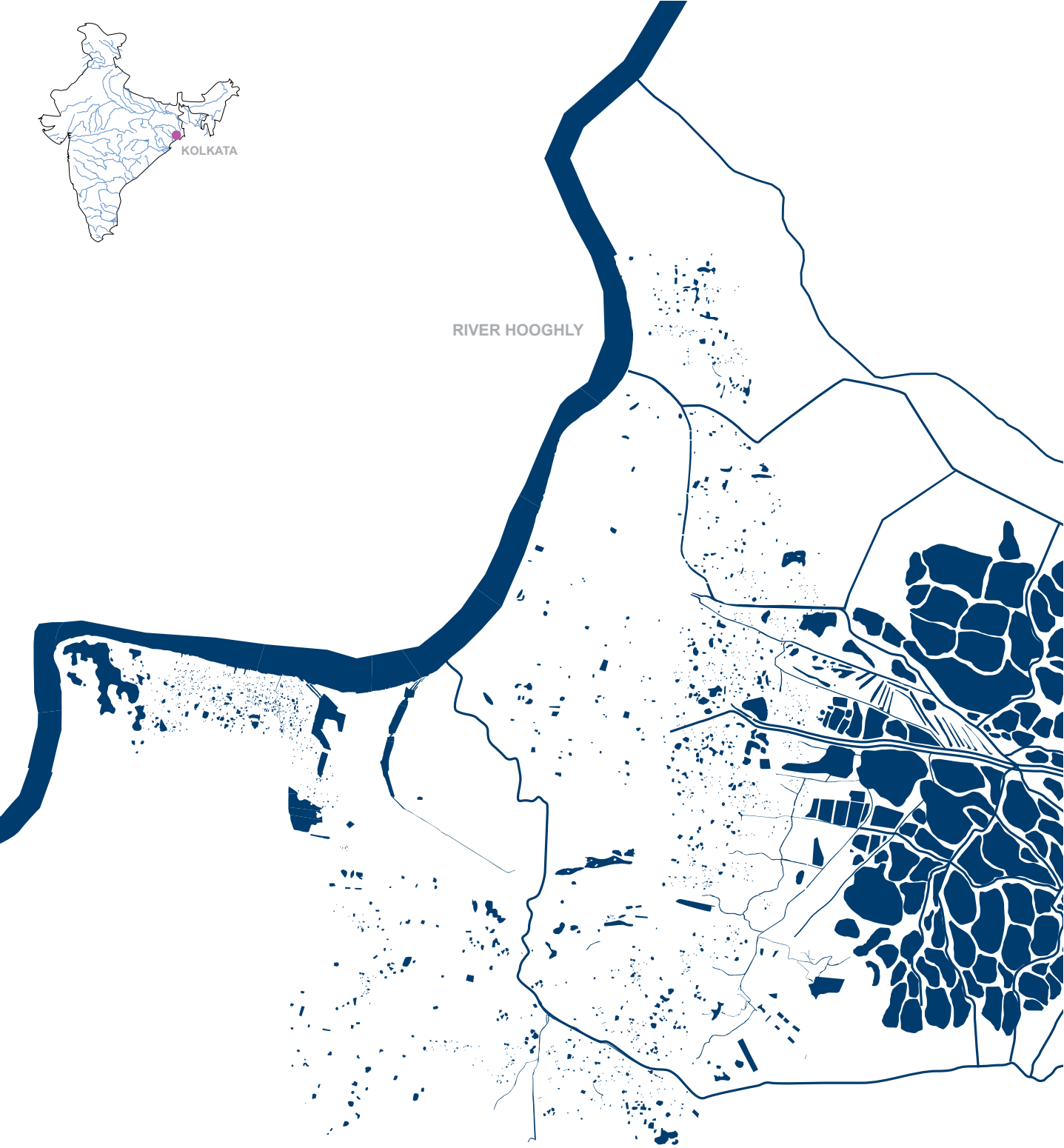
All these characteristics give evidence of a highly urbanised territory. Kolkata and its wetlands are both urban conditions of the same city. As a consequence they have a tendency towards restructuring each other.

CONTENTS





I - IDENTITIES OF WATER



Overview of waterbodies in Kolkata
Fabric of rivers, urban water reservoirs, canals and wetland area.

1km 5km

In KOLKATA CITY there are

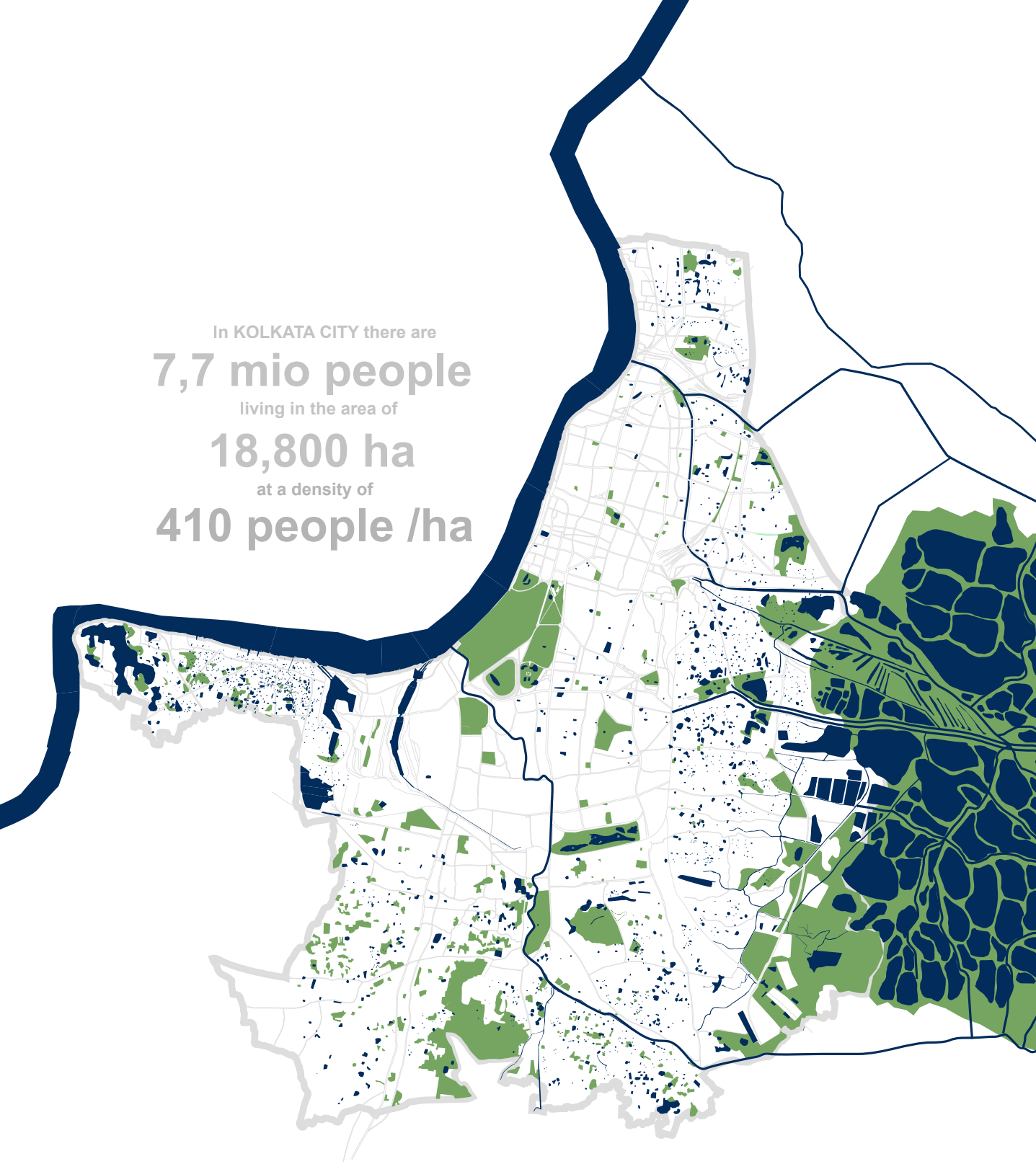
7,7 mio people

living in the area of

18,800 ha

at a density of

410 people /ha



Blue-Green Map

Urban green and agricultural land in the East in relation to the presence of water.

1km 5km

In EAST KOLKATA WETLANDS there are

61,000 people

living in the area of

12,500 ha

at a density of

5 people /ha

15,000ha

Walt Disney World Florida

the largest recreational complex in the world.

61ha

Hongkong Wetland Park

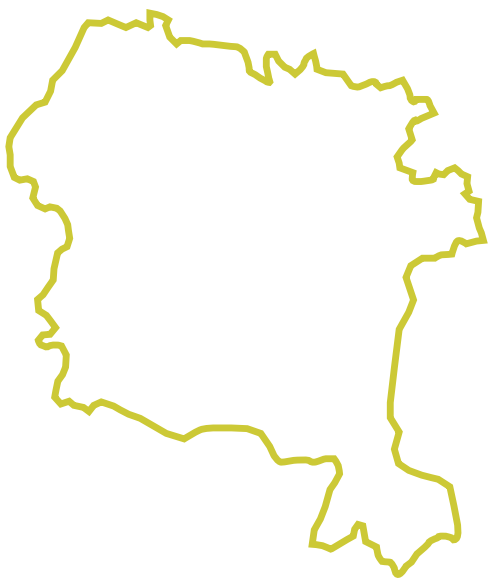
a wetland area introducing education and tourism facilities in 2002.

Three alternative landscapes compared in size
East Kolkata Wetlands are the largest ensemble of sewage-fed fishponds in the world.

12,500ha

East Kolkata Wetlands

the resource recovery system using city waste water that is the largest and the only one of its kind in the world.



THE EAST KOLKATA WETLANDS

A disregarded boundary

The term 'East Kolkata wetlands' not only incorporates bodies of water, but also seasonally flooded areas and the land surrounding these areas, which also feed into the ecology of the wetland system. According to the compulsory definition by Ramsar Convention, wetlands in general include static, flowing, fresh, brakish or salt water, as well as areas of marine water the depth of which at low tide does not exceed six metres. The East Kolkata Wetlands as encircled by the Ramsar boundary meet these conditions to a major extent. However, the current boundary also comprises lately urbanised areas which violate the convention's settings. The oultline used is a representative of the Ramsar's original settings. It is not congruent with the reality on site.

More than a rural backyard of the city

Primarily, the Wetlands stand for a rare example of combining environmental protection and development where local people master a resource recovery ecosystem. In a number of cities of India governments have adopted this model in transforming waterlogged area into a low-cost sanitation system, that can be fully operated by local work force. Apart from this it is a living ground for wildlife, 248 species of birds and 22 species of mammals with trend of decreasing variety (minus 15% in the last forty years as estimated by CEMSAP). Moreover, it supports a cluster of livelyhood opportunity for the unpriviledged section ot the Kolkata community.

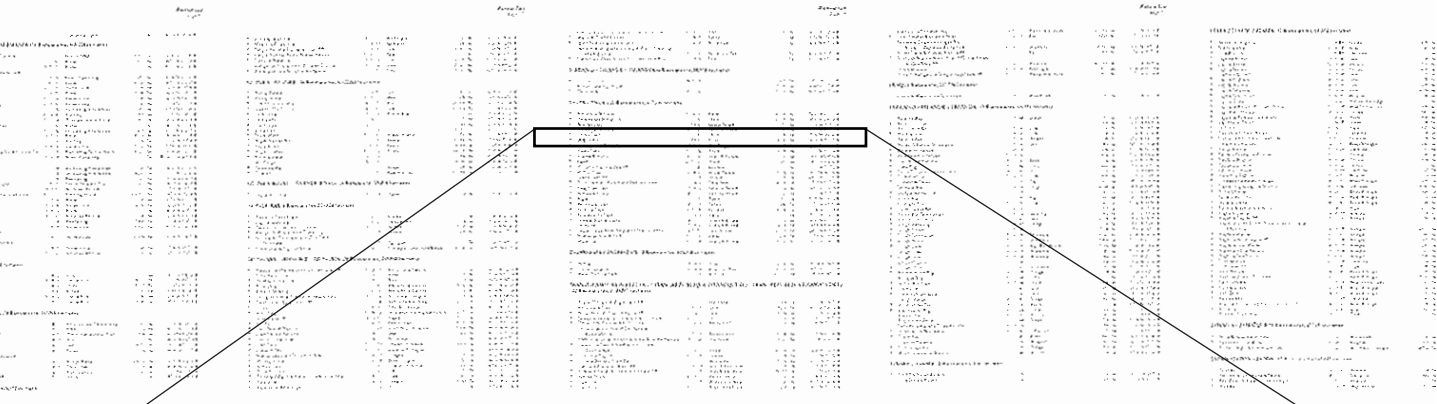
A binding agreement

East Kolkata Wetlands was declared a Ramsar site in 2002. Ramsar in an intergovernmental treaty signed in the city of Ramsar in Iran in 1971. The convention is concerned of conservation and wise use of significant wetlands worldwide. At present 1822 wetland sites are included in Ramsar list.

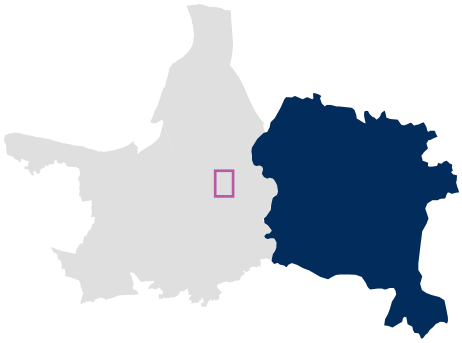
East Kolkata Wetlands gained the Ramsar status under complicated conditions. The Government of West Bengal decided to agree on the conservation. However specialists accompanying the process at that time, claim, that the board was and still is ignorant of the restrictions the contract sets. The Government of West Bengal has launched a commission to survey the state of the wetlands. Out of the representatives only two are locals of the wetlands and can speak for their view.

Ramsar treaty provides political support to the conservation of the wetlands, but Ramsar does not take part in any active conservation on site. All responsability of action has to be taken by Kolkatans.

Extract of Ramsar heritage list
East Kolkata Wetlands are one of 1822 sites since 2002.



* East Calcutta Wetlands 19/08/02 West Bengal 12,500ha 22°27'N 088°27'E



CITY

10% water 90% urbanity

Water pattern in Kolkata City

Rainwater resevoirs are often hidden inside the city structure of Kolkata. In slums they are surrounded by dense settlements; in the city centre, ponds are often in gated park areas.

A few of the reservoirs are natural ponds, the majority have been created in relation to a building process or excavated in need of rainwater collectors, a lot of which were created in times of the British dominion. Although specialists state the need for increase in number, there is no notable rise of total capacity. Since the volume excavated at some parts are outweighed in other parts by filling up for building, **measurements are caught up in a zero-sum game.**

The reservoirs' main function is the capacity of storing excess water from heavy rains, besides fire extinction purposes.

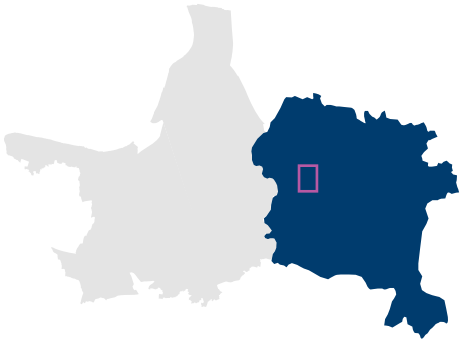
A majority of reservoirs are degrading because of uncontrolled waste dumping and vegetation.

The rainwater reservoirs can be defined as 'water at rest' because of their isolated role in the Kolkata's water system: **they are the only waters that are still, lotic, instead of being integral in the drainage flow.**

BUILDING

WATER

20m 100m



WETLANDS
90% water 10% urbanity

Water pattern in East Kolkata Wetlands

East Kolkata Wetlands are characterised by shallow wastewater fish ponds - bheris. They have a depth of up to 1,20 metres. Settlement has grown on narrow land stripes between the bheris: the villages always have a narrow shape along one main road. Around 61,000 inhabitants populate the wetland area at a density which is uniquely low in the Kolkata Municipality Area.

The morphology of the water bodies is first of all a result of the drainage flow to the East, which begun naturally and was then aquired and adopted by human interventions. The dimensions and depths in particular have been refined over time to optimise the conditions for biodegradation.

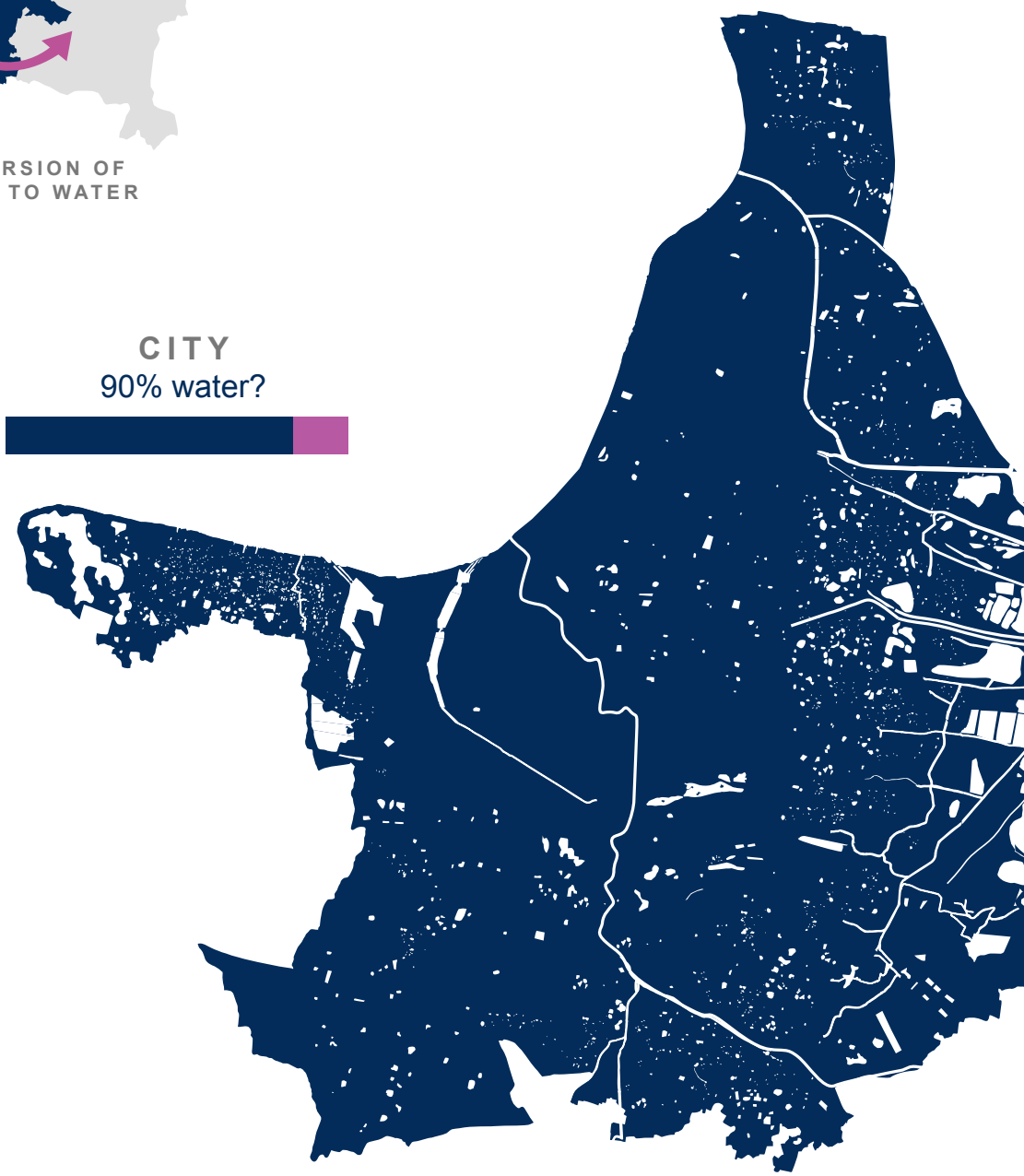
The landscape seems to be of a striking rural character although right next to the city. However, the complexity of the economy undertaken - the logistics and management of water and waste - gives evidence of a highly advanced industrialised action that is usually attested to urban processes.

BUILDING
WATER

20m 100m

THE INVERSION OF
URBANITY TO WATER

CITY
90% water?

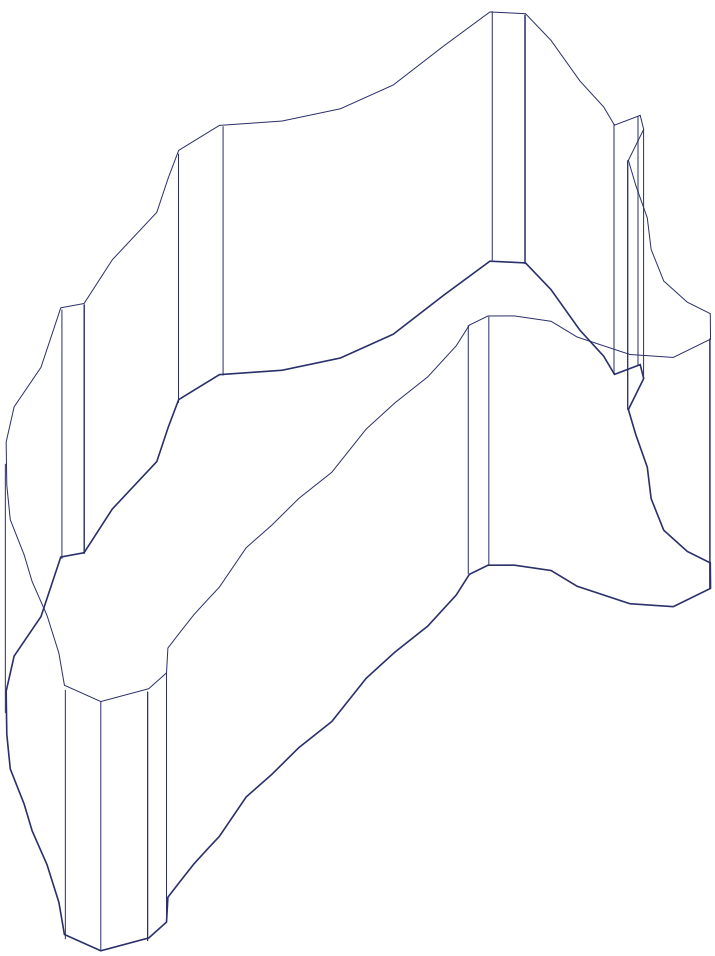


Future prospect:

WETLANDS

90% urbanity?

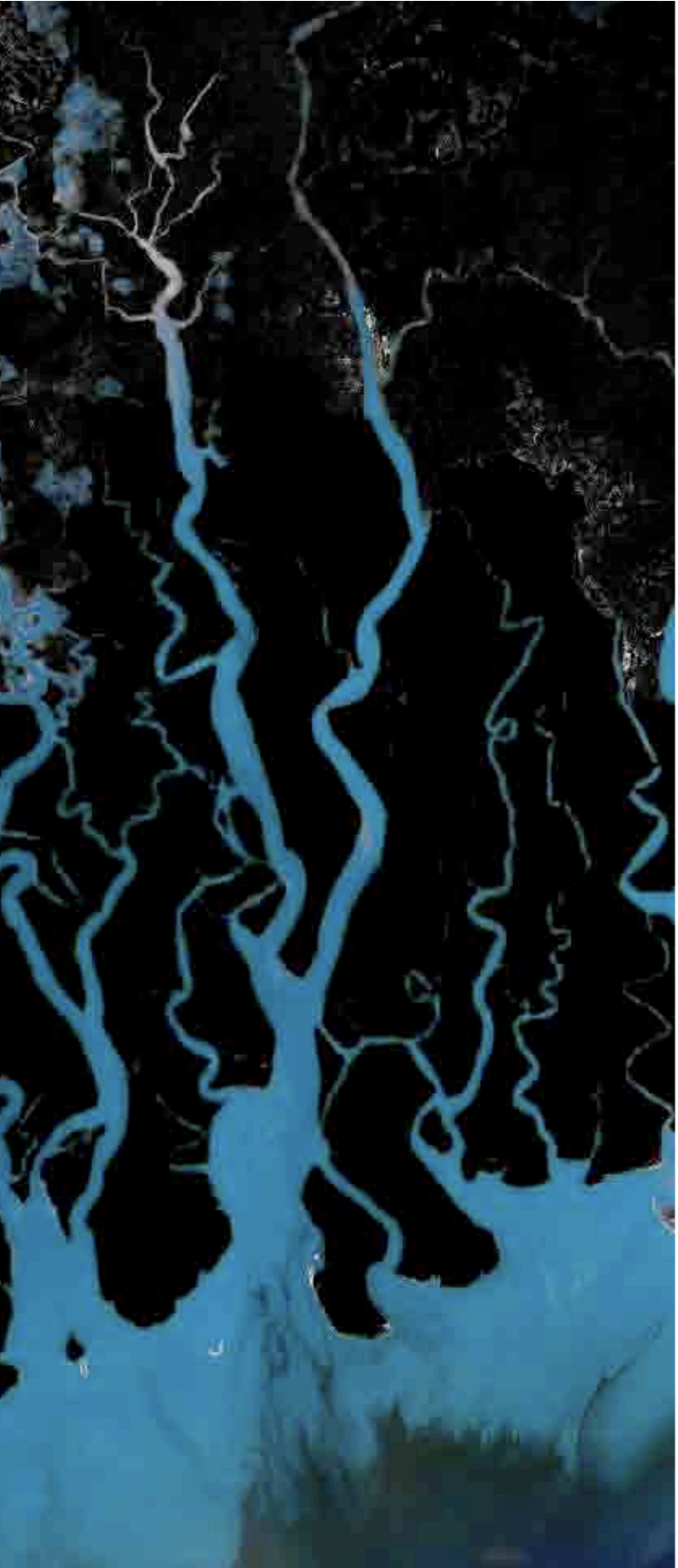
filled-up wetlands, flooded city.



I - WATER OVER TIME

The history of Kolkata water

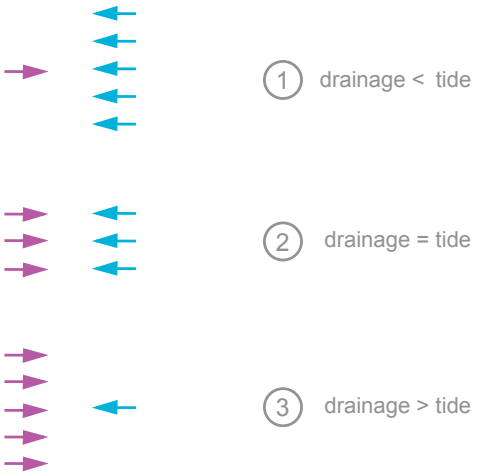
West Bengal Delta
Drainage counteractiong tidal flow.



Drainage water counteracting tidal flow

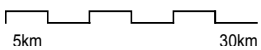
In former times, the tidal flow from the Bay of Bengal reaches as far as onto the territory of what is Kolkata City today. The emerging city starts to draw on the upland flow from river Hooghly, a distributary from river Ganges in the North, for its water supply.

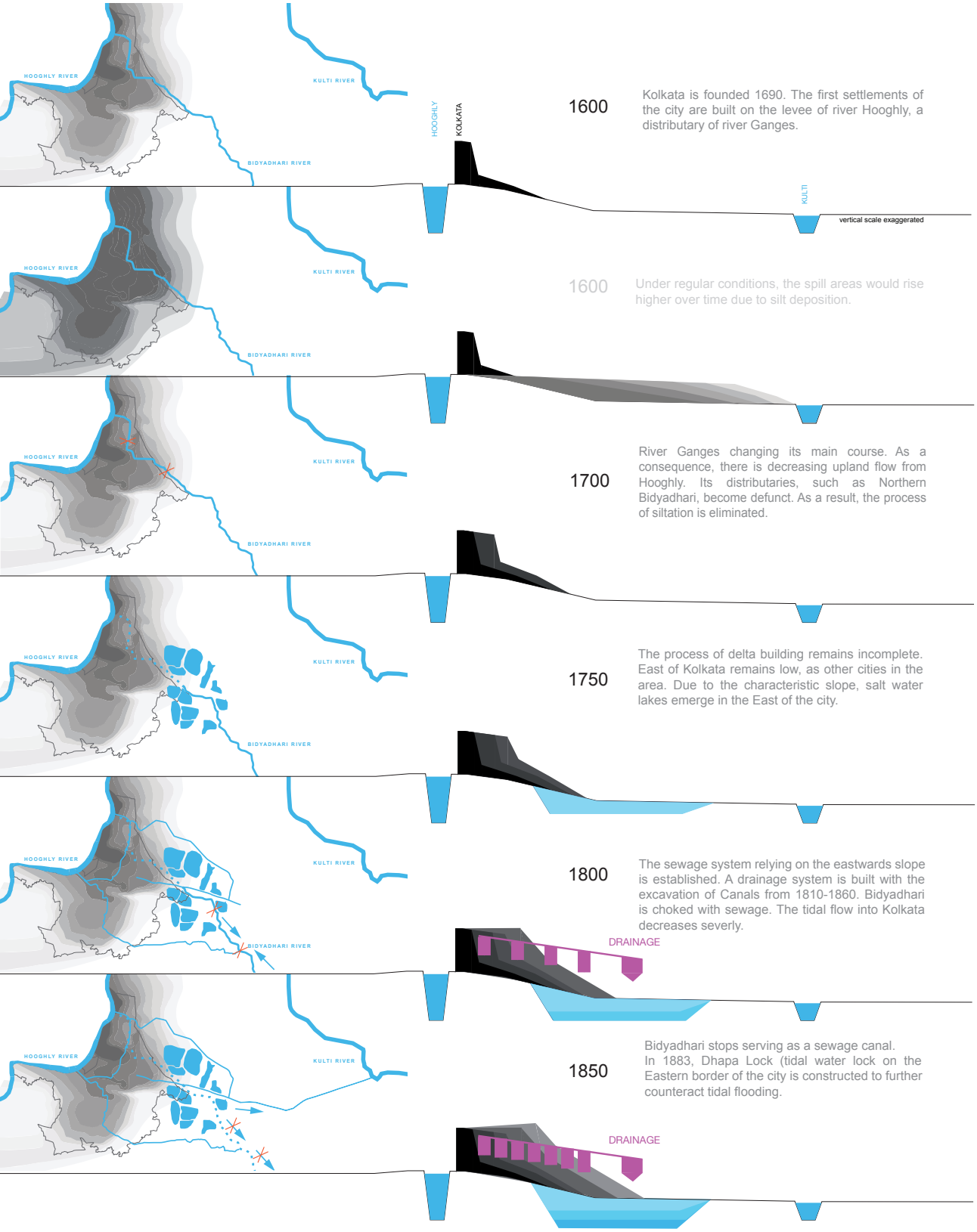
The ground of the city slopes towards the East, leading to the drainge to follow the natural topographical direction. Thus, a clash of two opposing flows occurs. With the growth of the city and the amount of drainage and sewage water the tidal influence is surpressed. The quality of water that was once saline, turns to brakish and finally to fresh. Besides, distributaries, such as river Bidyadhari, become silted over time and put the inflow of tide to halt. Since the beginning of last century, **no salt water enters the area anymore.**



Bidyadhari River: outlet for sewage before 1940

Kulti River: outlet for sewage after 1940

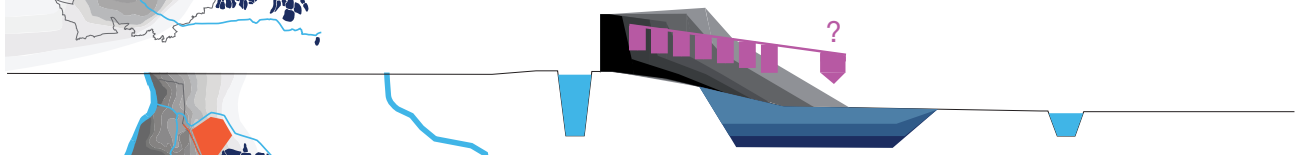


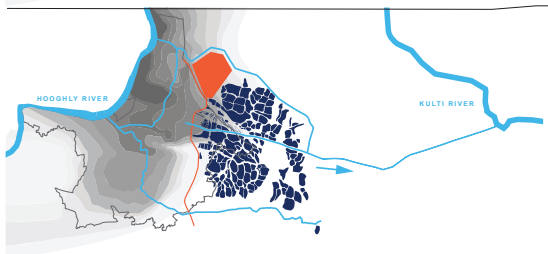


Shrinking Wetlands
Human intervention creating, changing and deteriorating the quality of the wetlands.

1900

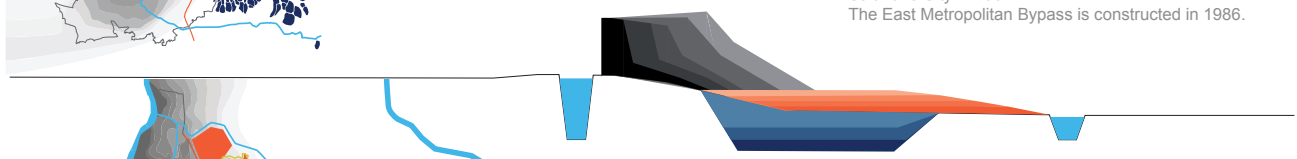
Waste water is continuously led through the wetlands. Water quality is changed from saline to brakish. The sewage outfall of the city is changed from Bidyadhari to Kulti river. Waste farming and sewage fishing start on a small scale. Canals are used for inland navigation.

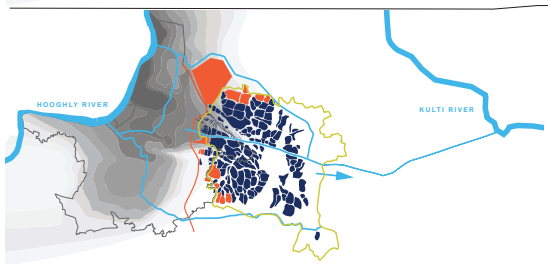




1950

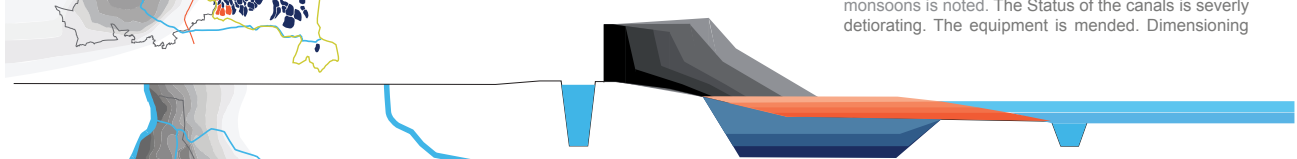
Enforced conversion of wetlands for urban development. First reason for larger scale land reclamation is Salt Lake City in 1962 .
The East Metropolitan Bypass is constructed in 1986.

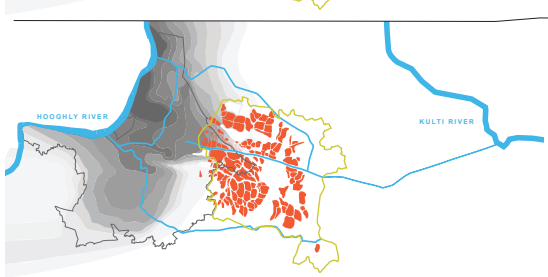




2002

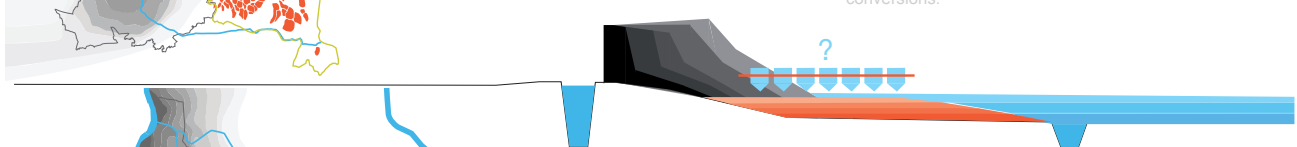
East Kolkata Wetlands are registered on the Ramsar list in 2002.
However, more land is converted at the fringes of the city. Aggravation of drainage problems in the city during monsoons is noted. The Status of the canals is severly detiorating. The equipment is mended. Dimensioning

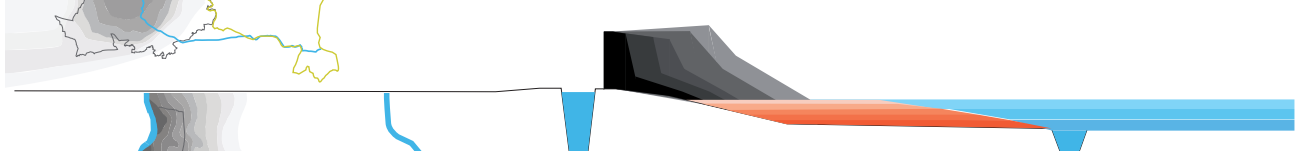


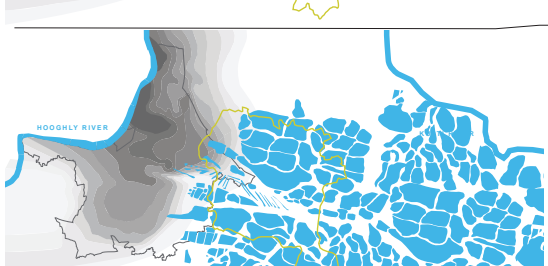


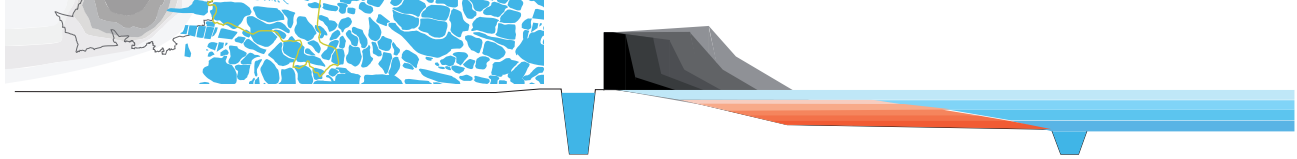
2050

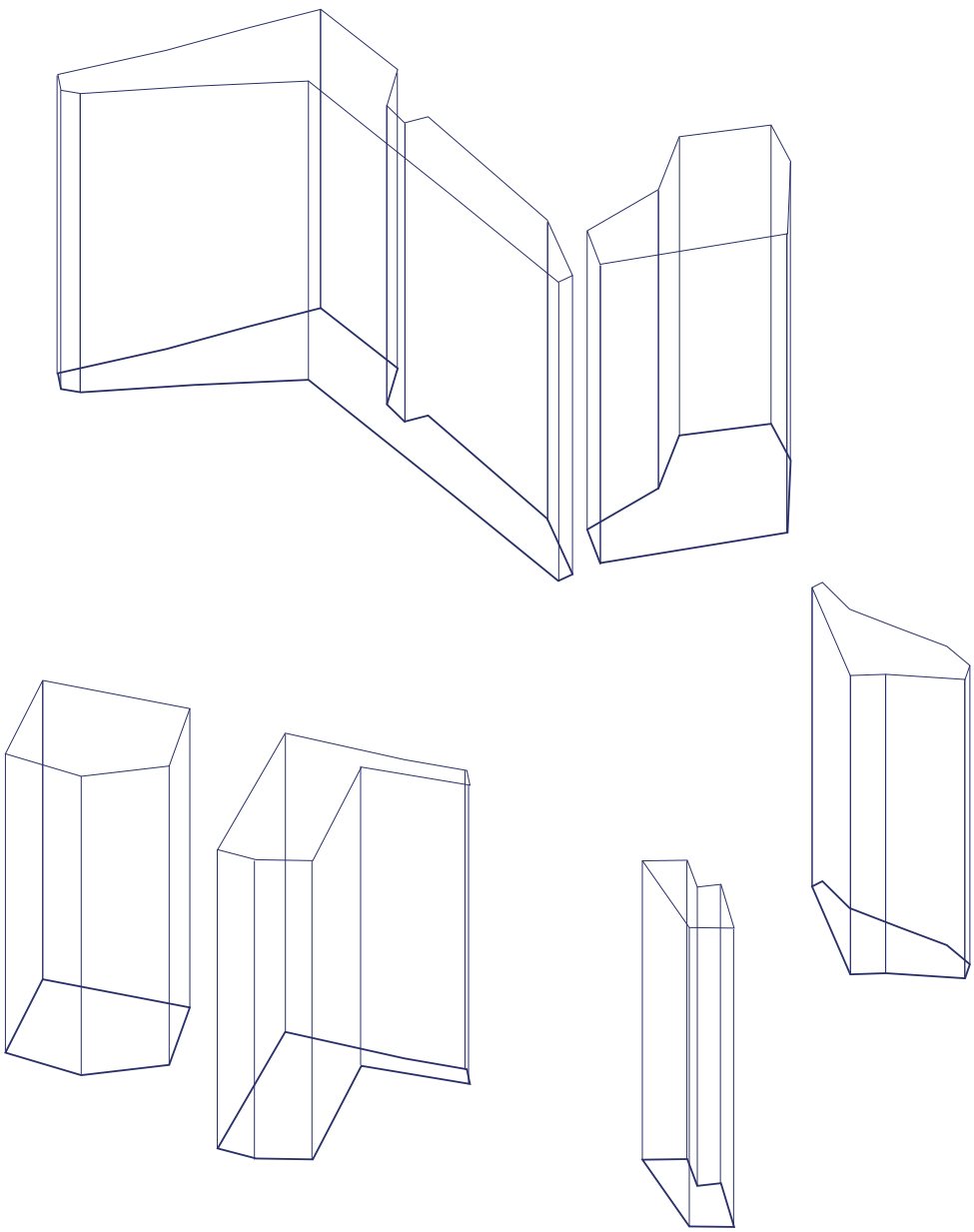
Kolkata is facing a rising sea level in the long run. The Lakes have a great capacity of storing water.
However, this area will decrease with ongoing land conversions.





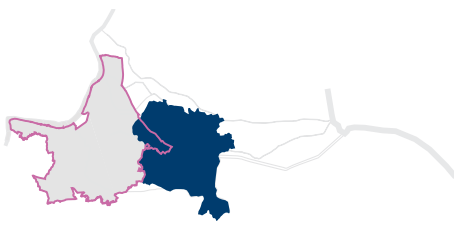


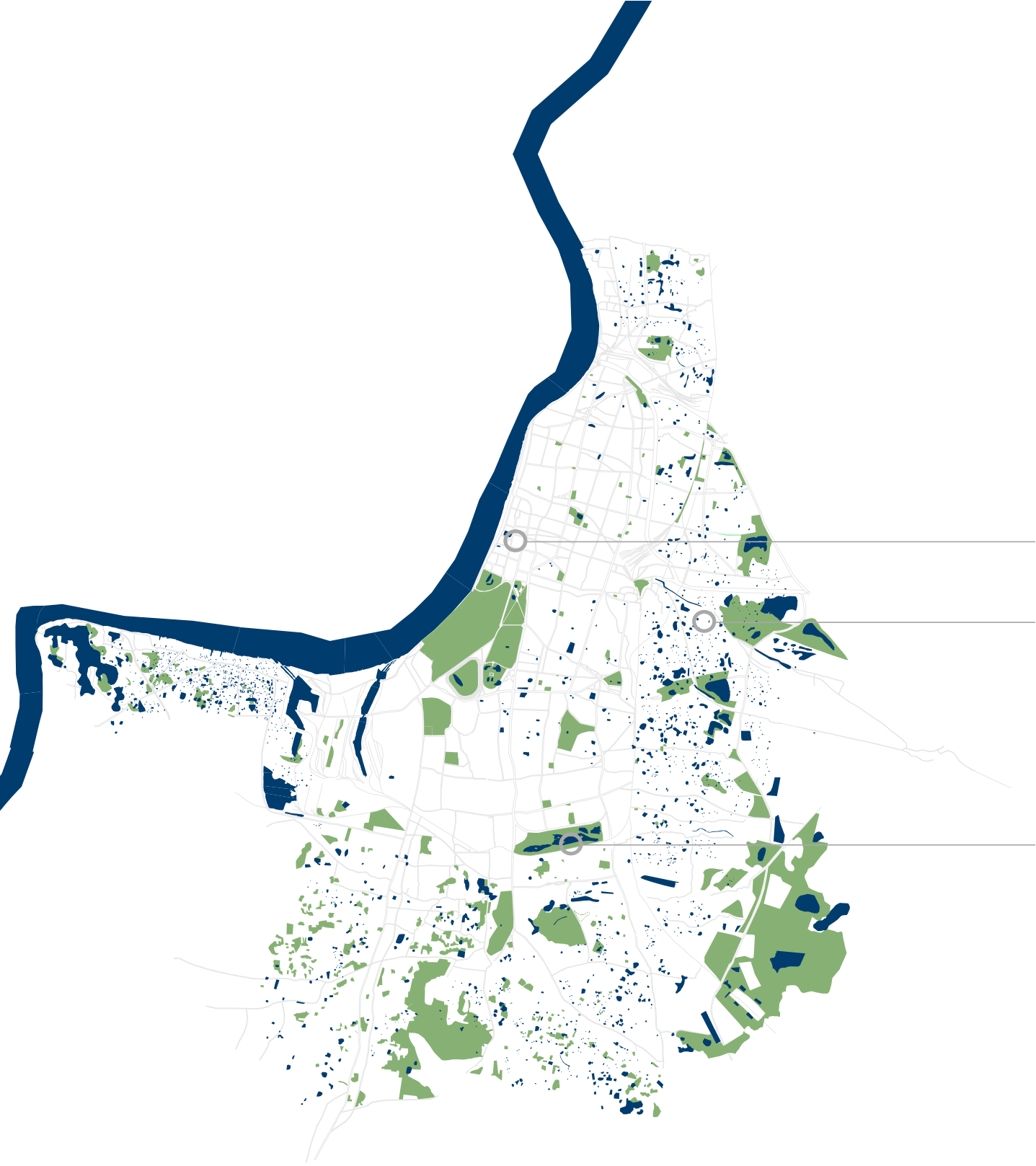




II - WATER AT REST

Urban water reservoirs





Three categories of reservoirs
Urban waterbodies in the context of infrastructure and green areas.

1km 5km

URBAN WATER RESERVOIRS

Reservoirs collect excess water at monsoon

Kolkata City is affected by annual monsoon rains, that can raise the water level in the city up to 1,5 metres in the inner city. This kind of flooding caused by rainwater is called logging.

As the land slopes towards the east, the excess water should be lead through the rainwater canals to the natural flow direction. Nevertheless, the canal system is not efficient enough to handle the excessive amount of water at monsoon time. So the individual inhabitants are preventing the rise of water level into the houses by excavating water reservoirs next to the settlement. As the demand for built-up area has increased, innumerable ponds have been dug up in order to raise the ground level of lowland areas above the normal flood level. (CEMSAP, 1997) Thus the city has gained its extraordinarily dense pattern of water.

Landfilling, encroachment and vegetation

Lal Dighi
central city pond

Gobinda Khatik Road
small slum pond

Rabindra Sarobar
large recreational lake

As the city has grown and land prices have increased in the central districts, the counteraction to pond excavation has started. Now ponds are being filled up to make space for the development of built-up zones.

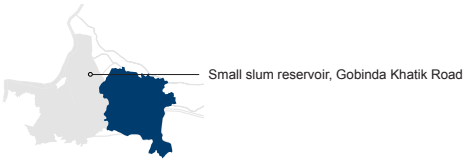
The problem of filling up of urban water reservoirs is a frequent topic in Kolkatan newspapers. An article by Times of India, Kolkata (30.1.2008) mentions that the Municipality is soon commissioning a survey on all urban waterbodies to prevent their further conversion. Already in early 2006 (7.3.2006) the same newspaper was reporting about “a KMC (Kolkata Municipal Corporation) crack team” stopping the illegal filling up of waterbodies.

As the existing ponds mainly function as collectors, their active use is often minimal. Most of the reservoirs are degrading because of ill maintenance. Solid waste and excrements are let straight into the reservoirs, and vegetation takes over the water surface because of overnutrition. These problems are aggravated by encroachment, i.e. settlement extending inside the reservoirs.

KMC developing reservoirs into fisheries

Kolkata Municipal Corporation is taking measures to improve the conditions of urban water reservoirs. The most degraded ponds are listed, their owners contacted, and in the cases where no owner can be identified, the municipality takes control over the reservoir to remove vegetation and waste.

In an ideal situation, urban water reservoirs could be used for fishing and recreation. The growing of fish maintains a pond in good condition, as the fish eat algae and prevent excessive vegetation. Here the city is adopting the practice that has proved succesful in the East Kolkata Wetlands.



CATEGORIES OF RESERVOIRS: Small slum reservoir

= CHOKED RESERVOIR
Gobinda Khatik Road reservoir surrounded by settlement.

SMALL SLUM POND
Gobinda Khatik Rd, Tangra, East Kolkata

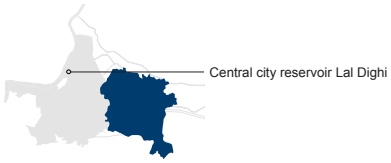
(+) Occasional use by inhabitants

(−) Degrading because of vegetation
No access for non-residents, no green area

The reservoir on Gobinda Khatik road is a typical slum reservoir. It is surrounded by dense settlement, occasionally expanding even over the water. The water looks rather green than blue; the surface is covered by vegetation, e.g. water hyacinth.

This kind of reservoirs are hard to access as they are inside the slum structure. There is no connection to green areas. The inhabitants use the reservoir for occasional bathing and fishing, but the water quality is often too low for pisciculture.

These degraded reservoirs are being developed by the municipality, and could at best produce fish and provide a recreational area for the inhabitants.



CATEGORIES OF RESERVOIRS: Central city reservoir

= TRAFFIC-DOMINATED RESERVOIR
Lal dighi surrounded by a parking lot and a bus station.

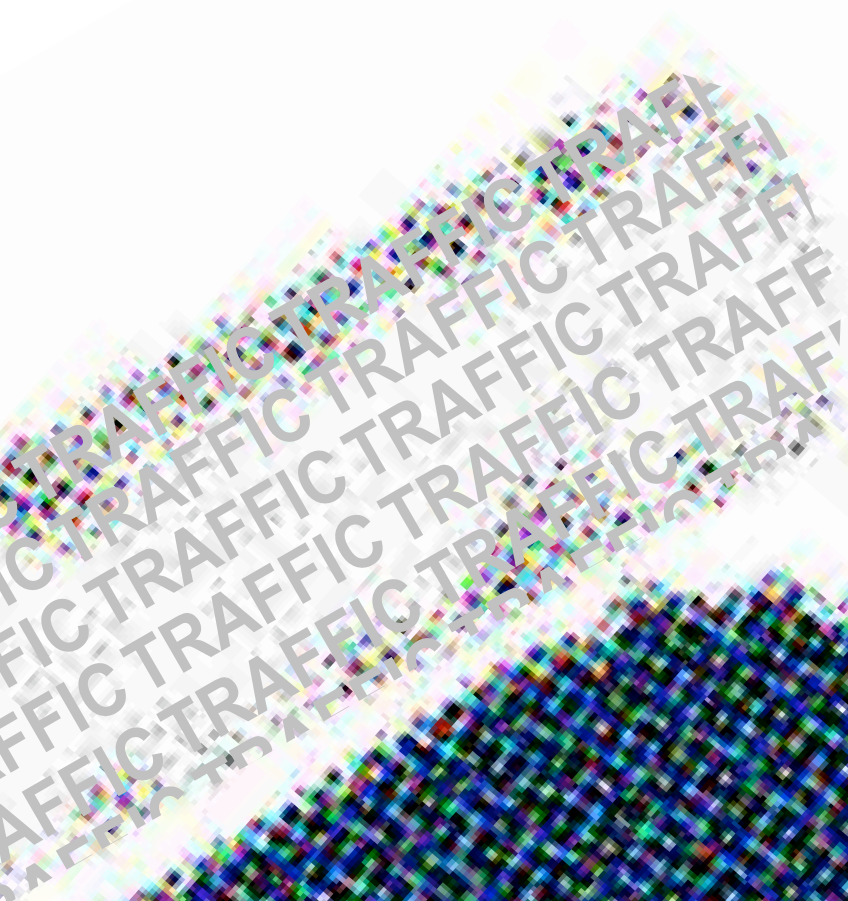
CENTRAL CITY RESERVOIR
Lal Dighi, colonial centre

+ Central, open to public

− Dominated by traffic, parking, bus station
Poor realtion to green, no daily use

Lal Dighi is situated in the old colonial centre of Kolkata. In 90th century was used as a drinking water tank by the British. After that use ceased, the reservoir has been neglected and surrounded by a bus station on its east and a car park on its north side. At the moment, the pond is dominated by a construction site of an underground parking hall, which will be constructed under it.

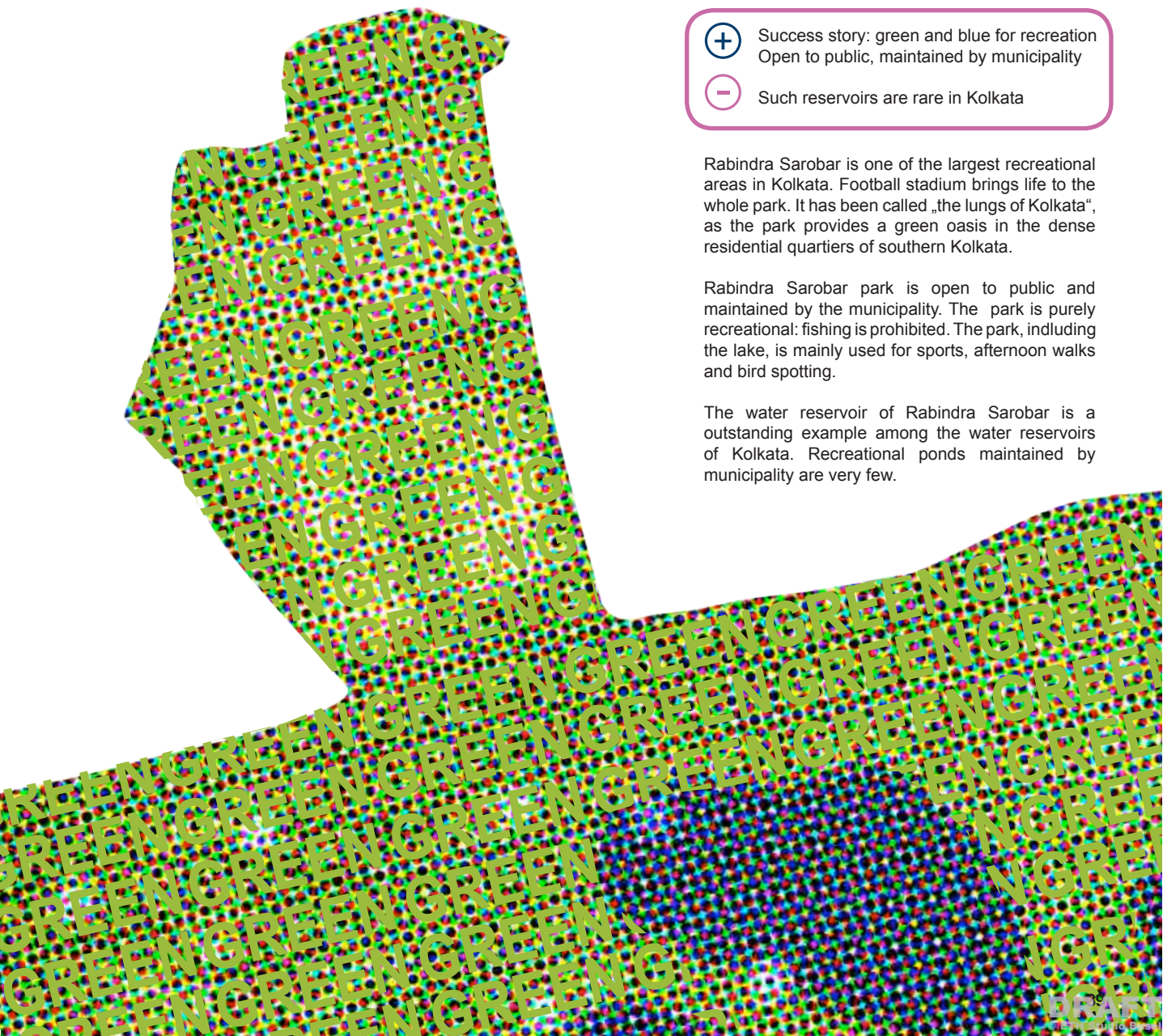
A green buffer zone surrounds the pond, but does not create a recreational area. At present the reservoir has no distinc use other than being perceived as a fragment of open area in dense settlement by people passing alongside of it.



CATEGORIES OF RESERVOIRS: Large recreational lake

= GREEN RESERVOIR
Rabindra Sarobar embedded in park area.

LARGE RECREATIONAL RESERVOIR
Rabindra Sarobar

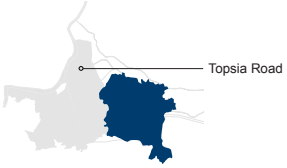


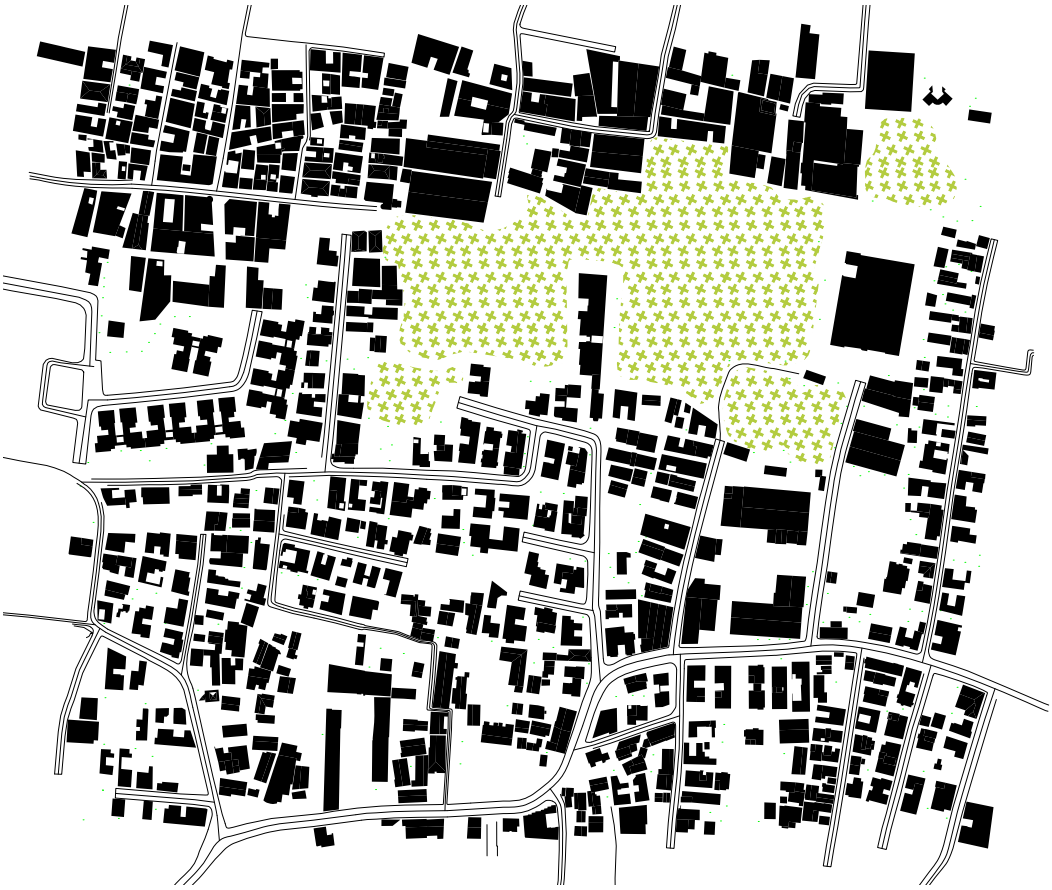
+ Success story: green and blue for recreation
  Open to public, maintained by municipality
- Such reservoirs are rare in Kolkata

Rabindra Sarobar is one of the largest recreational areas in Kolkata. Football stadium brings life to the whole park. It has been called „the lungs of Kolkata“, as the park provides a green oasis in the dense residential quartiers of southern Kolkata.

Rabindra Sarobar park is open to public and maintained by the municipality. The park is purely recreational: fishing is prohibited. The park, indluding the lake, is mainly used for sports, afternoon walks and bird spotting.

The water reservoir of Rabindra Sarobar is a outstanding example among the water reservoirs of Kolkata. Recreational ponds maintained by municipality are very few.





(water reservoir without use)

CASE 1: Topsia Road, 8 ha.
Pond is covered with water hyacinthe.

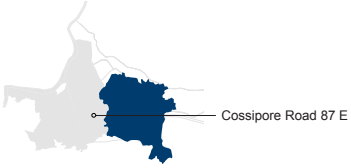
when compared to productivity of
pisciculture in the wetland ponds

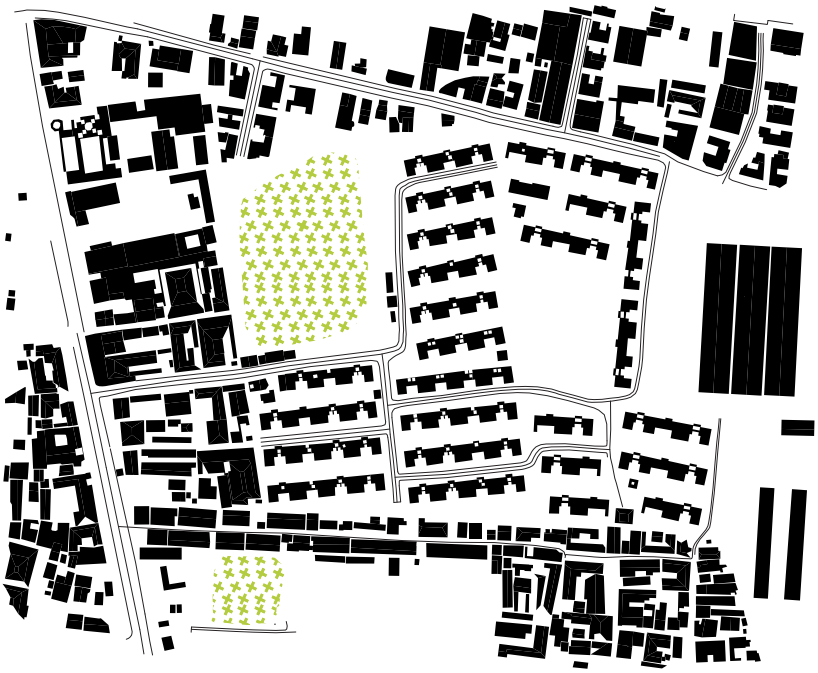
56,000 kg

of fish could be produced in a year
(average in wetlands is 6.0 - 7.5 tons/ year)

CASE 1: Topsia Road, 8 ha.
Possible productivity of area when used as fish pond.

CASE 1: Topsia Road, 8 ha.
Water Reservoir is currently being developed. Water hyacinthe is removed from the surface of the pond.





(water reservoir without use)

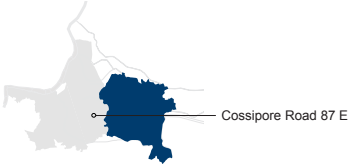
CASE 2: Cossipore Road, 0.4 ha.
Initially the pond was covered with water hyacinthe.

when compared to productivity of
pisciculture in the wetland ponds

28,000 kg

of fish could can be produced in a year
after maintenance action.
(average in wetlands is 6.0 - 7.5 tons/ year)

CASE 2: Cossipore Road, 0.4 ha.
Productivity of area after development when used as fish pond.

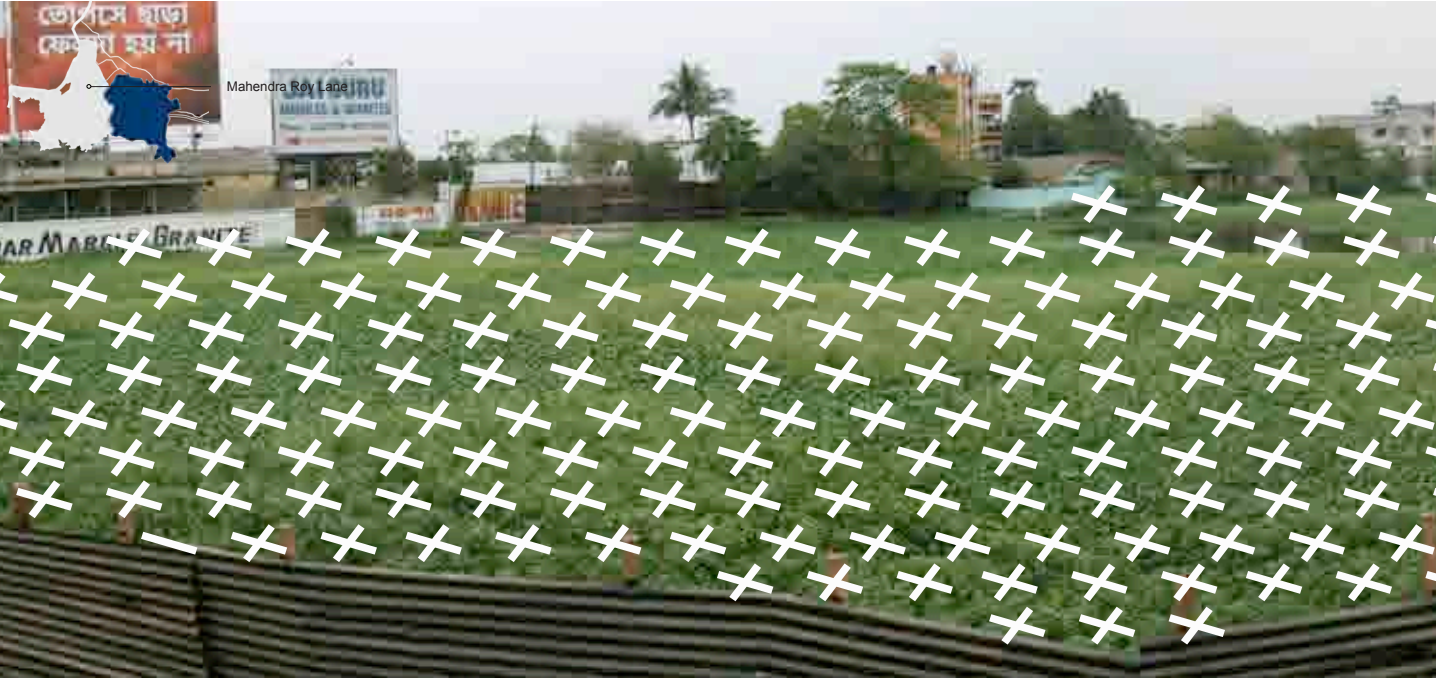


BEFORE

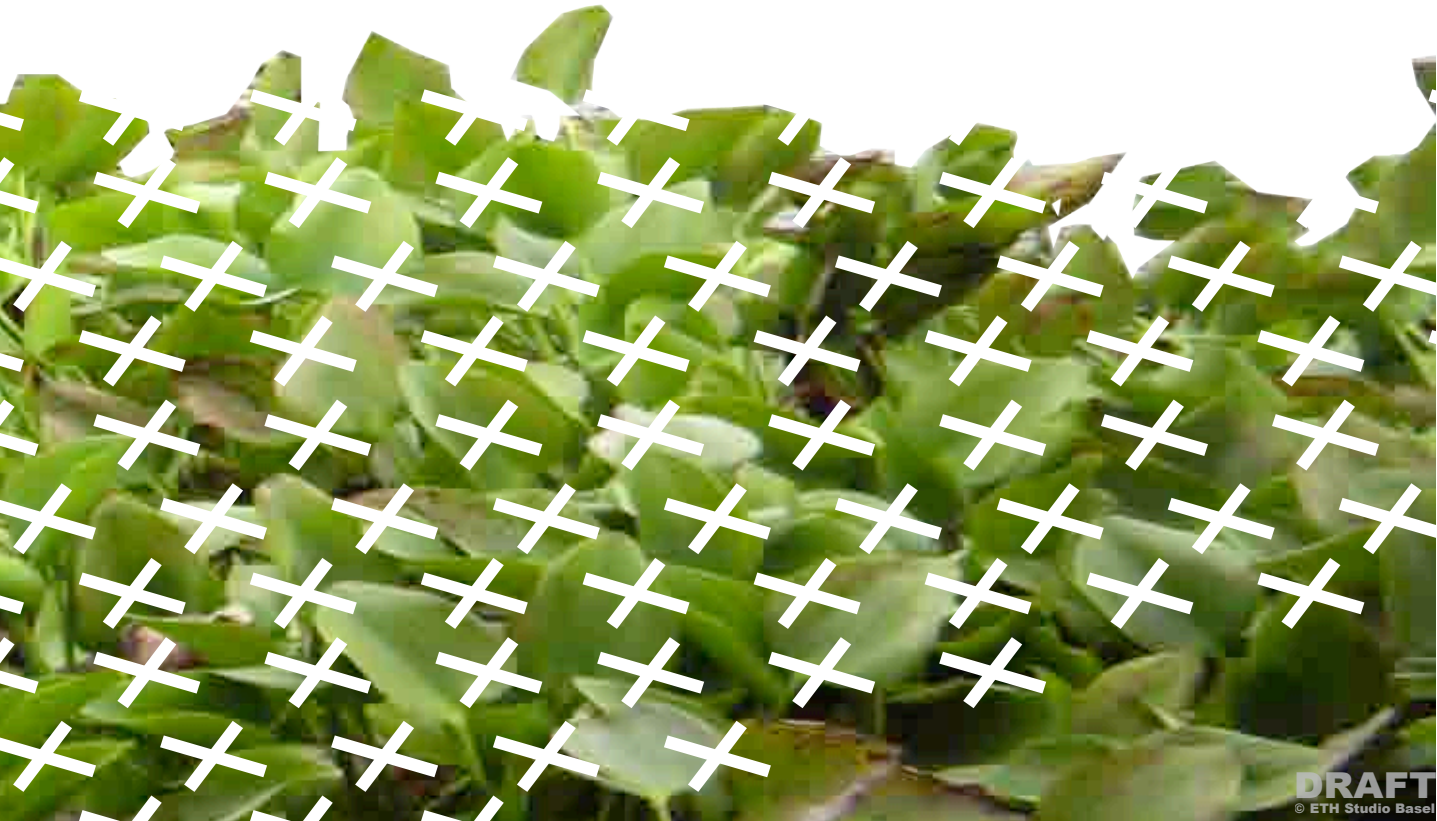
CASE 2: Cossipore Road, 0.4 ha.
Water Reservoir before it has been developed.

AFTER

CASE 2: Cossipore Road, 0.4 ha.
Water Reservoir after it has been developed.



Example of excessive growth of water hyacinthe
Mahendra Roy Lane, Kolkata City.



Reservoir with water hyacinthe
Excessive vegetation prevents growing of fish.

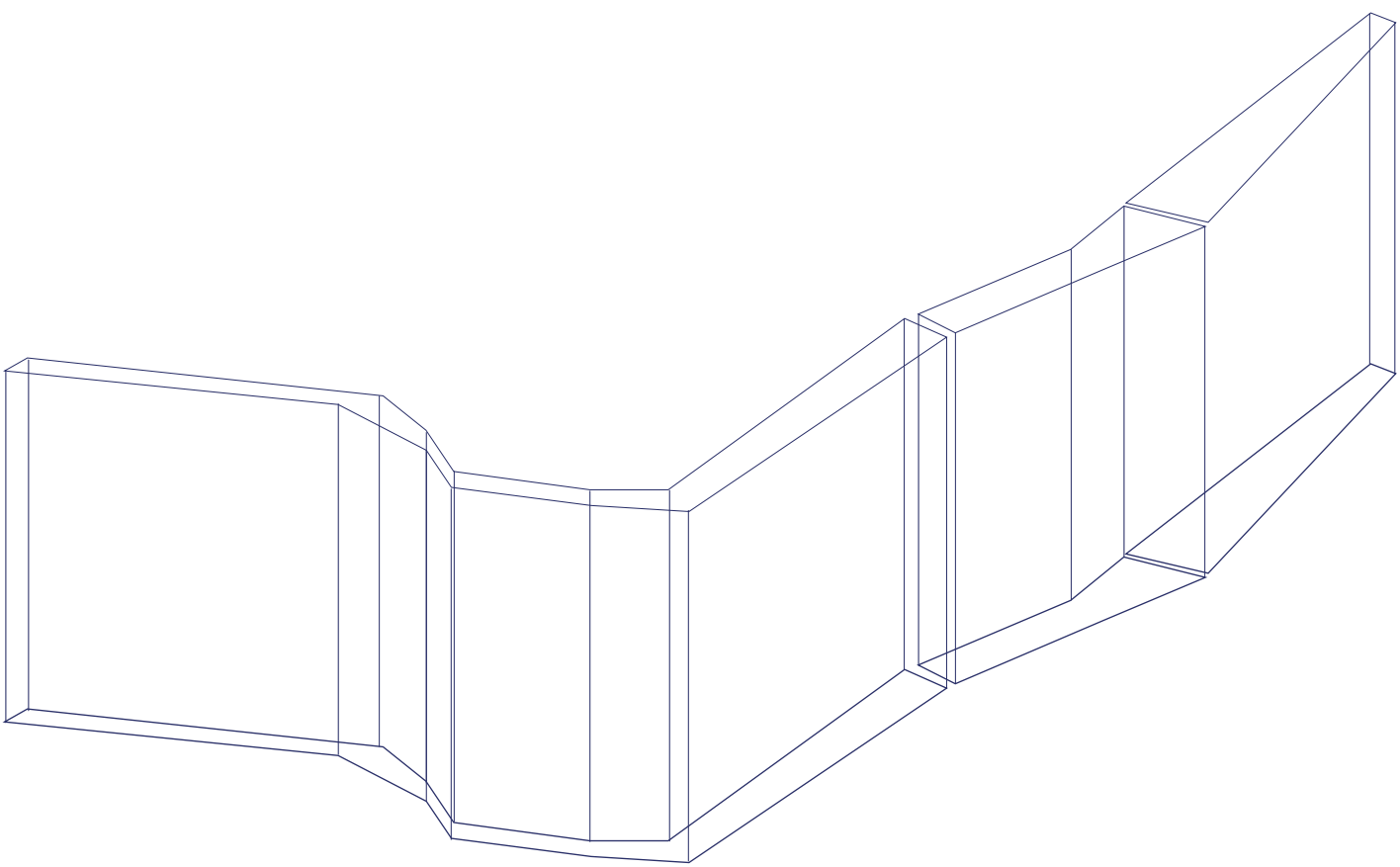
Living at the edges of a reservoir
The slum is extending into the inside the reservoir walls in Topsia, Kolkata.

Municipality sign next to a reservoir
The municipality has taken over 14 degraded ponds in Kolkata.

Upgrading the reservoirs
The municipality has piled the edges of a pond and removed vegetation in Topsia, Kolkata.

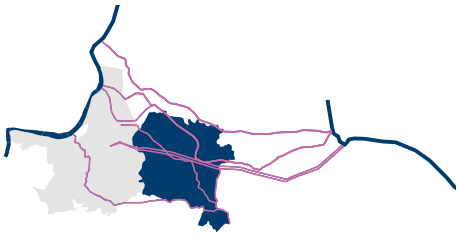
Reservoirs as waste tips
Waste and sewage is often dumped straight to reservoirs. Topsia, Kolkata.

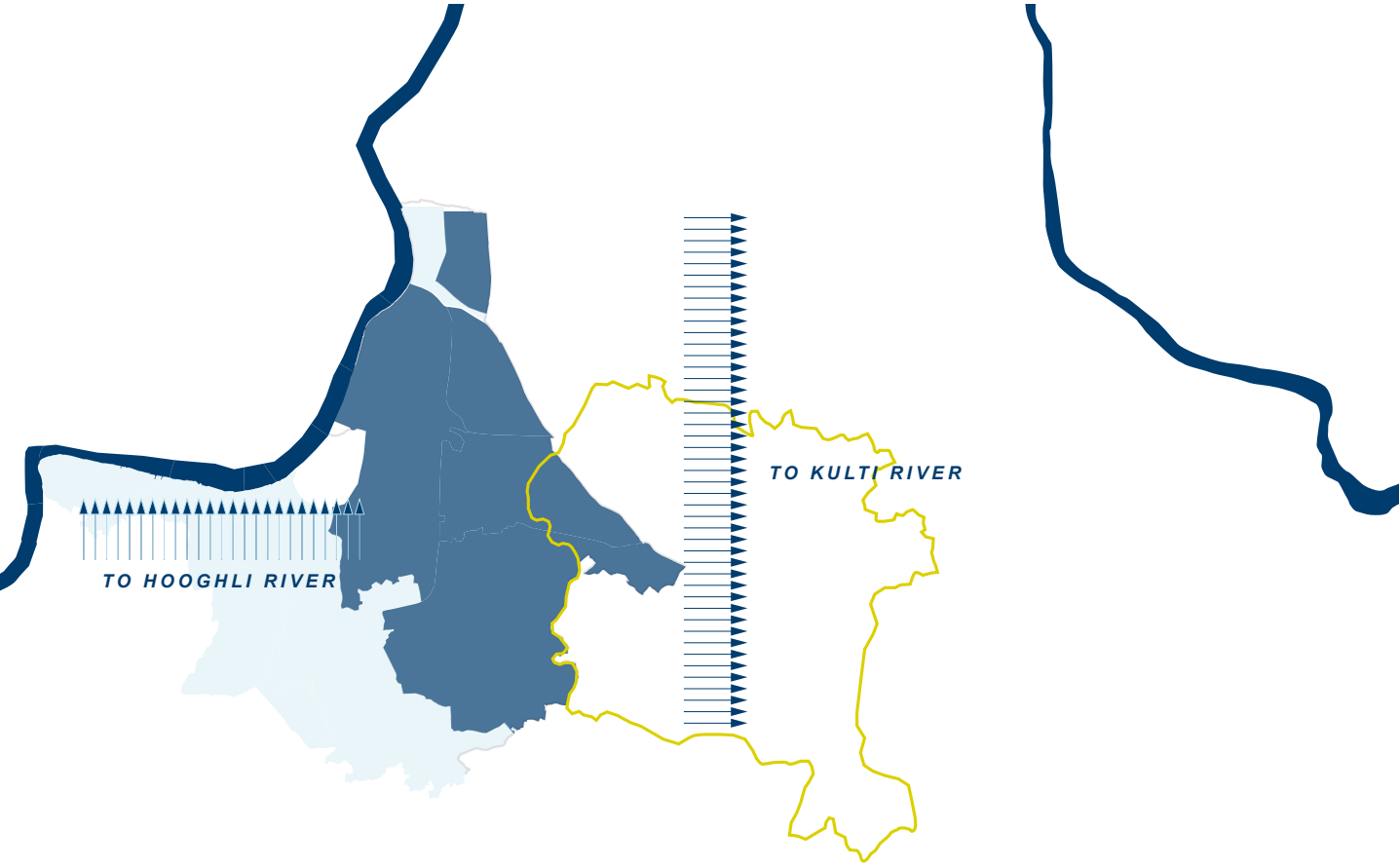
Simple single-pit latrine on the water edge
Letting excrement straight to still water reservoirs causes hygienic problemes. Topsia, Kolkata.



III - WATER IN MOTION

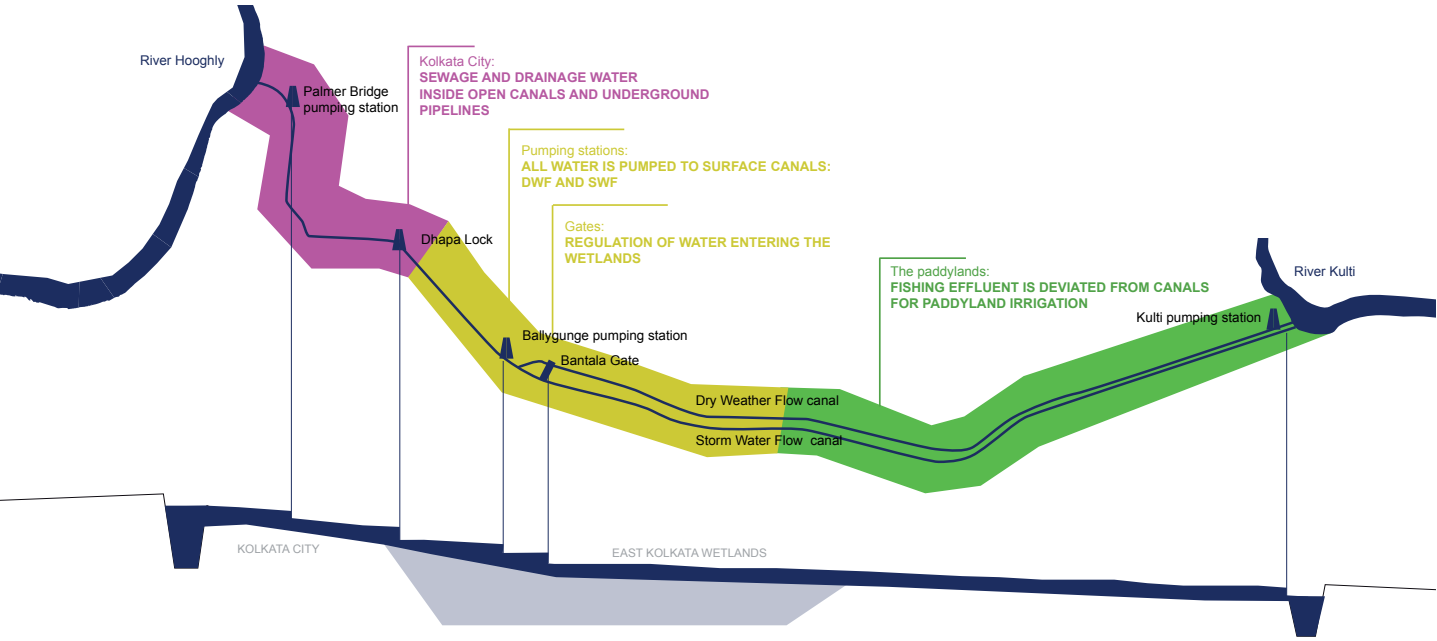
Drainage and water circulation





DRAINAGE BASINS
Western wards drain to Hooghly, eastern to Kulti.

2km 10km



DRAINAGE FLOW
Plan and section of Beleghata canal.

DRAINAGE SYSTEM IN KOLKATA

Two modes of drainage: natural and artificial

The drainage basin of Kolkata city comprises 400,000 ha in total. The Basins are grouped in two catchment systems, the Hooghly system and the Kulti system, according to the available outlets to the tidal rivers of south Bengal. The Hooghly system works in the common way via purification plants and outfalls back in to river Hooghly. The Kulti system incorporates the distribution of water to the wetlands, where the water is biologically treated.

Regulation of drainage flow according to rain weather conditions

Pumping stations regulate the amount of drainage let into the wetlands. The existing system combines discharge of storm water, sewage and dry weather flow. The basic layout of the system was completed in 1884. The underground trunk sewery line is linked with a total of 17 pumping stations, all located at the eastern margin of the city. These pumps are required to clear the discharge as the gradient is small and the designed capacity of the trunk sewers is to handle ¼ inch of rainfall per hour. The trunk drain takes the discharge towards the Kulti river to the east. This outfall was commissioned in 1943.

The deviation of wastewater into the wetlands

About 75 % of the total waste water flows through the Dry Weather Flow (DWF) and the Storm Water Flow (SWF) channels from Bantala to Kulti. In the South the Tolly's Nulla carries about 10% of the discharge originating from the city.

The Dry Weather Flow originates at Topsia Pumping station, the Storm Water Flow at Ballygunge Pumping station. From here water is taken to the wetlands.

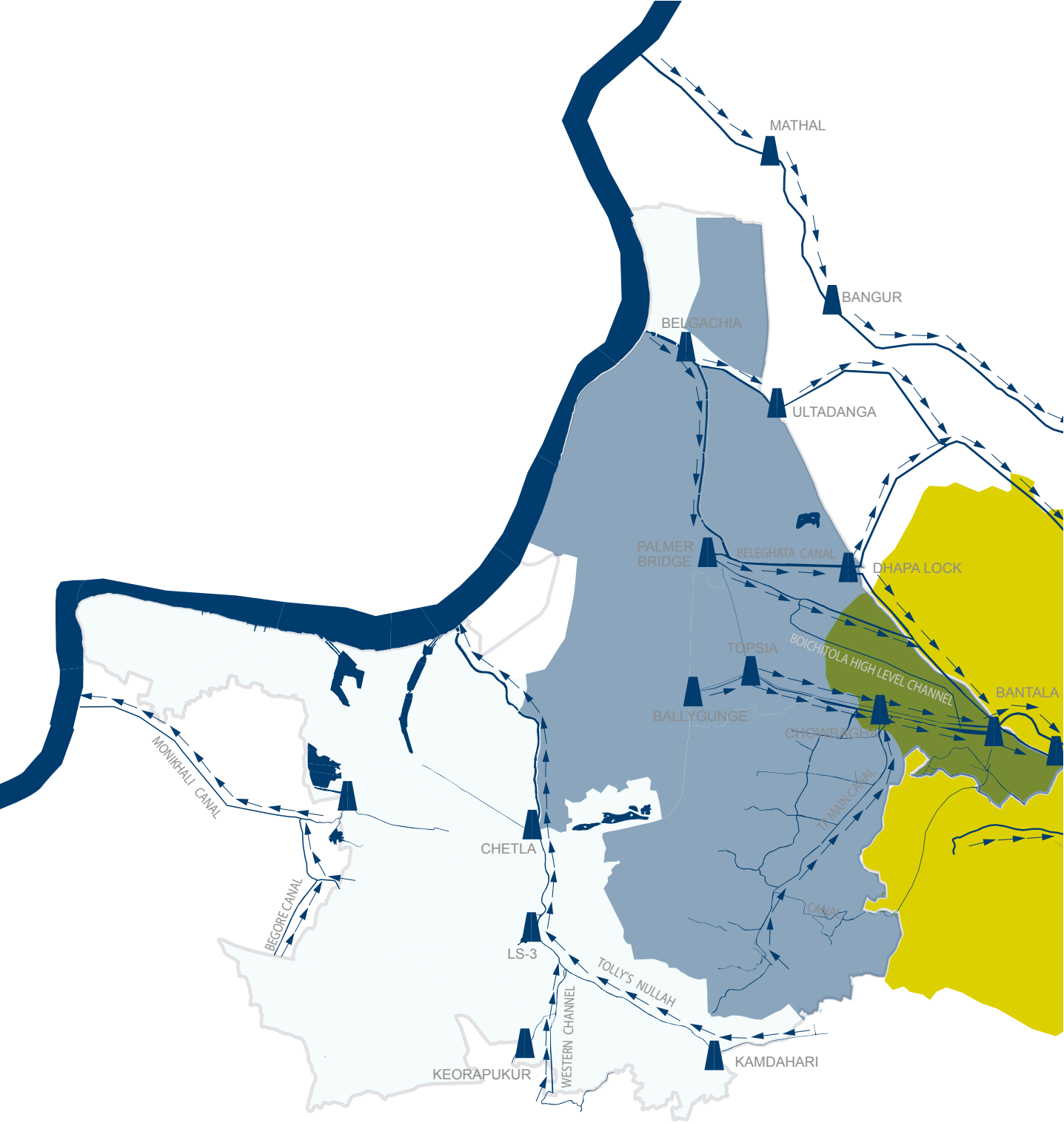
Lifting the gate
The gate regulating the flow of water to the wetlands.

The Dry Weather Flow

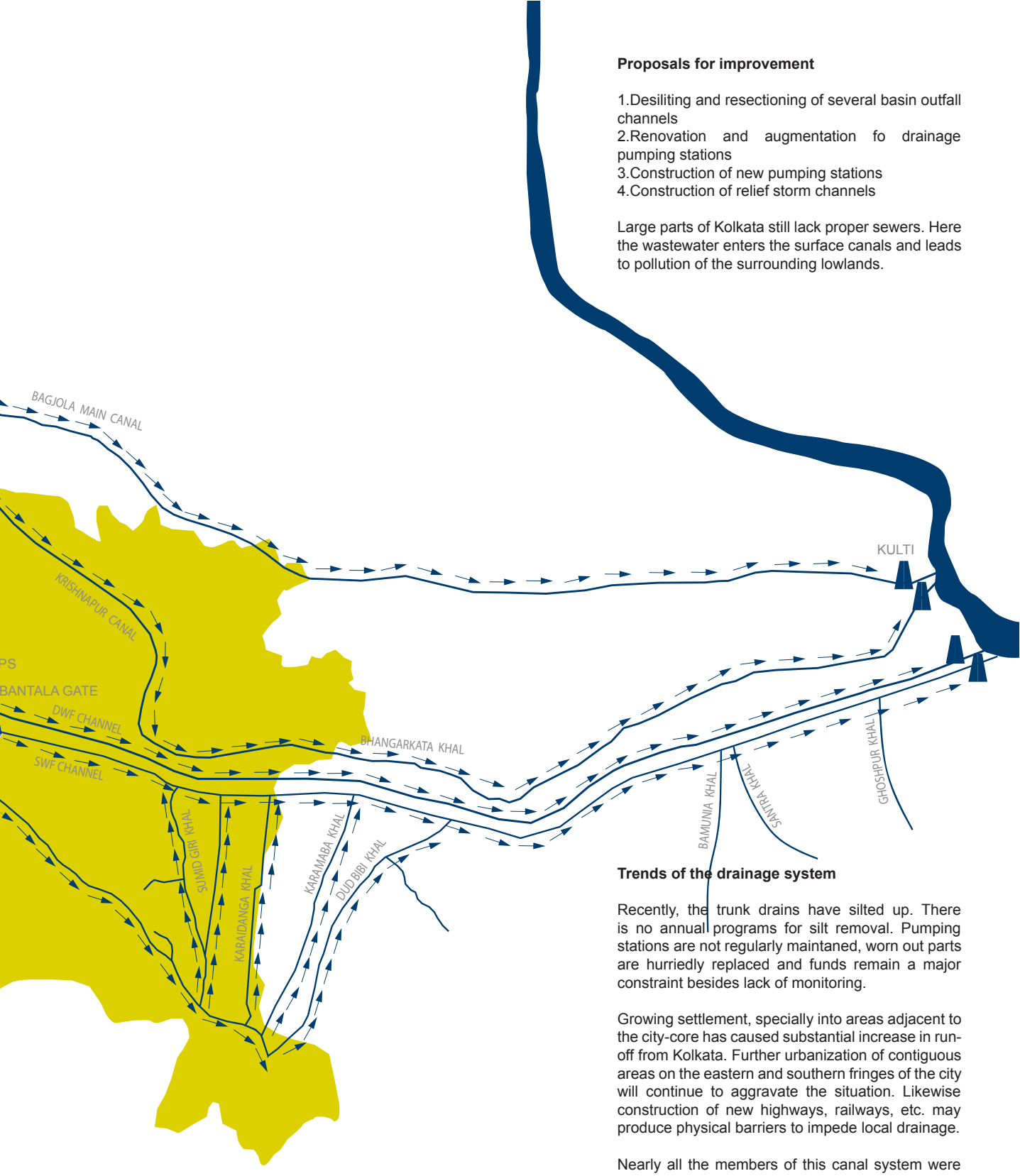
In low rainfall times, the majority of water is taken into the wetland ecosystem, where it is biologically degraded via a cluster of ponds. In their layout they establish a purification chronology.

The Storm Water Flow

In monsoon times, the wastewater entering the system is mixed with the heavy amounts of rainwater. Because the extent of pollution is dilluted to a considerable extent, the water is led past the wetlands into Kulti river.



Drainage canals and pumping stations
Drainage flow is pushed forward by pumping stations and regulated by gates.



Proposals for improvement

1.Desiliting and resectioning of several basin outfall channels
2.Renovation and augmentation fo drainage pumping stations
3.Construction of new pumping stations
4.Construction of relief storm channels

Large parts of Kolkata still lack proper sewers. Here the wastewater enters the surface canals and leads to pollution of the surrounding lowlands.

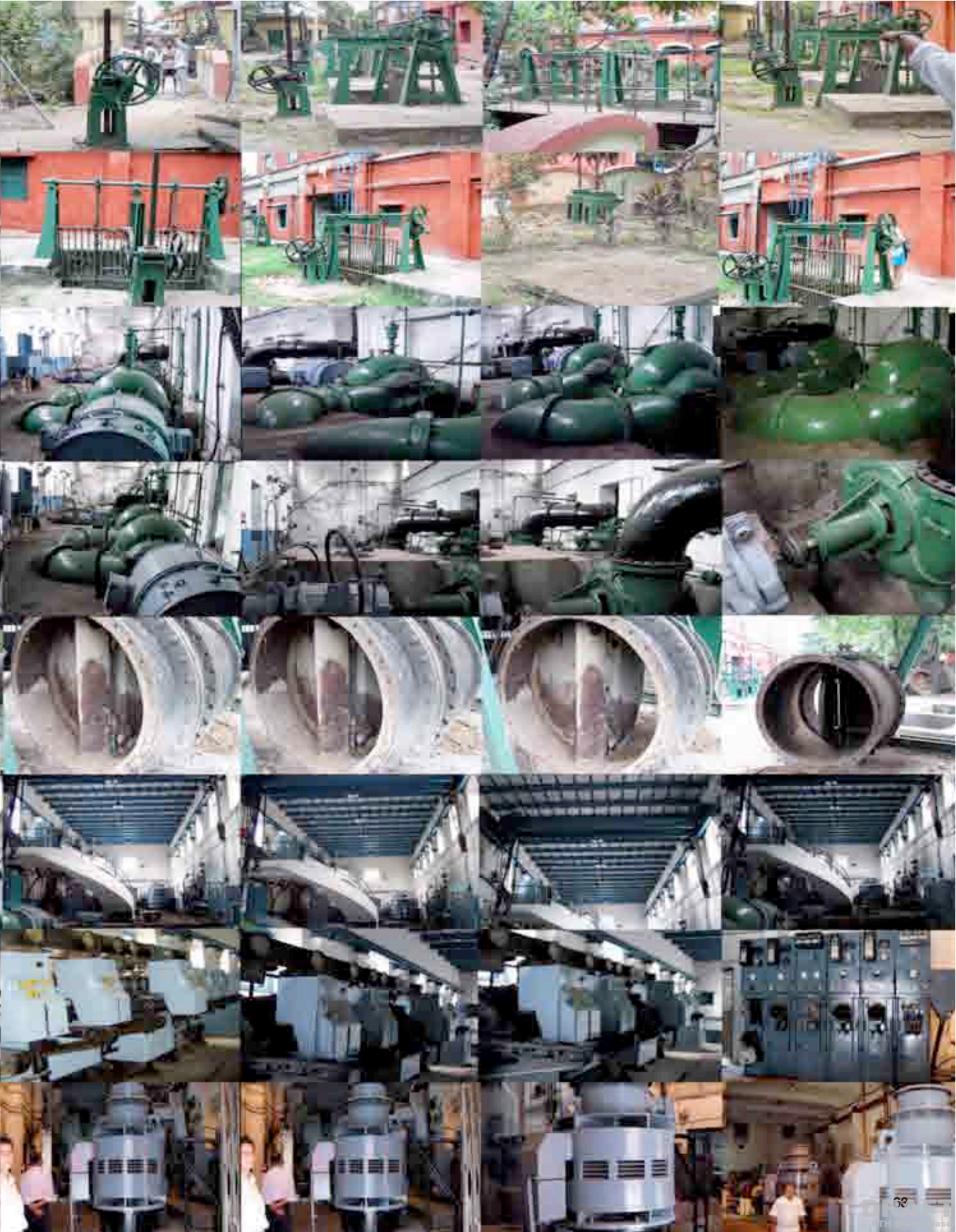
Trends of the drainage system

Recently, the trunk drains have silted up. There is no annuall programs for silt removal. Pumping stations are not regularly maintaned, worn out parts are hurriedly replaced and funds remain a major constraint besides lack of monitoring.

Growing settlement, specially into areas adjacent to the city-core has caused substantial increase in run-off from Kolkata. Further urbanization of contiguous areas on the eastern and southern fringes of the city will continue to aggravate the situation. Likewise construction of new highways, railways, etc. may produce physical barriers to impede local drainage.

Nearly all the members of this canal system were used in the past for navigation. Such a role for the canals has been neglected during the course of the past four decades, mainly because of encroachment. Now they are used only for drainage. *(CEMSAP 1997)*

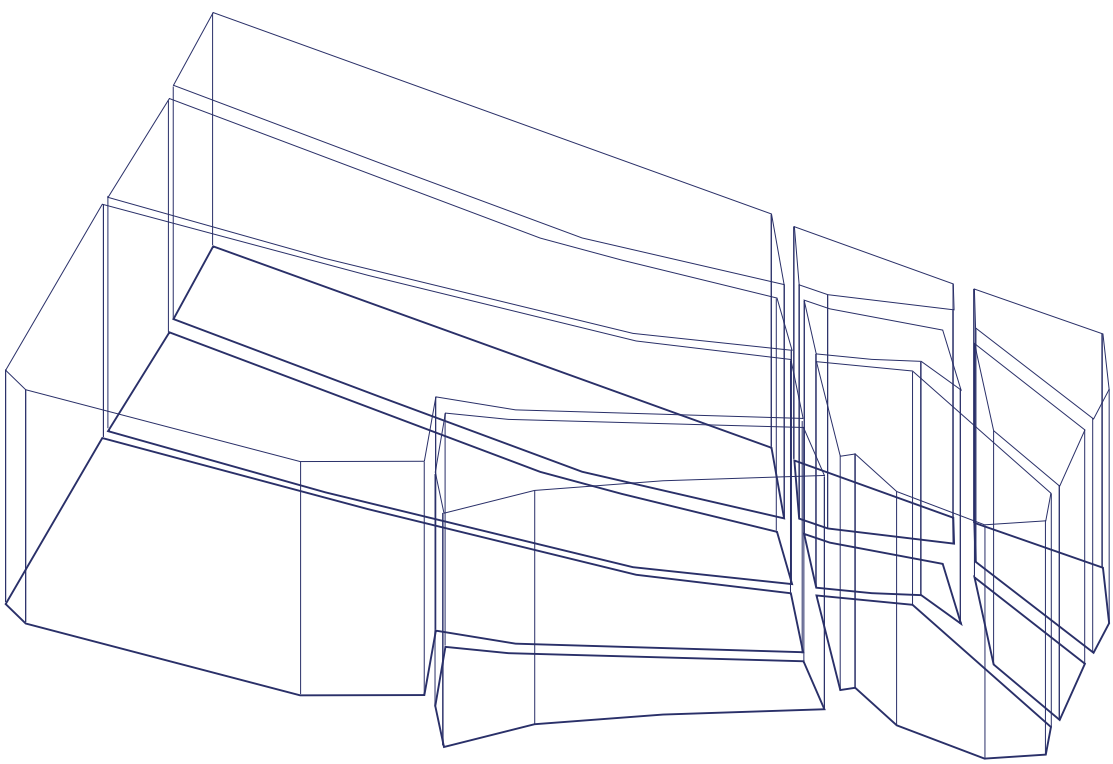
Ballygunge drainage pumping station
The current state of pumping plant equipment for sewage water.



Shafts with filter grills in Ballygunge
Solid waste is removed from sewage water manually before entering the overground canals.

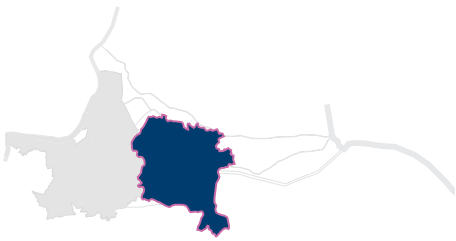
The gated area of Ballygunge Pumping station.
People live and work inside the pumping station that is separted by a surrounding wall from the bordering slum.

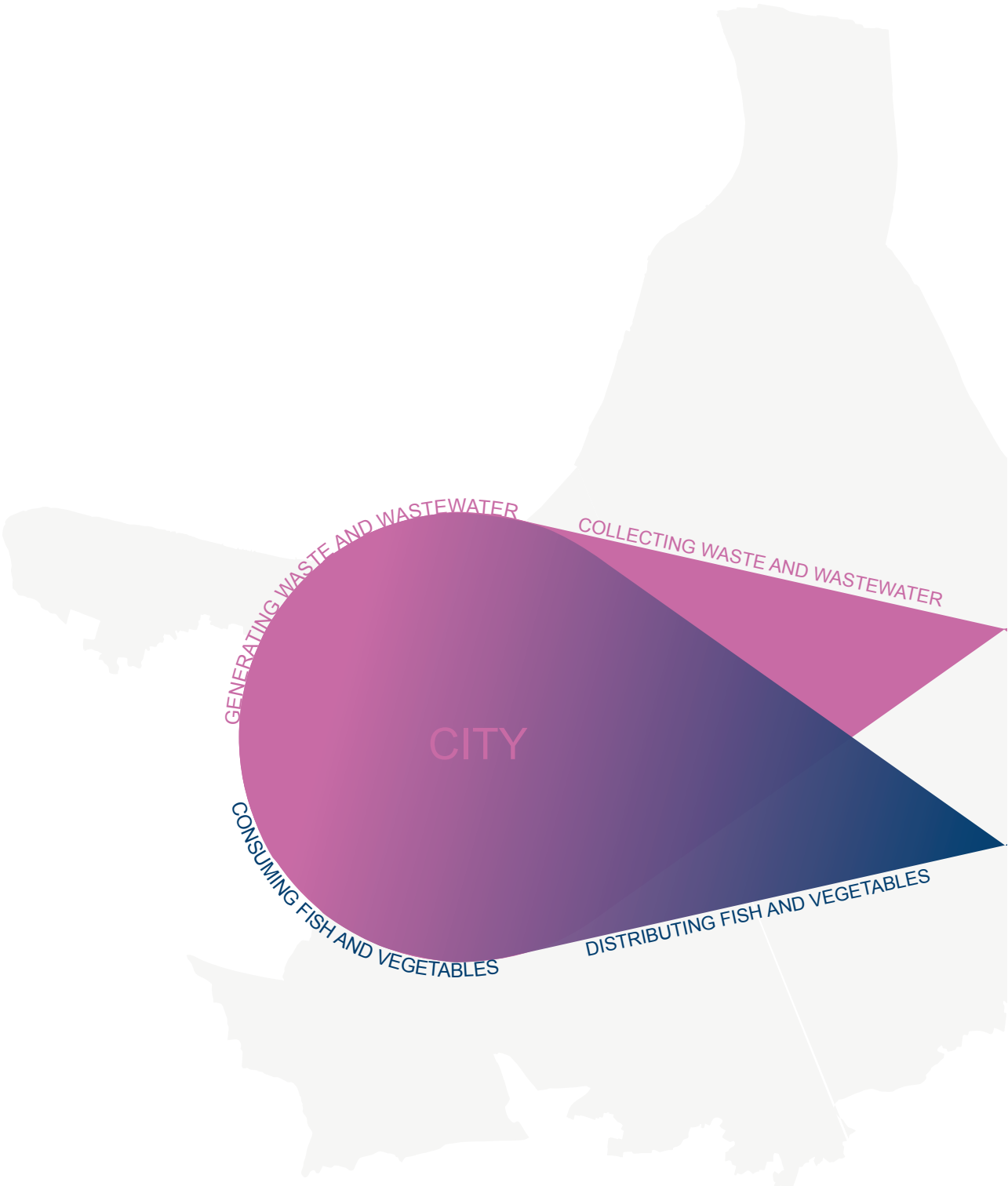
Waiting for water
People getting their daily water supply.



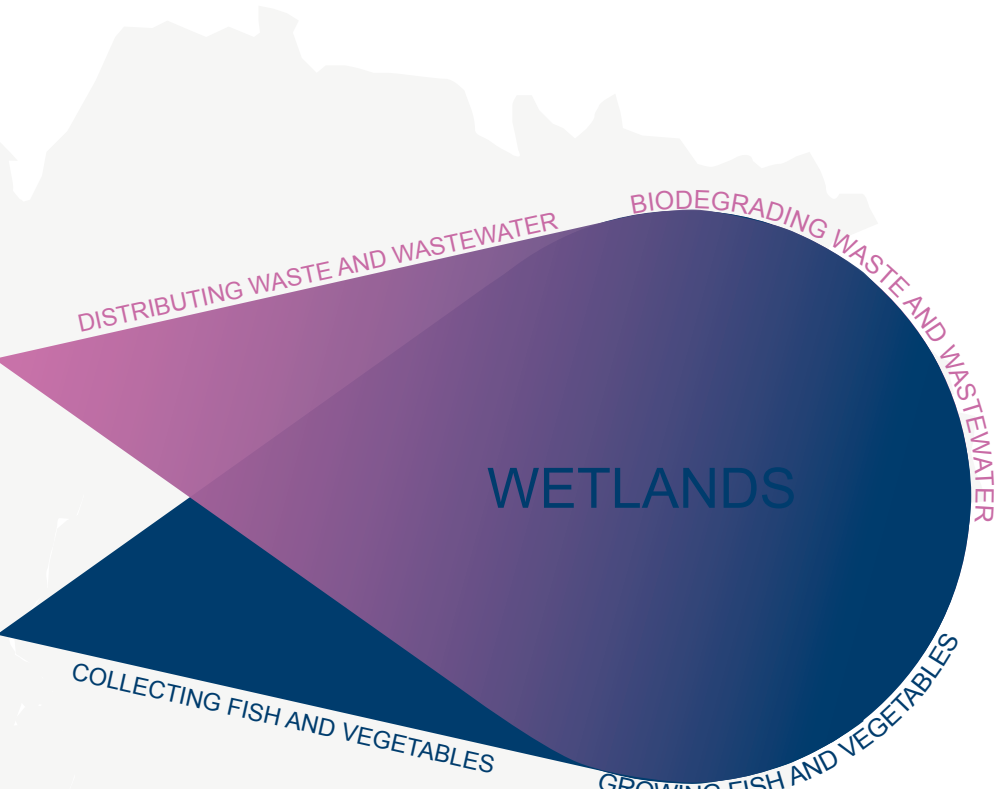
IV - WATER IN ACTION

Wastewater activating a landscape:
East Kolkata Wetlands





Exchange of residuals and goods between city and the East Kolkata Wetlands
The constant circulation of waste and products: production, concentration and distribution.



PRODUCT

WASTE PRODUCT

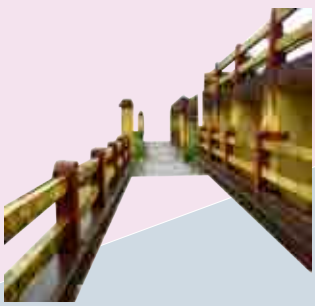
CITY

7.7 mio. inhabitants

18,800 ha

750 mio. liters sewage/ day
2,500 metric tons waste/ day

25,000 waste pickers



Logistics of waste and products
top: waste products enter the Wetlands. bottom: products are generated and distributed to markets in the city

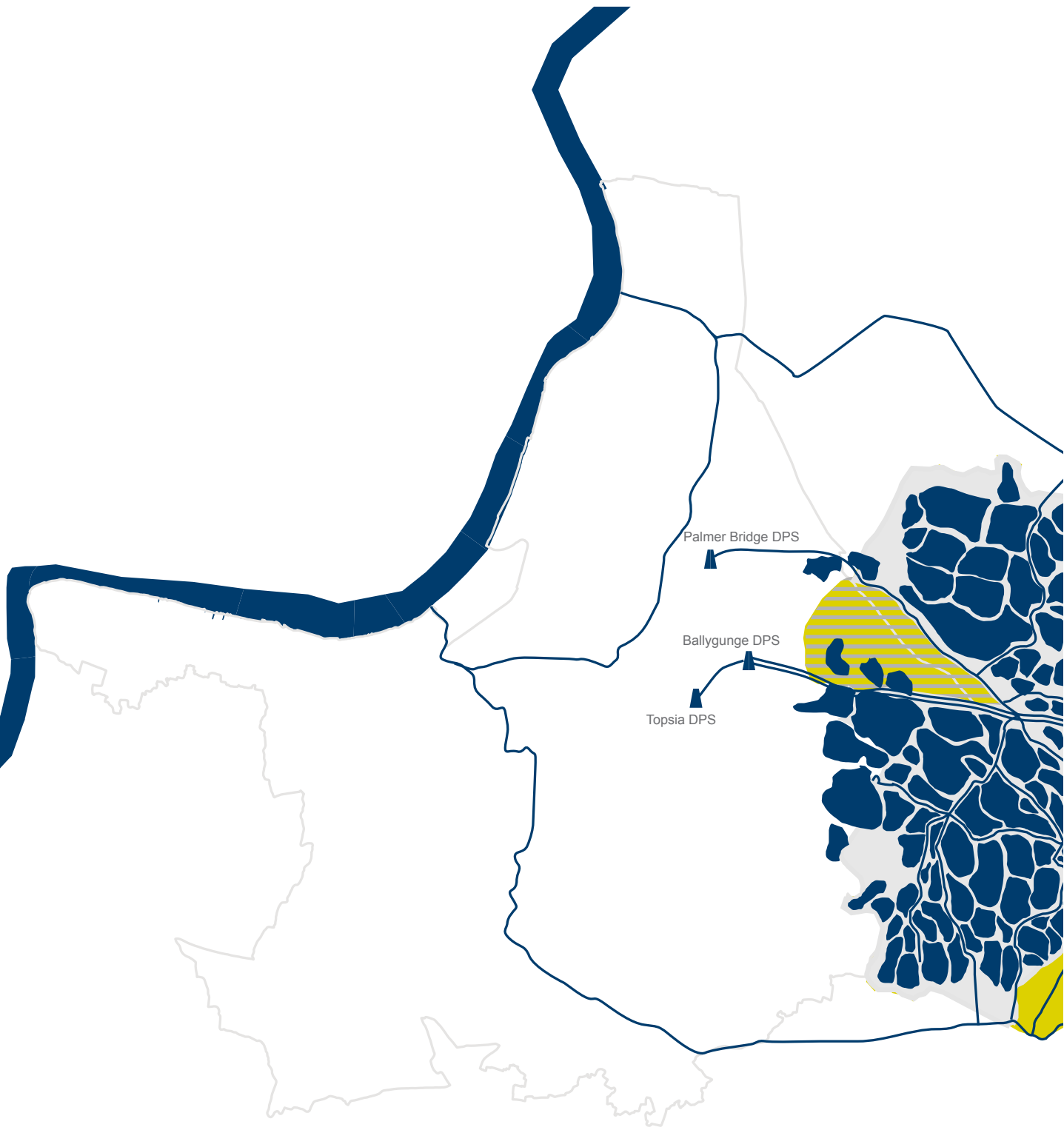
WETLANDS

61,000 inhabitants

12,500 ha

fisheries: 5,800 ha | 8,500 employed
agriculture: 4,700 ha, |4,000 employed
transport: 4,500 employed

15,000 tons fish/ year
3,600 tons vegetables/ year



Landuse of the Wetlands
Waste dumping, Fishing, Agriculture.

WETLANDS AS A FILTER

The East Kolkata Wetlands area can be divided into three major practices: wastewater fisheries, effluent-irrigated paddy cultivation and vegetable farming on garbage substrate.

Waste Dumping and Waste Farming

„The kitchen waste from the domestic sources and from the markets get converted into compost as a natural process at the dumping site. The farmers **cultivate vegetables on a garbage substrate** using sewage water. The vegetables are sold in the markets of Kolkata.

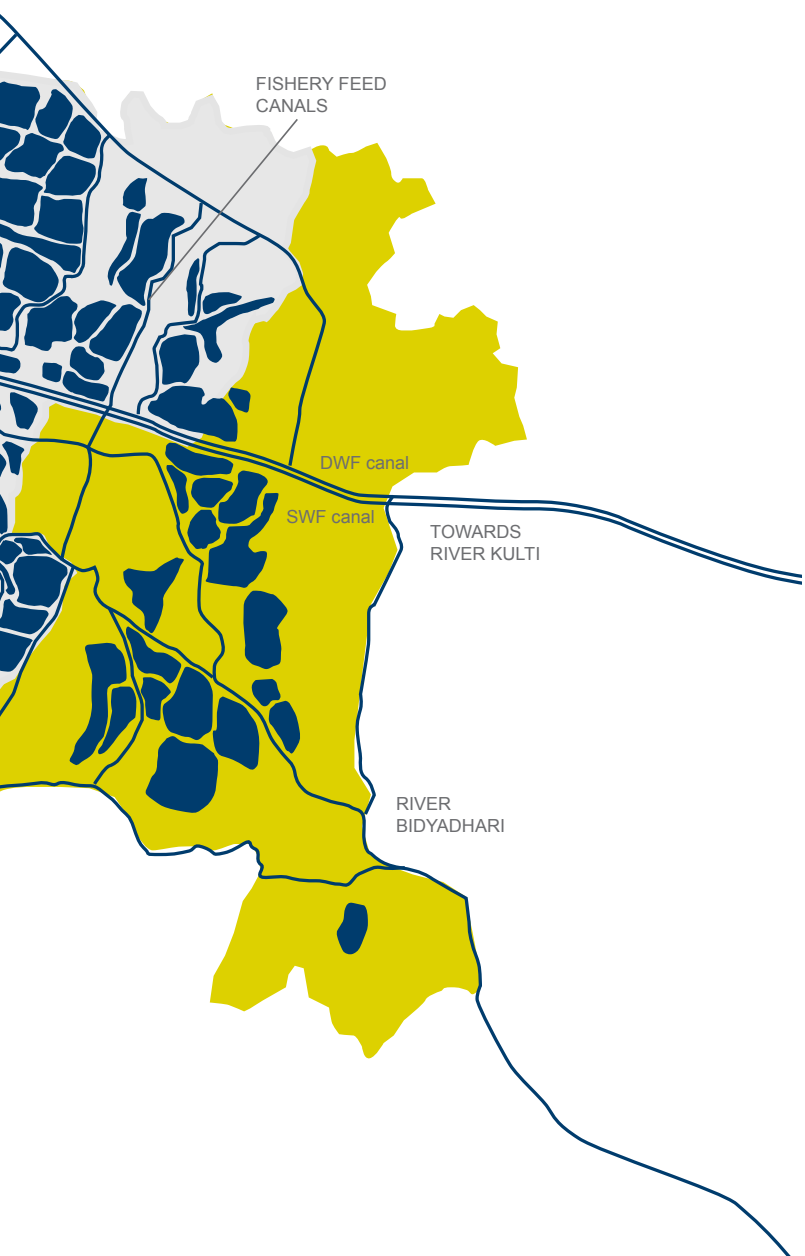
Around 1864 decision was taken to acquire land on the western margin of Kolkata wetlands to dump the garbage from the city. At the same time, a company called Salt Water Lake Reclamation Company started experimenting with sewage and garbage farming to raise crops of rice, vegetables and cotton. The experiment was successful. In a lack of technical support from abroad, garbage farming was relegated to the efforts of the indigenous farmers. **So, the dumping of garbage and farming on it began simultaneously and have remained an unseparable whole since then.**

At present (1997), some 800 acres of garbage farms are located in East Kolkata Wetlands. Even much larger are effluent-irrigated agriculture lands, „paddylands“, the eastern part of the wetlands. In the paddylands only effluent water from fish ponds is used for irrigation. The paddylands are used for raising rice, **which is made possible by persistent supply of effluent water through the wetland canals.**

It is recorded that the garbage farmers grow at least 15 different types of vegetables round the year with seasonal variations. These include maize, cabbage, cauliflower, gourd, radish, yam, brinjal, bitter gourd, pumpkin, spinach, potato, rape and mustard. Easy access to the makret condition leads to relatively low pricing of vegetables.(...)

A large scale conversion took place in 1969 when 6000 acres of sewage fed fisheries were converted into relatively dry land for agriculture.

In the absence of hard data, popular views about the impact of the garbage cum sewage based agriculture tend to be presumptive and partisan in nature. There are the views that vegetables grown on garbage farm may **absorb some of the non bio-degradable chemicals from the soil.** The actual accumulation level of such chemicals in the marketed products have never been fully analysed. Accumulation of different heavy metals in vegetables is ascribed to the build up of heavy metals in the soil, presumably through irrigation by untreated sewage.(...)



Over the years, the land in Dhapa has been raised between 1.0 – 1.5 m, largely through accumulation of garbage. These garbage farms are reported to produce 1500 quintals of vegetables per acre per year and **provide employment to 2.5 persons per acre, excluding people employed for ploughing and irrigation**. This is seen by the positivists as a good impact.

Their opponents argue that large scale conversions of wetland has **reduced the spill area for monsoon rum off as also the expansion of the fisheries**.

On the practice of dumping of solid wastes on the margin of the wetland, there are divergent views. In the first instance, the critiques argue that, the floor of the dumping ground being unlined, the **leachets contaminate the hydrological system**. Secondly, the soggy environment leads to the production of methane. These two elements of impact reduce the safety of **conversion of the old garbage dumps into urban built up tracts**. Finally there is the shared concern about the problem that the city has to face in the near future due to lack of space for solid waste dumping." (CEMSAP 1997)

Wastewater Fisheries

8000 people are employed in sewage fed fisheries of the Kolkata cluster of wetlands, including both permanent and casual employees. Average wage varies between Rs. 110 (1,5 euros) for guards to Rs. 1000 (15 euros) for unskilled permanent harvesters per day. The wage difference can be understood by looking at the working schedules: guards are guarateed a daily full-time employment throughout the year, while the harvesters work four hours per day only in harvesting time. The average salary for all wetlands workers, 3 euros per day, is notably higher than in other rural areas in India. That proves the efficiency of wastewater fishing. Compared to non-sewage fed fisheries and brakish water fisheries, wastewater fisheries have a productivity of 200 %.

The range of fisheries range from 5 hectares to 50 hectares. Even smaller are the nursery ponds, where eggs are grown. The ponds are shallow, under the depth of 1m, as the process of sewage biodegradation needs sunlight to function. Fish farming begins with growing eggs in nursery ponds inside a floating mat of water hyacinth. Each fishery is drained out yearly around January and the pond bed is prepared for wastewater intake.

The wastewater is lead into the fishery from Dry Weather Flow channel; the flow can be regulated with pond-specific gates. The sewage biodegrades in the ponds as it gets exposed to sunlight, algae and bacteria. When fish eggs are let to the pond from the nursery pond, the fish start using the biodegraded waste as nutrients. The fish balance also algae growth: fish eat algae and reduce overgrowth or algae. (Ghosh, D. 1997)

Fishery workers

Fish harvester
catching the fish early in the morning
3-4 h of work / day on harvest time, men

Carrier
transporting the goods to the markets
carry 12-20 kg of fish and water in bowls
3-4 h of work on harvest time, also women

Guard
keep watch on poachers at night
8-10 h of work all year men

Weeding hand
cleaning weeds and plants in ponds
6 h of work all year, also women

Ground water quality

A study of ground water quality in 1995 by the Society for Participatory Research indicates that due to the amount of major chemical constituents, such as Chloride, Iron, Manganese, phenolic compounds beyond the permissible limit, the ground water is unsafe for human consumption.

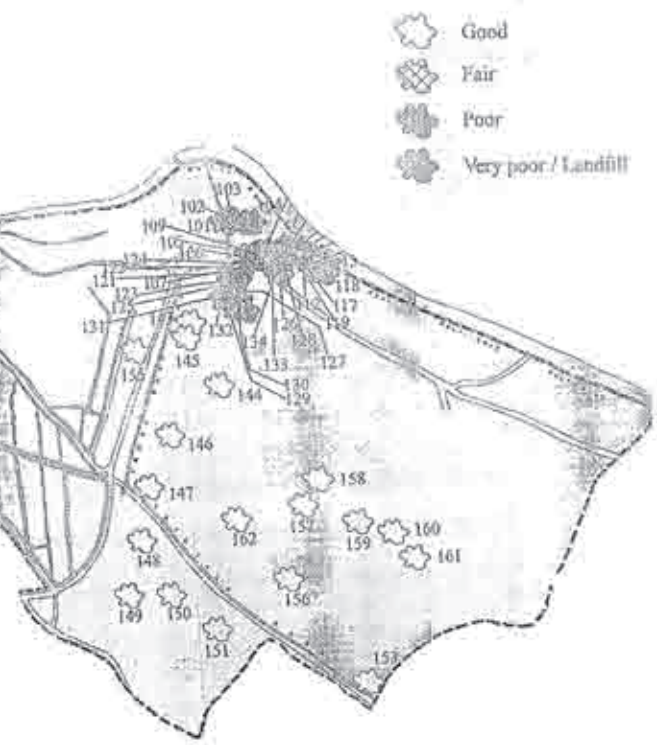
This is mainly due to the absense of source separation of waste. The kitchen wastes from domestic sources and the **refuse from the markets of perishable eatables are seen as ideal materials for production of nutrient rich compost. But such materials arrive mixed with other unsuitable materials, such as garbage from hospitals.**

On the current practice of recycling of some types of solid wastes, especially the plastics, popular views are divided. Some defend it on the ground that it provides employment to many. The counter argument is that the method of recycling used currently is extremely injurious to the health of the work force. All these clearly suggest that a search for a proper **method for solid waste disposal** shoud be a priority agenda. (CEMSAP 1997)

WETLAND WARD 108: BANTALA

Reference map of location and status of Waterbodies in Ward no. 108

Map of ward 108 in East Kolkata Wetlands
Waterbodies and their condition marked. Source: CED Kolkata, A.Ghosh.



WARD 108: BOROUGH 13

Number of Wetlands & No. Surveyed Wetlands

1.	Total Number of Wetland	165
2.	Number of Lasted Wetland	46
3.	Number Unlisted/ New Wetland	119
4.	Number of Surveyed Wetland	164
5.	Number of Unreasable Wetland	1

Area Wise Classification of Wetland (No. of Wetland : 164)

	Area (sq. m)	Number of Wetland
1.	<500	15
2.	501-1000	10
3.	1001-5000	17
4.	>5000	69
5.	Unapproachable	13

Ownership of the Wetlands (No. of Wetland : 164)

1.	Private (Owner of the Wetland)	143
2.	Leaseholder	0
3.	Community	0
4.	KMDA, Fishermen Society	17
5.	Government (KMC)	1
6.	Unknown	3

Current Users of the Wetlands (No. of Wetland : 164)

1.	Local People	103
2.	Swimming Club	0
3.	Fishermen	0
4.	Residents	0
5.	No Use	4
6.	Unknown	57

Current Uses of the Wetlands (No. of Wetland : 164)

1.	Domestic	1
2.	Domestic & Fishing	102
3.	Pisciculture	57
4.	Swimming	0
5.	No Use	4

Status of the Wetlands (No. of Wetland : 164)

1.	Good	8
2.	Fair	29
3.	Poor	70
4.	Very poor	6
5.	Bheri	0
6.	Information unavailable	52

Causes of Degradation (No. of Wetland : 73)

1.	Vegetation and solid waste		6
2.	Land filling	Partial	0
3.		Total	0
4.	Poor Maintenance		0
5.	Vegetation and weeds		66
6.	Vegetation and drying up		1

1

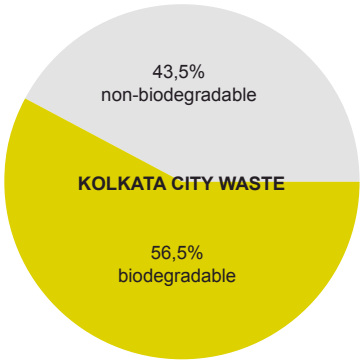
2

3

4

5

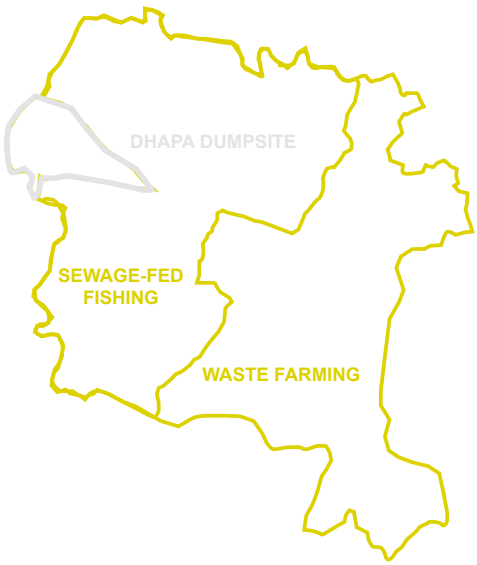
6



Ash and earth	17,18%
Ignited Coal	2,46%
Earthen ware	4,15%
Coconut shells	9,22%
Stone	0,39%
Metals	0,35%
Bones	0,42%
Leasther	4,00%
Plastic	1,07%
Glass	1,67%

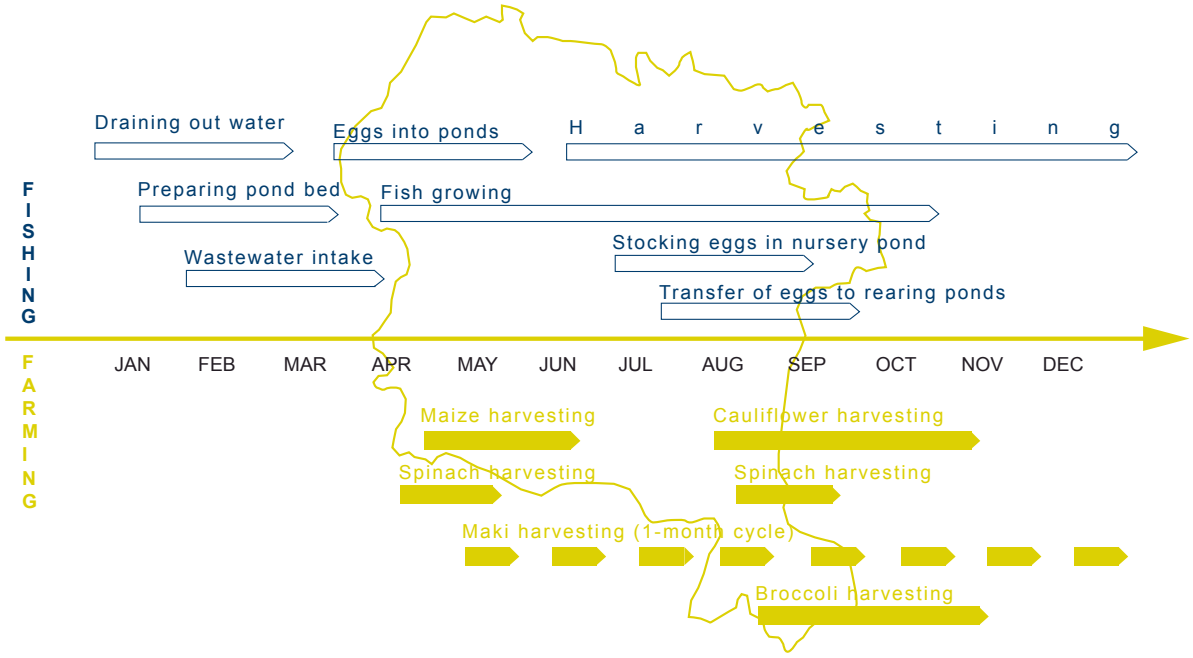
TO WETLANDS

Vegetables	11,76%
Garbage	29,42%
Hay and straw	3,34%
Paper	6,25%
Rags	5,73%



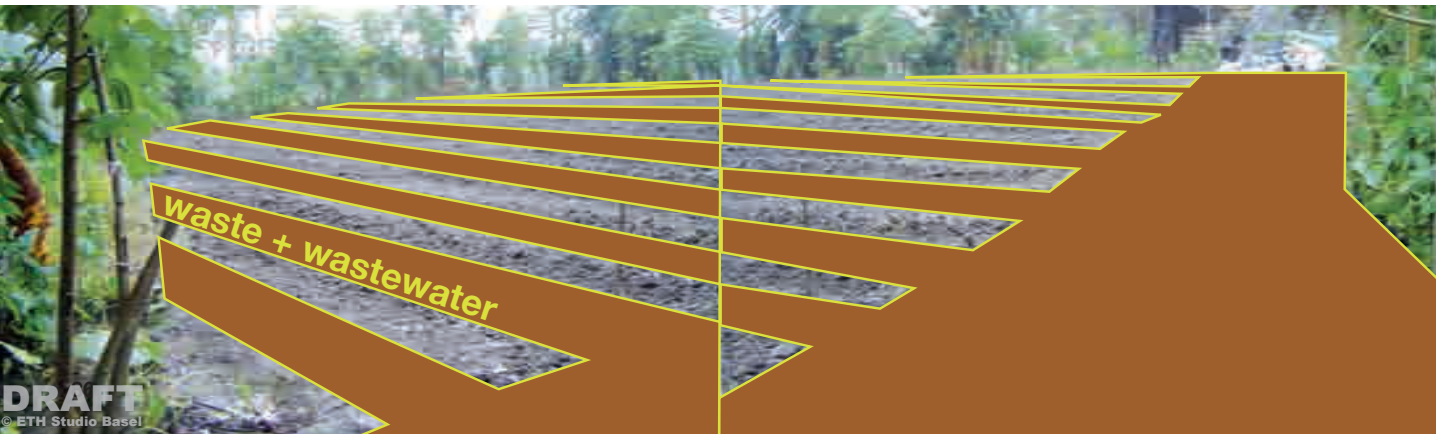
2,500 tons

of solid waste enter the wetlands per day.



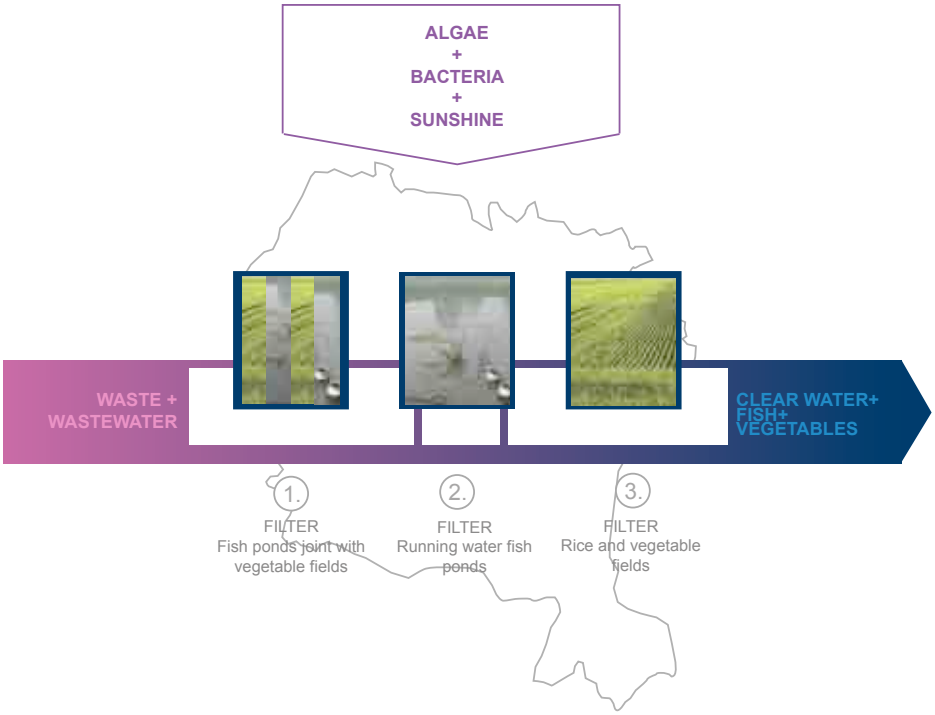
3,600 tons of vegetables

are produced in the wetlands per day.







15,000 tons of fish

are produced in the wetlands per day.





























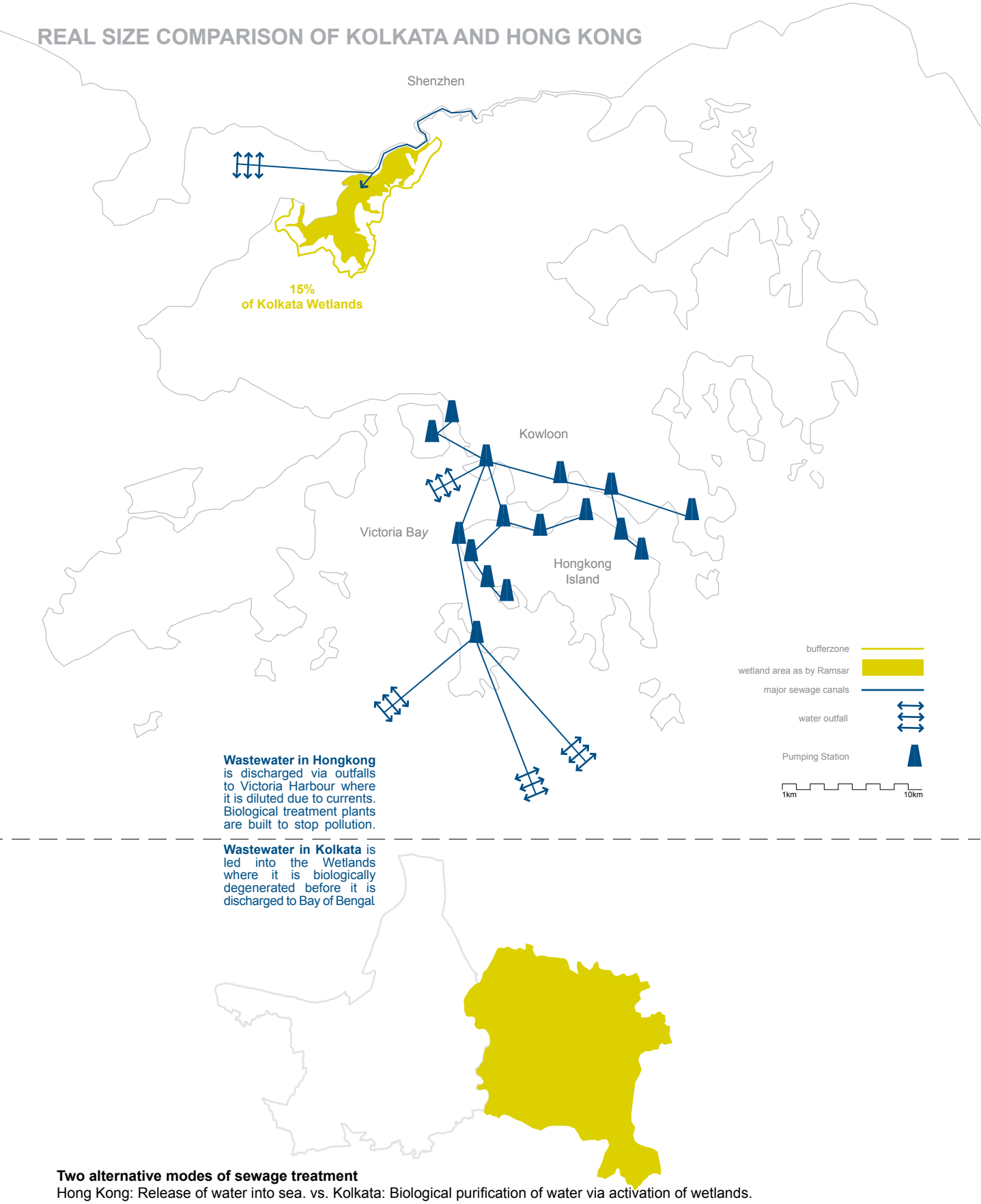







HONG KONG WETLANDS
Comparison study

REAL SIZE COMPARISON OF KOLKATA AND HONG KONG



Wastewater in Hongkong is discharged via outfalls to Victoria Harbour where it is diluted due to currents. Biological treatment plants are built to stop pollution.

Wastewater in Kolkata is led into the Wetlands where it is biologically degenerated before it is discharged to Bay of Bengal.

Two alternative modes of sewage treatment
Hong Kong: Release of water into sea. vs. Kolkata: Biological purification of water via activation of wetlands.

Hong Kong Wetlands visitor centre.

CITY	**HONG KONG**	**KOLKATA**
area of city	1,104 km²	1,880 km²
number of inhabitants	6.9 mio	7.7 mio
density	6,352 /km²	9,920 /km²
amount of waste water production	3.5 mio m^3/day	1.4 mio m^3/day
WETLANDS		
origin	artificial	natural
initial investment	700,000 €	0
ranking	world's largest integrated 2-stage wetland	world's largest complex of sewage fed fish ponds
listed at Ramsar site since	1995	2002
area of wetland, total according to Ramsar	1,500 ha	12,500 ha
area of sewage treatment ponds	2 ha	5,800 ha. originally 10,000ha
area of urban and rural settlement	0	1,300 ha
sewage entering system per day	no data. capacity is approx 6,000 tons	30,000 tons
area of wetland park open to tourists	60 ha	planning exists since 2007.
area of visitor centre	15 ha	0
amount of visitors per year	40,000	negligible
amount of fish produced	2,100 tons/ year capacity as estimated by WWF	15,000 tons /year
amount of vegetable produced	no data. most of area consists of water bodies	3,600 tons /year
number of inhabitants of wetland	0	61,000
amount of people employed	0	17,000

Two alternative modes of operation in a wetland
Hong Kong: eco-tourism park vs. Kolkata: site of productive use by locals.

1 Ramsar boundary
2 Gai Wai - shrimp farm
3 Visitor centre
4 Tin Shui Wai
5 Fairview Park
6 Palm Spring Park

Landuse of Hongkong Wetlands. 2003
The usages are clearly separated and have different legal commitments.

100m 1km

1 **Ramsar Area**

Since 1995, the Mai Po Inner Deep Bay is listed as one of 7 sites in China. It covers 1,500 ha of wetlands, consists of mangroves, Gai Wai (intertidal shrimp pond) and fishponds along the coast.

2 **Mai Po Nature Reserve**

With the WWF the park is also an area for education of the wetland ecosystem. Since 1996, the Mai Po area is a Nature Reserve Park, maintained by WWF. Here only 4,000 visitors are allowed to enter per year. **Gai Wais** inside the reserve are salt water ponds for rising shrimps. In the Nature Reserve they are kept as cultural heritage. However the majority has disapppeared due to conversion.

3 **Hongkong Wetland Park**

is a reconstructed idealised Wetland for education and pleasure. MEanwhile it is supposed to serve as a buffer zone between the emerging housing areas and Mai Po Nature Reserve Park.

4 **TIn Shui Wai**

is located in the northwestern part of the New Territories. Originally a Gai Wai fish area, the ponds were reclaimed for the development of Tin Shui Wai in the late 1980s. A total area of about 430 hectares provides housing facilities for 200,000 people.

5 **Residency parks**

6 Fairview Park and Palm Spring Park (1990s) are two large low rise-housing areas situated between fishponds.

Decrease of Hongkong Wetlands as by Nasa observation.
1977-2001









Another Asian city's way of dealing with wastewater

While the wetlands of Kolkata are a natural phenomenon, Hongkong **artificially built biological treatment** plants. Their number is constantly increased so as to prevent pollution of the surrounding bay.

In the past, wastewaters collected from the urban sewerage system were discharged, with or without screening, through outfalls to the Victoria Bay where the **wastewaters could be diluted due to fast moving currents**. For areas away from the Victoria Harbour (e.g. New Territories), biological treatment plants were built to treat the wastewaters. Within the Hong Kong Wetland area the ponds in the North of Mai Po are activated as wastewater treatment ponds. They receive water mainly from the adjacent city Shenzhen. Before, the discharge went directly into the deep Bay and polluted the water Hongkong draws its supply from.

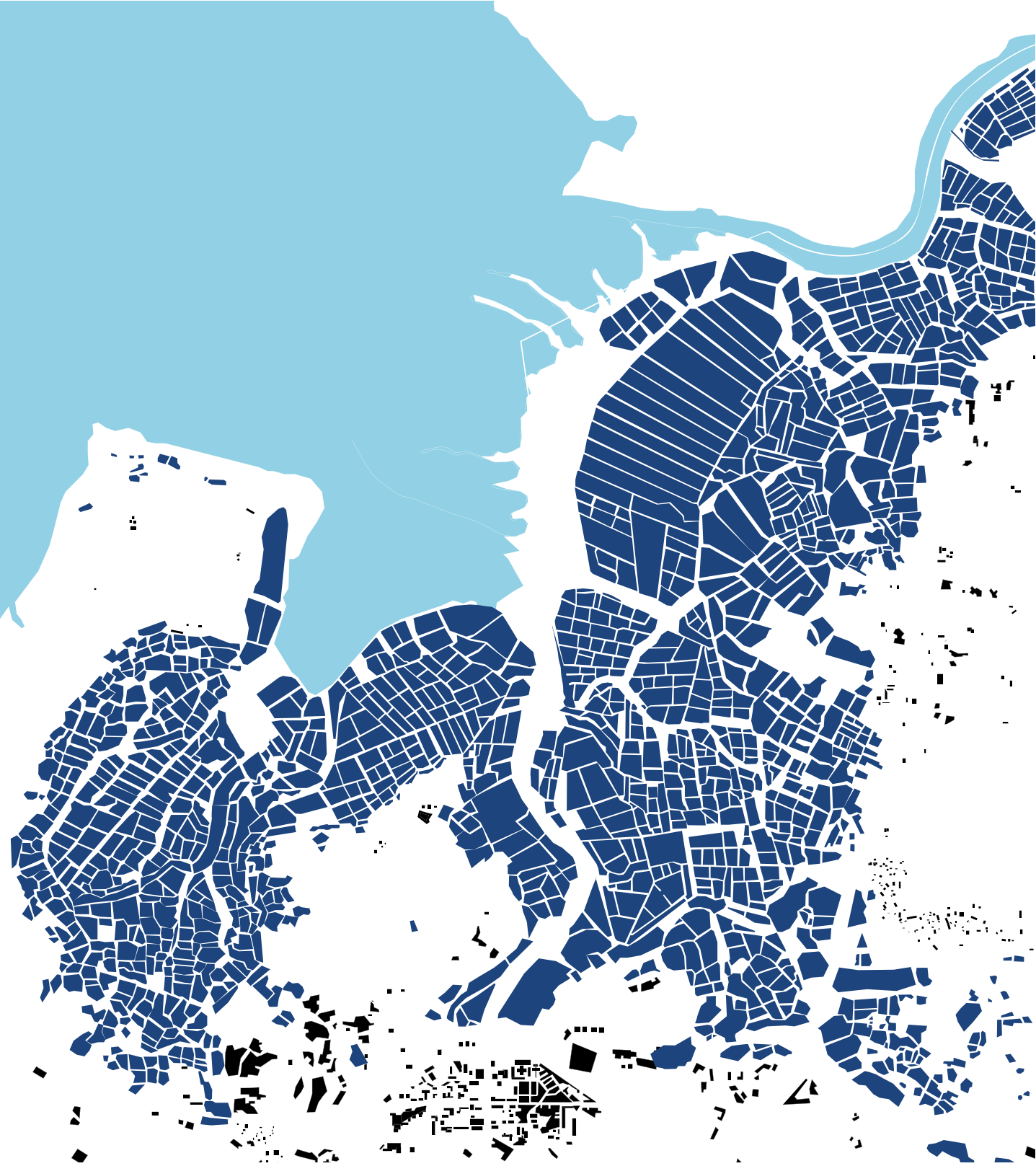
Due to the rapid growth of population and industry in the past decade, Hong Kong requires a renewed sewage strategy which is capable of solving the immediate problem. The city will construct more biological plants and a deep tunnel system to meet the excess sewage.

In the urgency of the situation, about 1.5 million m3 of excess sewage per day is **discharged to stormwater drains by mistake, resulting in serious pollution,** when reaching the Bay.

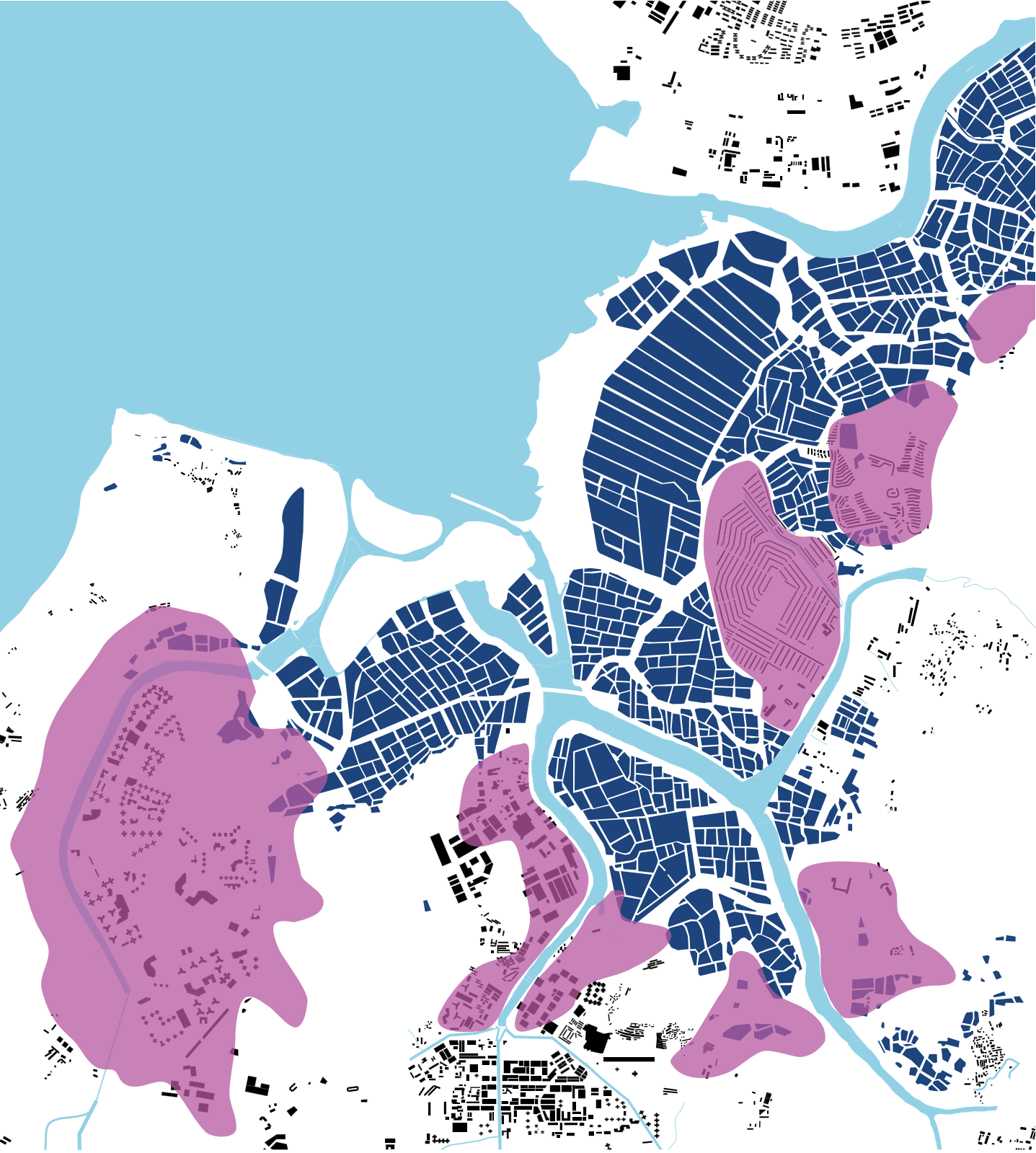
The prospect of for eco-tourism

Hong Kong Wetland Park was originally intended to be an ecological mitigation area (EMA) to compensate for the wetlands lost due to Tin Shui Wai New Town development. In 1998, the Agriculture and Fisheries Department and the Hong Kong Tourists Association commissioned an "International Wetland Park and Visitor Centre Feasibility Study" on expanding the EMA to a **"world-class wetland ecotourism attraction"**.

The Government of Kolkata states, that "the richer amongst the Calcutta citizenry would like to use the canals and ponds for recreation. In other words, publich ideation is already prepared to integrate tourism with economy" (CEMSAP). However, experts are strongly concerned that the economical balance will be destroyed and the **benefits lost will exceed the financial gains** by tourism. The threat that tourism will displace the current balance of interwoven economy and residency has also to be taken into account, as well as the question if Kolkata has the economical capacities to maintain such a park.



Area of Hongkong Wetlands. 1976
Wetlands are marked with dark blue.

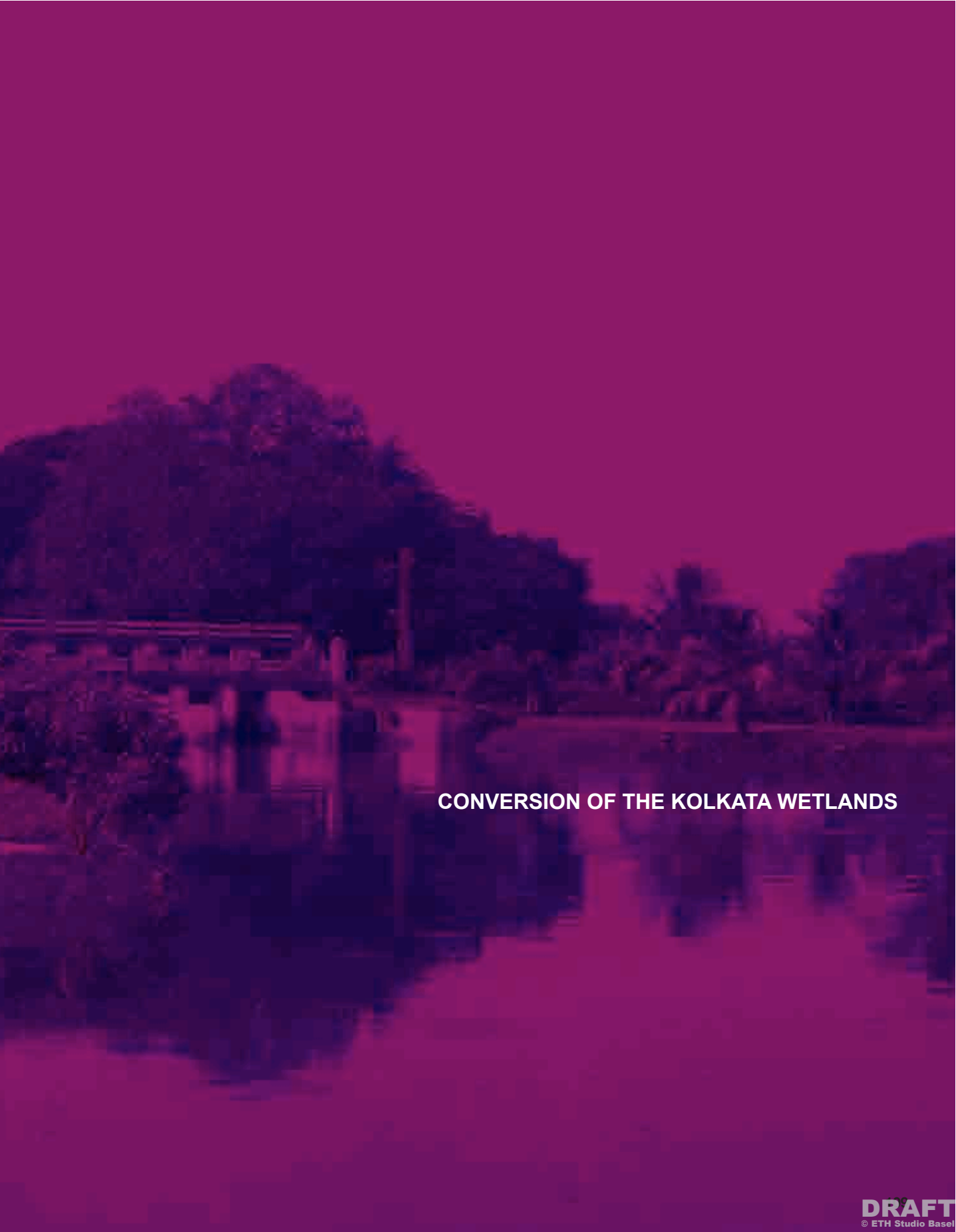


Area of Hongkong Wetlands. 2003
Converted areas are highlighted

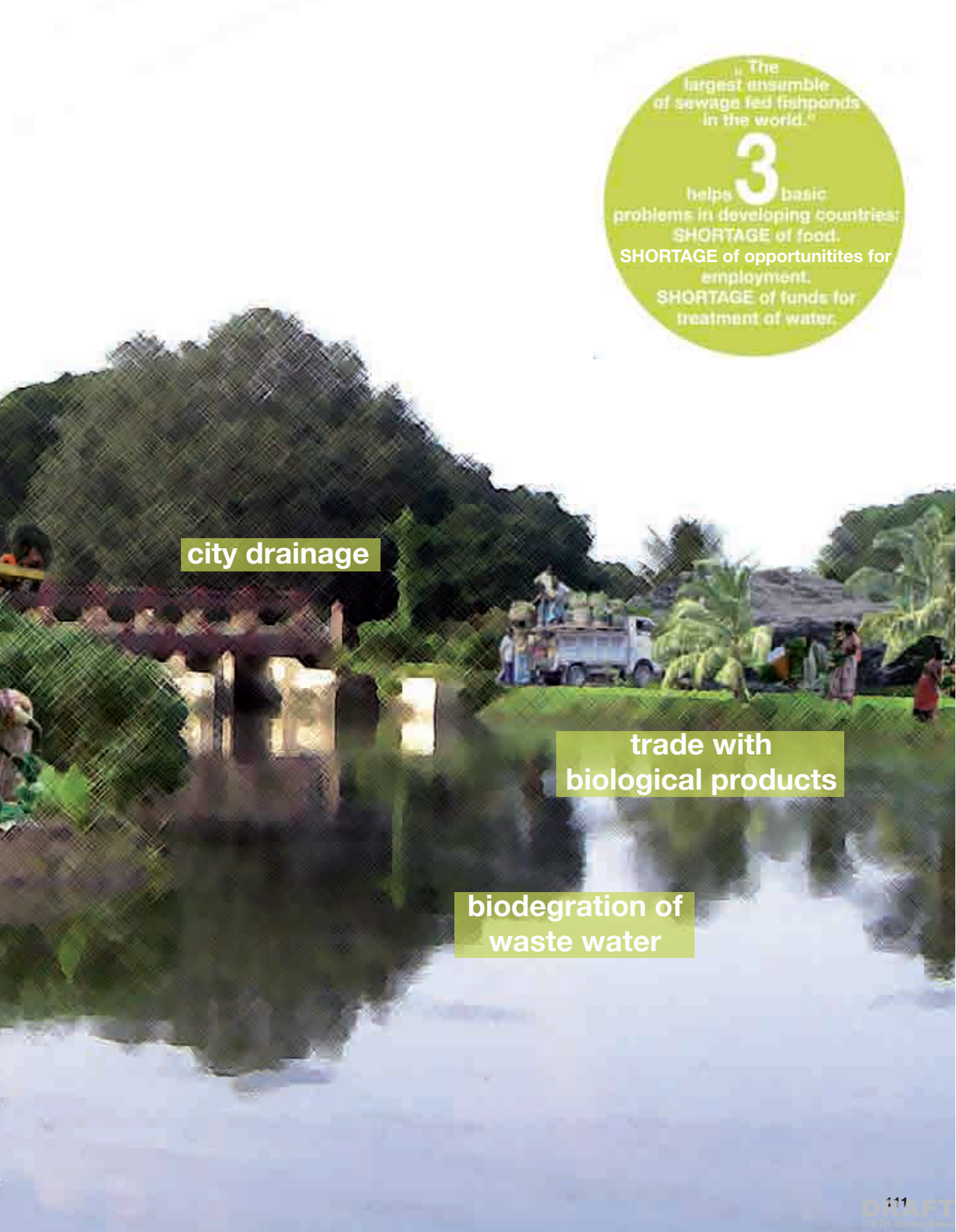
Area collapse of Hongkong Wetlands. 1976
2000 ha

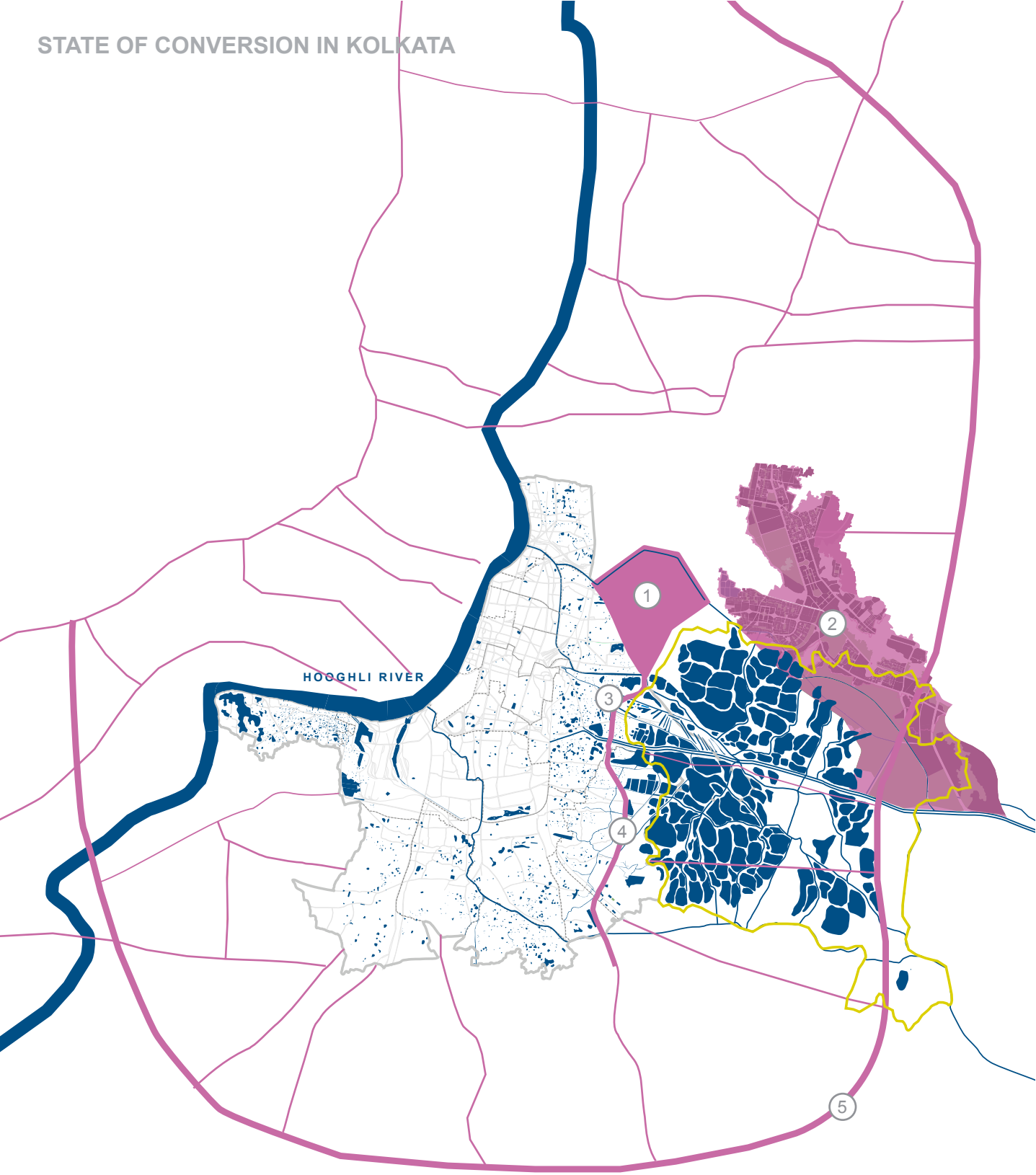
- 45%

Area collapse of Hongkong Wetlands. 2003
1100 ha



CONVERSION OF THE KOLKATA WETLANDS





Urban development affecting the East Kolkata Wetlands.
Recent and planned.

1 Salt Lake City

Salt Lake City is the first large conversion on East Kolkata Wetlands. This residential satellite city was planned in 1960s and realised gradually up till the 1980s. As an exception to the original plan the part extending the most over the wetlands, Sector IV, was not built immediatly, but is only released now, more than 25 years later.

2 Rajarhat

Rajarhat New Town currently under construction. It is planned to ben an uptown business district, combining commercial and housing. On the area where Rajarhat overlaps with East Kolkata Wetlands Ramsar site residential development, industrial activities and recreational green spaces are suggested.

3 Science City

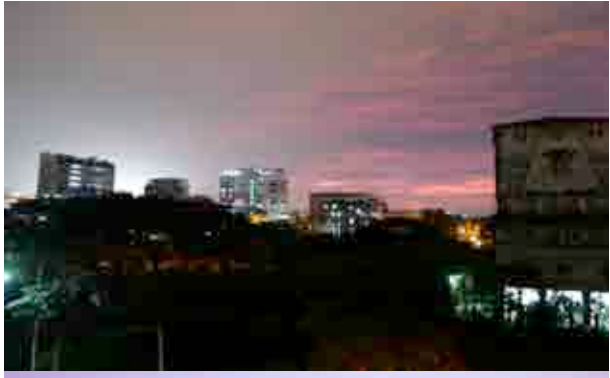
Kolkata Science City was built in 1997 at the crossing of Eastern Metropolitan Bypass and Park Circus. it is a large science museum and theme park built on wetland landfill.

4 Eastern Metropolitan Bypass

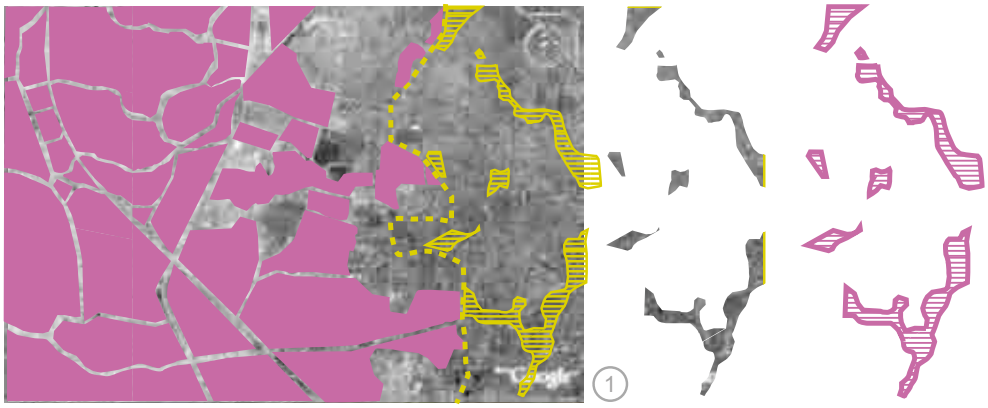
Starting from the Northern hub of Ultadanga to Garia in the south, the road runs a distance of 21 km on the edge of the city and the wetlands. Plans are currently underway to extend the road to the Falta Export Processing Zone (FEPZ) at Falta on the Hooghly River. Due to the construction of the bypass, the thus gained accessibility of the surrounding area led to a significant rise in land price, increasing the pressure on the wetlands.

5 New Eastern Ringroad

The West Bengal government plans to construct a 60 kilometres long elevated ring road around the wetlands. Starting from the Barasat Bypass, the 60-km-long Eastern Expressway would run past Rajarhat township and behind the Calcutta Leather Complex, meeting National Highway 117 at Shirakhol.



CITY | WETLANDS

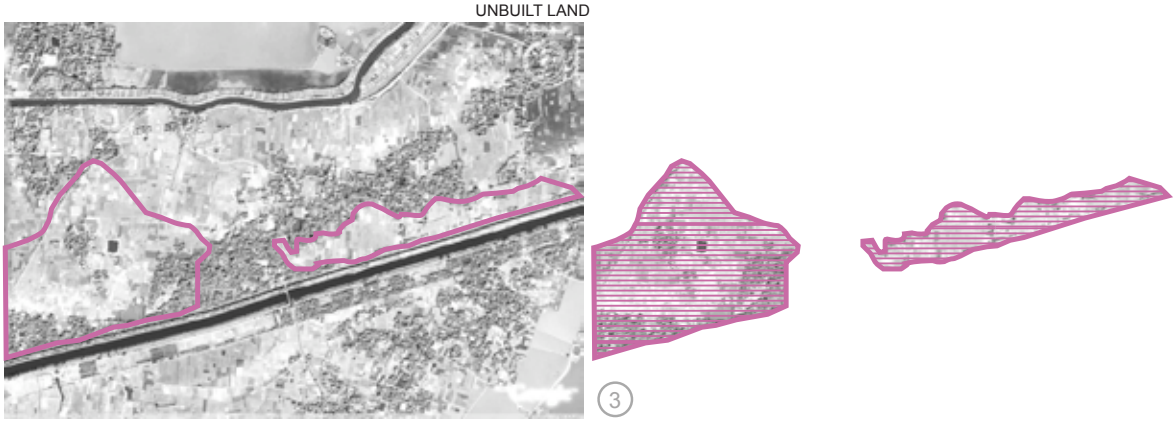


1

WETLANDS | CITY

2

UNBUILT LAND



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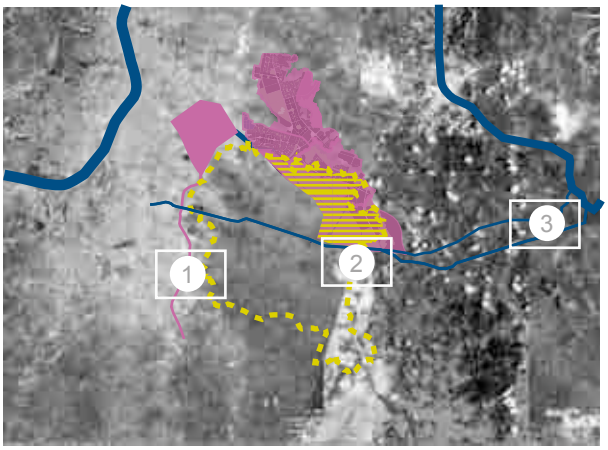
Three spots at the edges of the Ramsar boundary
Internal development or colonisation of the city ?



What consequences will the planning of the new town Rajarhat have on the wetlands? How is the intersection of urban development with the boundary assigned by Ramsar dealt with politically?

1. What is the identity of these settlements at the Western border of the wetlands?
   Are they urban structures of the wetlands or are they part of the city's expansion?

2. Is this settlement at the Eastern border of the Wetlands a colonisation of the city? Does it provoke urbanisation of the adjacent territory ?
   Does it cause the border of the wetlands to recede?

3. Is this strip between the Wetlands and river Kulti going to be swallowed by the city's expansion to the East?

CONVERSION SCENARIO 1

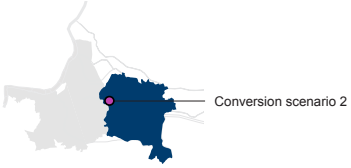
1

2

The fringes of the Wetlands.
A future scenario of a landscape.

3

4



CONVERSION SCENARIO 2

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The fringes of the Wetlands.
A future scenario of a landscape.

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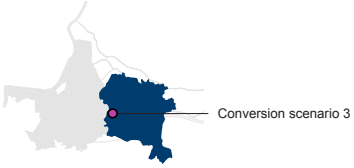

CONVERSION SCENARIO 3

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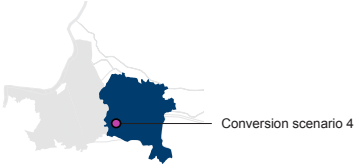
The fringes of the Wetlands.
A future scenario of a landscape.

3

4



CONVERSION SCENARIO 4

1

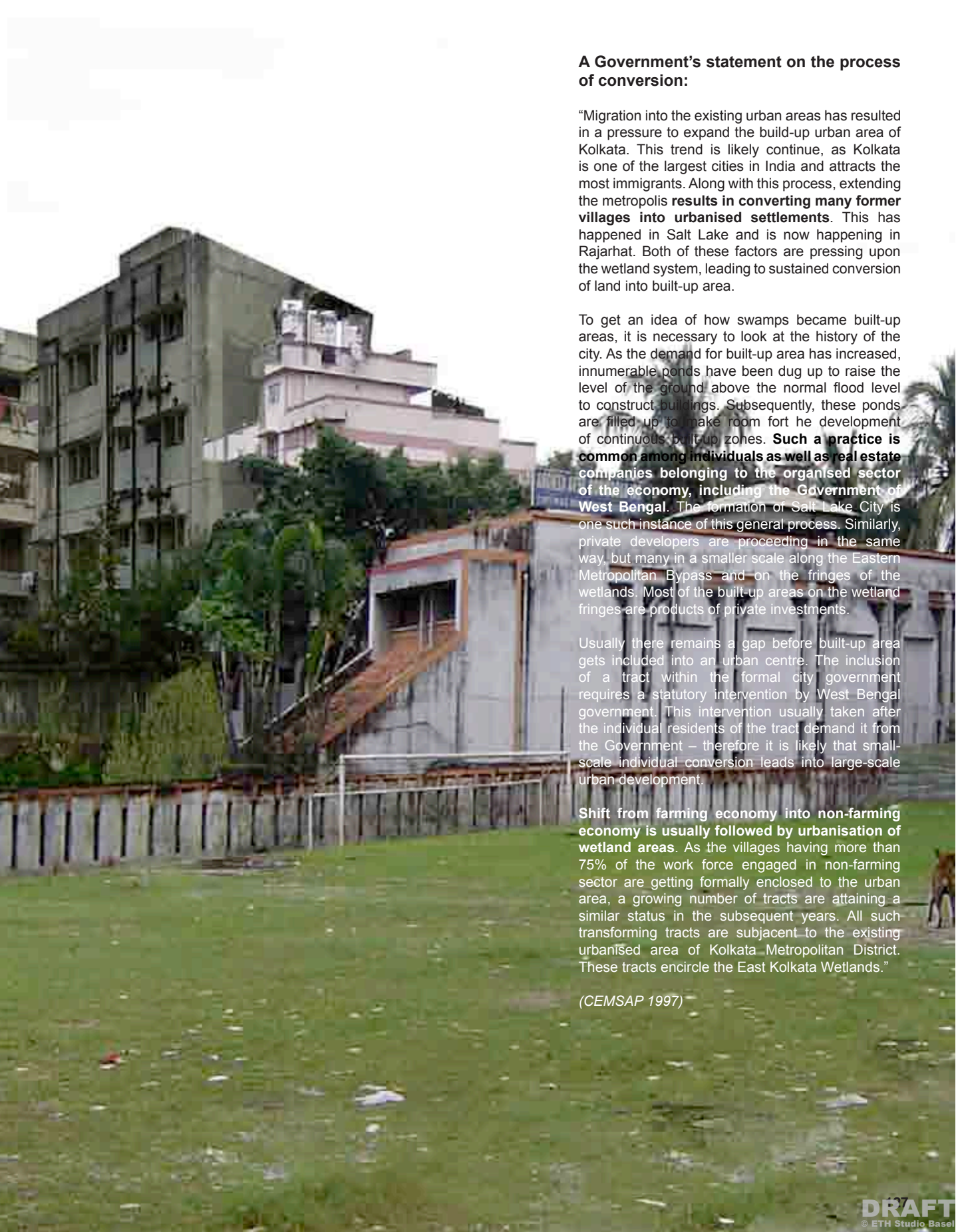
The fringes of the Wetlands.
A future scenario of a landscape.

2

3

The fringes of the Wetlands.
A future scenario of a landscape.

4



A Government's statement on the process of conversion:

"Migration into the existing urban areas has resulted in a pressure to expand the build-up urban area of Kolkata. This trend is likely continue, as Kolkata is one of the largest cities in India and attracts the most immigrants. Along with this process, extending the metropolis **results in converting many former villages into urbanised settlements**. This has happened in Salt Lake and is now happening in Rajarhat. Both of these factors are pressing upon the wetland system, leading to sustained conversion of land into built-up area.

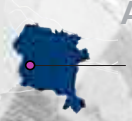
To get an idea of how swamps became built-up areas, it is necessary to look at the history of the city. As the demand for built-up area has increased, innumerable ponds have been dug up to raise the level of the ground above the normal flood level to construct buildings. Subsequently, these ponds are filled up to make room fort he development of continuous built-up zones. **Such a practice is common among individuals as well as real estate companies belonging to the organised sector of the economy, including the Government of West Bengal**. The formation of Salt Lake City is one such instance of this general process. Similarly, private developers are proceeding in the same way, but many in a smaller scale along the Eastern Metropolitan Bypass and on the fringes of the wetlands. Most of the built-up areas on the wetland fringes are products of private investments.

Usually there remains a gap before built-up area gets included into an urban centre. The inclusion of a tract within the formal city government requires a statutory intervention by West Bengal government. This intervention usually taken after the individual residents of the tract demand it from the Government – therefore it is likely that small-scale individual conversion leads into large-scale urban development.

Shift from farming economy into non-farming economy is usually followed by urbanisation of wetland areas. As the villages having more than 75% of the work force engaged in non-farming sector are getting formally enclosed to the urban area, a growing number of tracts are attaining a similar status in the subsequent years. All such transforming tracts are subjacent to the existing urbanised area of Kolkata Metropolitan District. These tracts encircle the East Kolkata Wetlands."

(CEMSAP 1997)

AREA STUDY OF A WETLAND CONVERSION



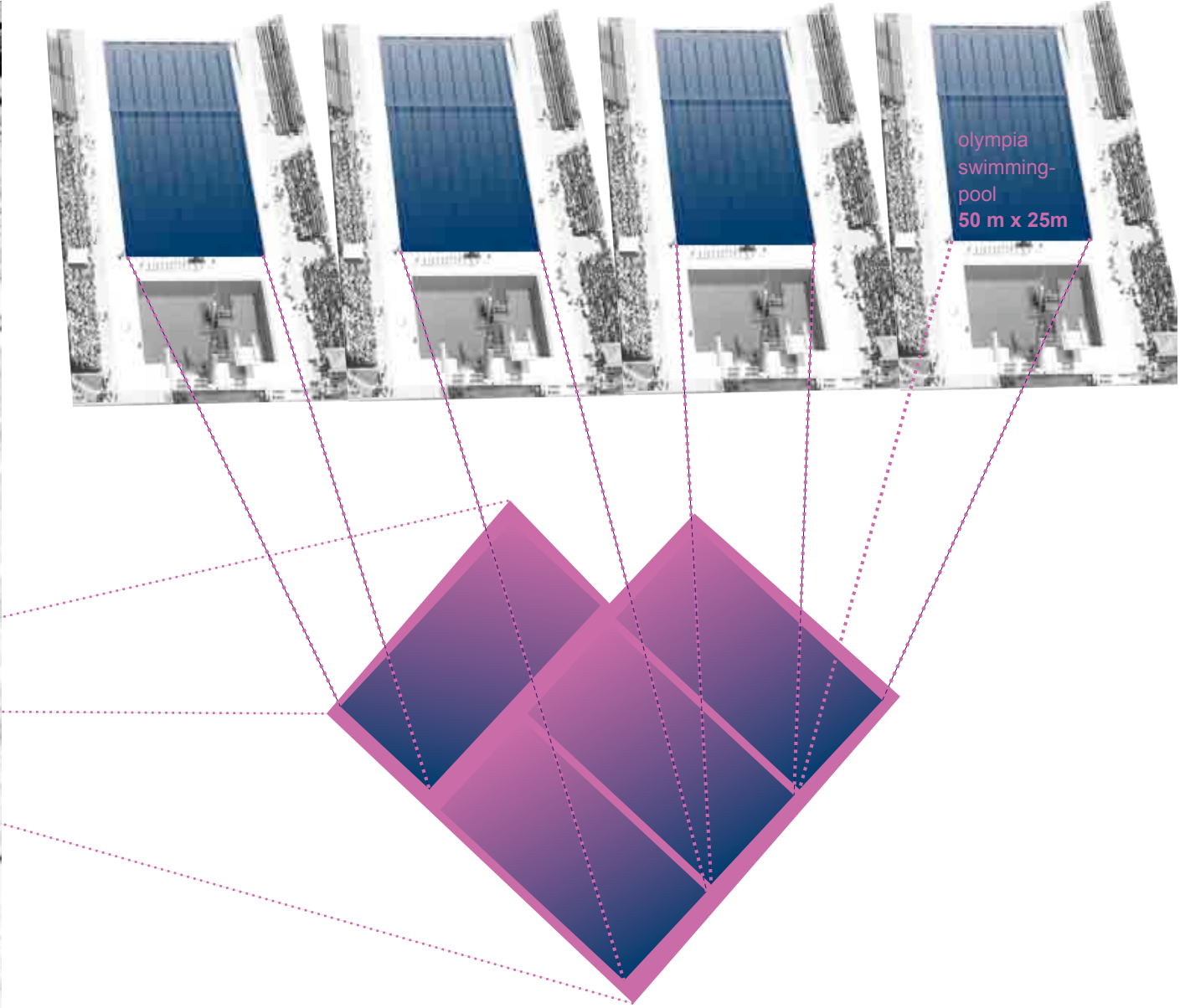
Conversion case: Heritage College

10 ha

HERITAGE INSTITUTE OF TECHNOLOGY
Chowbaga Road, Anandapur,
East Kolkata Township, Kolkata 700 107, INDIA

0.4 ha

PROJECTED EXPANSION OF COLLEGE
This plot has so far been operated as a sewage-fed fishpond.



This plot has a fish production capacity of

2,800 kg/year

This can feed approx. 3 families.

city

wetlands

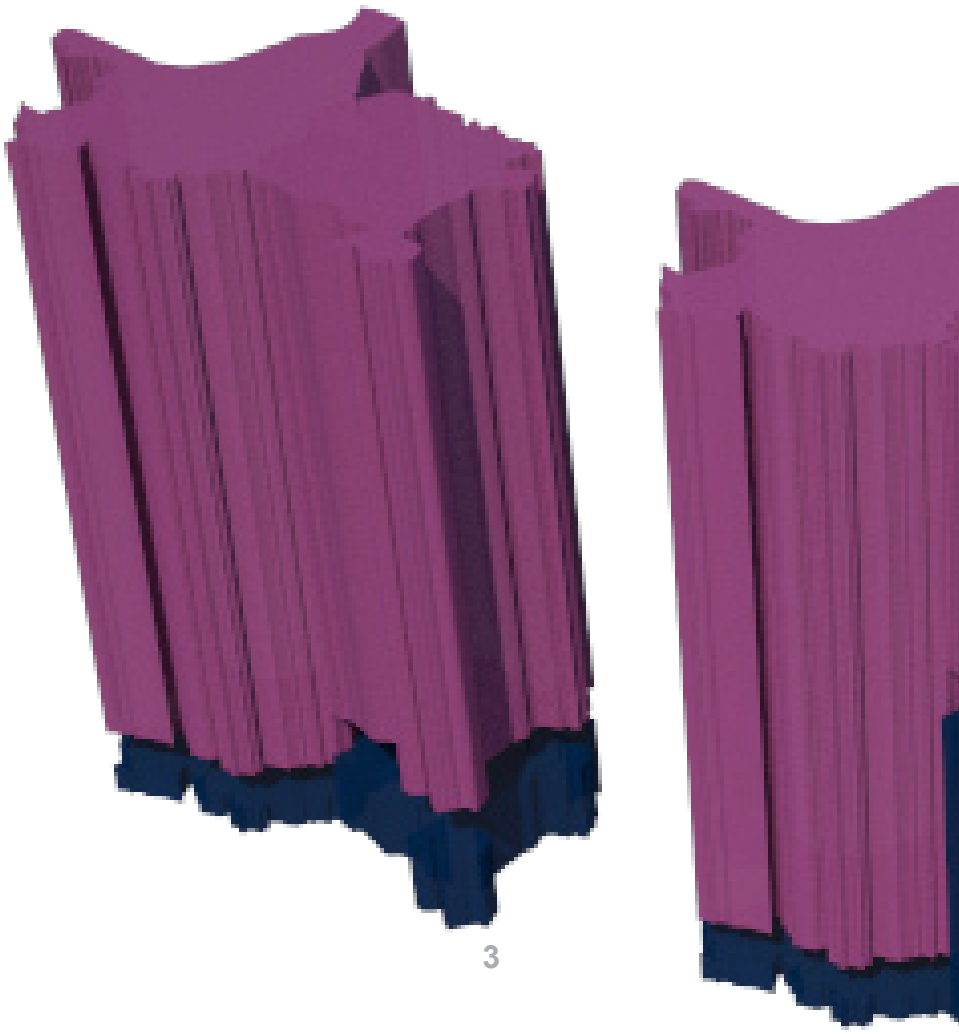
Conversion case: Heritage College
The in - and outside of the wall constructed at expansion site.

Conversion case: Heritage College

wetlands

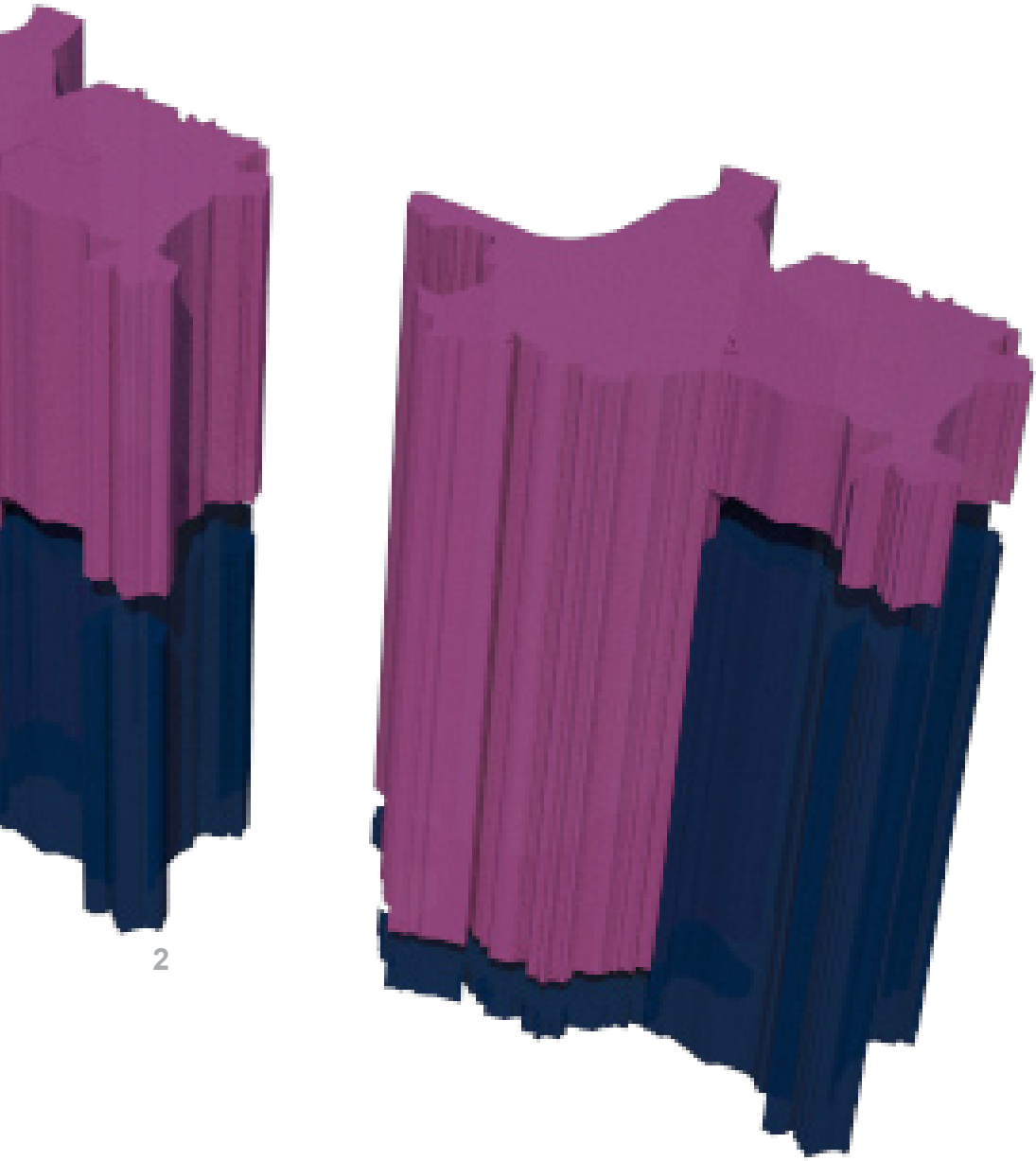
city

If conversion of the Wetlands continues...



3

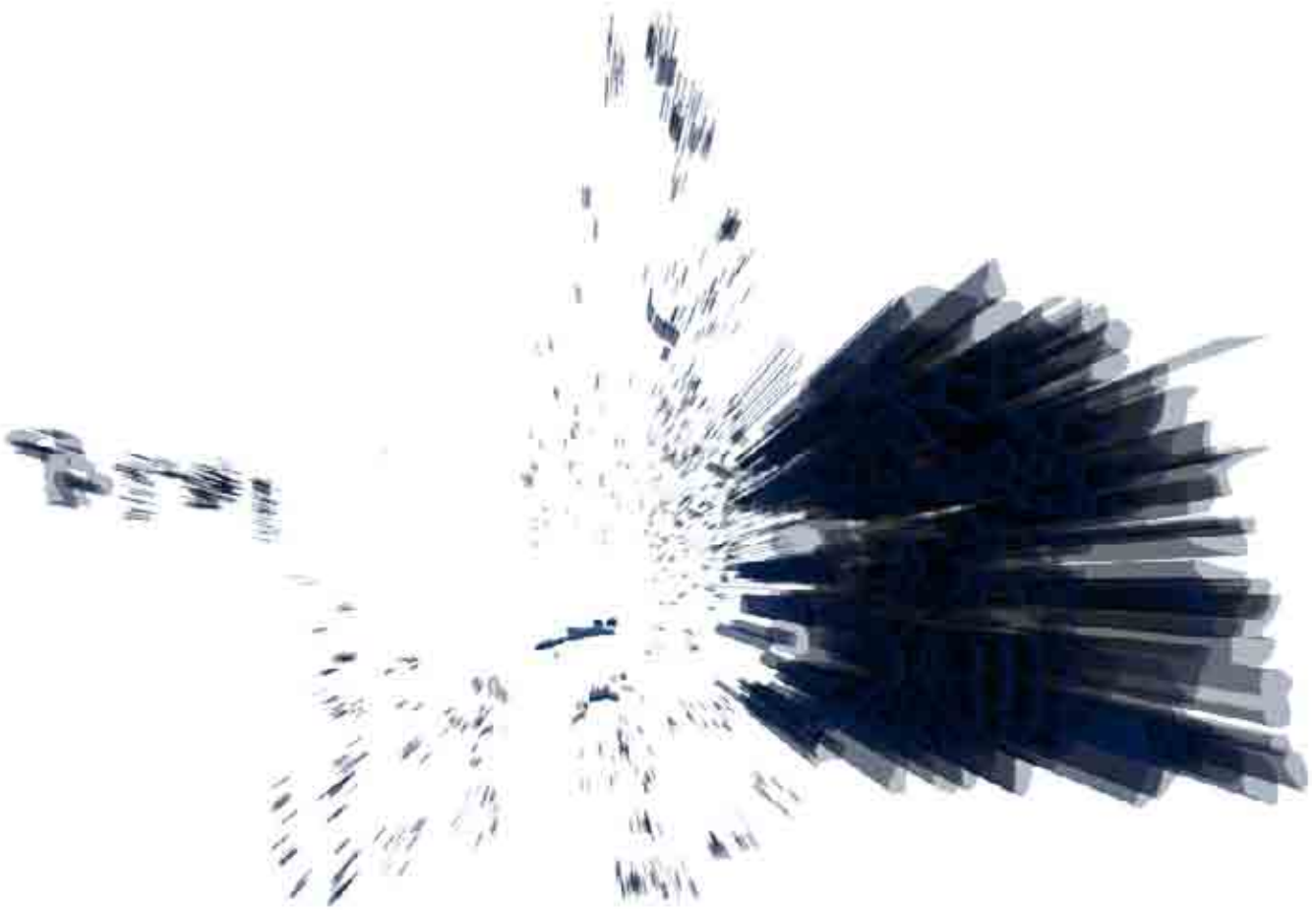
...the total volume of water bodies diminishes. This will result in



2

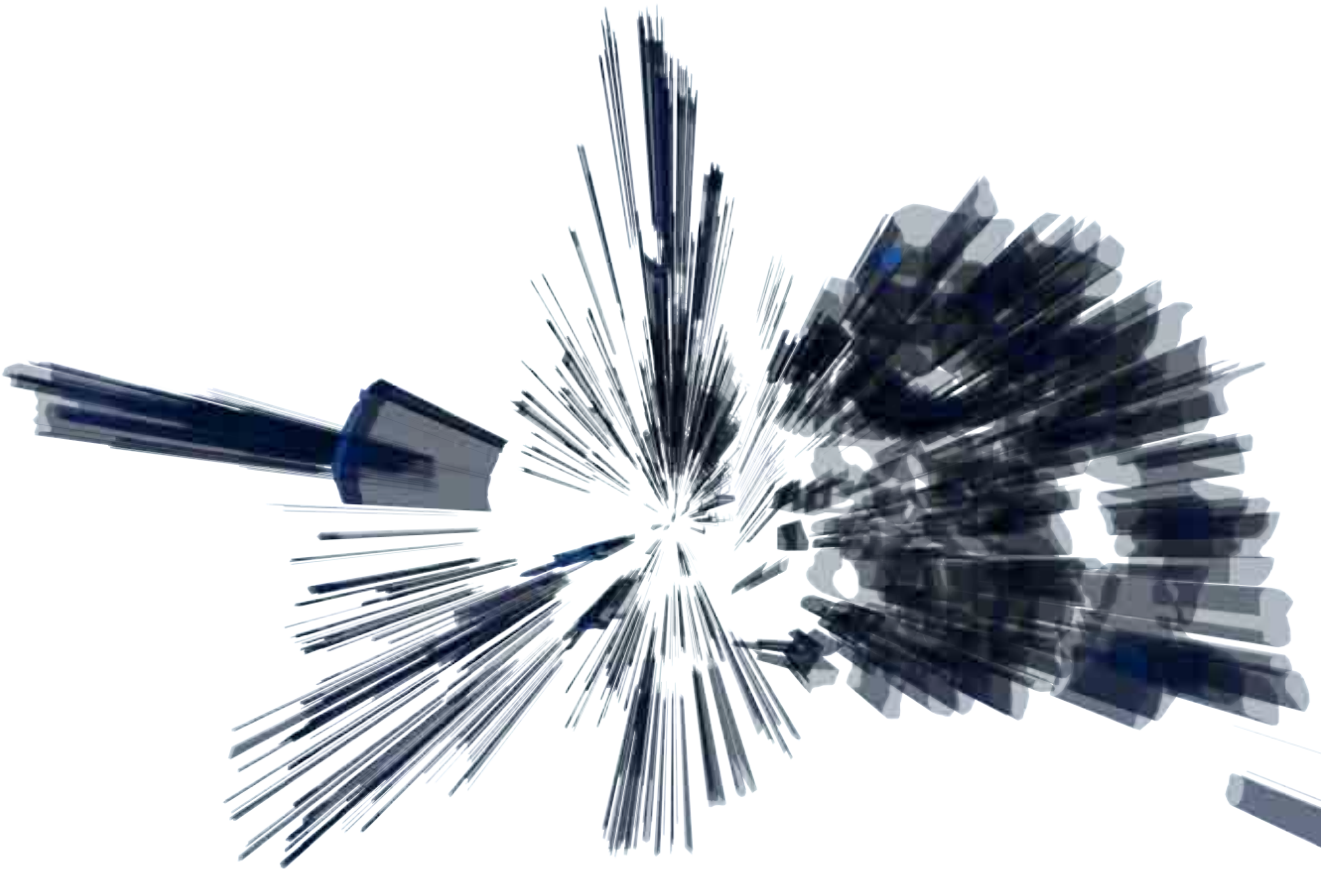
1

the loss of the wetlands' quality as a swamp storing excess water of the city.



1

If the wetland’s storage capacity is given up, the city will be confronted with quantities of water so far unexperienced.



2

The current capacity of water reservoirs in the urban fabric will not be able to compensate for the lost bodies of water in the East.

Given that the Ramsar boundary will withstand the pressure of urban development and the city will follow its tendency of expanding to the East, how will the wetlands change when they become a central park to the city?

VI - UNKNOWN WATERS

Commentary, articles.

„The East Kolkata Wetlands are the best system a developing country could have.“

Dr. Dhrubajyoti Gosh on the topic he has been dealing with since 1984

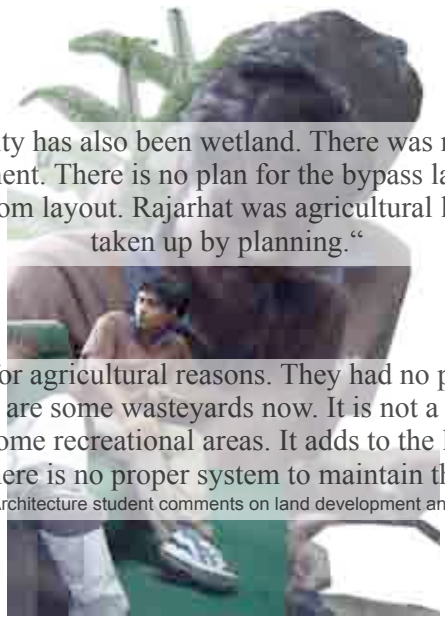
„It is like a sponge for the city.“

„It can‘t be filled up because Kolkata‘s drainage system would be under threat. It occurs very often in the daily newspaper. They teach children now about it. They make it part of the biology class. There is little political will. A large amount of people have no knowledge about it. Only people from environmental side know it.“

Mrs. Nandini Das, primarz school teacher, Calcutta Cricket and Football Club, Saturday, 4 p.m.

„The common opinion is, it is pollution.“

Mr. Soumya Ganguly, Kolkata Environmental Improvement Project, on what people think about leading sewage water into wetlands.



„Salt Lake City has also been wetland. There was no proper plan for development. There is no plan for the bypass land. It is more or less a random layout. Rajarhat was agricultural land. It is been taken up by planning.“

„ We need it for agricultural reasons. They had no plan to fill it up so far. There are some wasteyards now. It is not a planned area. There are some recreational areas. It adds to the landscape of Kolkata. There is no proper system to maintain the wetlands.“

Dipankar Sinha, Architecture student comments on land development and on the Wetlands.

„There is no map on the wetlands.“

Mr. Probhas Ch. Kumar, National Atlas & Thematic Mapping Organisation.

Comments on the wetlands

Quotes from interviews with Kolkatans.

„I have a lot of apprehension. We are fighting a battle. Sometimes it looks like a losing battle. When I see the wall, I find that it is not an easy job.“

Dr. Ashish Ghosh visiting the Heritage College expansion encircled by a wall.

„There are inhabitants out there."

They make their living from there...They are probably supposed to be removed. People think, it is not required. It is required. We have to learn that.“

Parma Banerjee, Law student, Kolkata University, when asked about Wetlands.

„I don‘t know it. I can‘t remember.“

Chandramallika, Masters Student, Economics, 22 years. Later she remembered about pisciculture.

„I am not proud of it. I haven‘t seen it. I know it is something special. It is for the ecological balance I guess. For environment.“

Megna, architecture student, when asked about Wetlands on the phone.

„It is their baby. They don‘t care for it.“

Dr. Dhrubajyoti Gosh on the how the Wetlands should be saved by the people of Kolkata.

Publication: Times Of India Kolkata;Date: Mar 7, 2006;Section: Times City;Page: 2

KMC crack team to save waterbodies

TIMES NEWS NETWORK

Kolkata: The Kolkata Municipal Corporation finally woken up from its slumber following complaints pouring in from across the city over filling up of waterbodies. The corporation has set up a cell to prevent land filling.

The crack team has notched up some successes in the past few days and is now turning it focus to the illegal filling up of waterbodies in the added areas, like Garden Reach, Behala and Jadavpur. MMiC (water) Mrinal Mondal has already filed a complaint about a large water tank being filled up in his ward at Garden Reach. Apart from this, KMC has its eyes on a couple of large waterbodies in Behala which are also in danger. "There is a huge tank that has partly been filled up by a promoter. We will visit the spot and issue a stop work notice. If required, we will even take possession of the tank," MMiC (environment) Sushil Sharma said on Monday.

The sprawling Raghu Dakater Dighi at Cossipore and the Bikramgarh Jheel, the largest waterbody under the KMC, are some of the 'endangered waterbodies', civic officials say. The KMC is contemplating handing over the Raghu Dakater Dighi to Benfish, a fisheries department wing. "We have taken up the matter with the Benfish officials. We are eager to give them the waterbody for pisciculture. In lieu, we will claim a portion of the profit they are from it," the MMiC (environment) said. The 50-cottah pond was saved in the nick of time by a civic team after locals complained that a real estate promoter was filling up the waterbody.

The KMC is all set to take up restoration and beautification of the Bikramgarh jheel. Civic officials admit parts of the 500-cottah jheel were being encroached. Besides leasing out the waterbody to NGOs for pisciculture, the civic authorities might also introduce leisure boating as part of revenue earning exercise, Sharma said.

(Left) This construction site in south Kolkata allegedly stands on a filled up water tank. (Right) Illegal construction on a waterbody in north Kolkata.

Publication: Times Of India Kolkata;Date: Jun 25, 2007;Section: Times City;Page: 4

Want A Road? Fill Up A Few Ponds

KIT Filling Up Waterbodies To Build Road; Residents Take Up Cudgels To Save Nature

Prithwijit Mitra | TNN

Kolkata: When residents of Suren Sarkar Road, near Subhas Sarobar, saw four ponds being filled up, they were incensed. But when they learnt who was doing it, they were shell-shocked.

It was not any private agency but the state-run Kolkata Improvement Trust filling up precious waterbodies for 'development'.

KIT's explanation is it needs to reclaim the ponds to build a road which will connect Suren Sarkar Road with the low-lying area around the waterbodies. The catch is the project needs 330 cottahs whereas the four ponds add up to 330 cottahs. The surplus 20 cottahs may be sold off — for a princely sum.

Two of the ponds have already been filled up and two more are on the block. Construction work has started but residents of an adjoining housing complex are determined to stop it. They plan to lodge a protest with the Kolkata Municipal Corporation. KIT has taken permission from the fisheries department (which owns the ponds) but it also needs the approval of KMC, which it hasn't got yet. In spite of this, KIT officials say the project is a go.

Local MLA Rupa Bagchi, however, says it won't be that easy for KIT. She plans to take up the issue with urban development minister Ashok Bhattacharya and mayor Bikash Ranjan Bhattacharya. "Neither the local councillor nor myself was aware that they would fill up ponds. We will have to see if it was at all necessary for the project," Bagchi said after a visit to the area.

KIT has completed 330 metres of the 60-foot wide road and only 138 metres remain. They have got the clearance from the fisheries department and the ponds will have to go, officials say. "But we are keeping our fingers crossed since the project was stalled four years ago following a complaint," said M Sarkar, chief valuer of KIT. "Once the road is complete, we will think of selling the surplus land, around 20 cottahs. It is prime property and its value will be no less than Rs 50 crore. The scheme is still being worked out and nothing has been finalised." Will KIT dig ponds to compensate for the ones filled up, as is the rule? KIT officials would give no answers.

Residents fear the plot will eventually go to a promoter and, like the ponds, the greenery, too, will vanish. "Once the land is handed over, which seems only a matter of time, acres of greenery will be gone. This area is the only open space here and KIT has no right to fill up waterbodies like this. We shall take up the matter," said Suresh Khanna of the Lake Districts Residents' Welfare Association. They have approached environmentalists to file a PIL.

The project falls under scheme 16M of the KIT and the land had been taken over more than 50 years ago. Since then, it has remained an open space. "It was a lovely spot where you could go for walks or just sit by the ponds. Now, it will be another multi-storey complex which is sad," added Khanna.

Environment activist Subhas Datta feels the matter is "serious". "It is clear that the idea is to build a complex and the road will connect it to the nearest throughfare. They haven't got the KMC clearance which is mandatory and that makes it illegal. They have even cut down trees there," said Datta.

KIT has taken permission from the fisheries department but it also needs the approval of KMC, which it hasn't got yet. However, KIT officials say the project is on

Sandbags are piled on the already filled-up portion of the ponds. It seems only a matter of time before KIT 'reclaims' the waterbody from nature for 'development'

- **WHERE:** Suren Sarkar Road, near Subhas Sarobar
- **WHO:** Kolkata Improvement Trust
- **WHY:** To build a 60-foot wide road to connect Suren Sarkar Road with a 'low-lying area'
- **AREA:** 550 cottah, including four ponds
- **AREA ACTUALLY NEEDED:** 330 cottah
- **WHAT WILL HAPPEN TO THE SURPLUS:** 20 cottah may be sold for Rs 50 crore

Publication: Times Of India Kolkata;Date: Aug 25, 2008;Section: Times City;Page: 4

Pollution threat to heritage tanks

MANOHAR DAS TARAG

HAJI MD MOHSIN SQUARE

LALDIGHI

Krishnendu Bandyopadhyay | TNN

Kolkata: Three waterbodies in the heart of the city are degrading fast, thanks to their indiscriminate use for bathing, washing and dumping garbage.

A major reason behind the pollution is that people have easy access to all the three waterbodies — Manohar Das Tarag on the Maidan, J L Nehru Tank (at JL Nehru Road-Outram Road crossing) and Lal Dighi at BBD Bag. However, there is no mechanism for maintaining and monitoring them. If the tanks continue to be polluted and neglected in this way, all three will simply disappear in no time.

When the chief minister had taken a personal interest in the conservation of these waterbodies, several government agencies had started beautifying them on a war-footing. However, their priorities changed soon.

The Central Ground Water Board, which carried out a study on the aquifer, has already warned against any major construction adjacent to the waterbodies. "Perhaps, these again need chief minister Buddhadeb Bhattacharjee's intervention. Else, they will be lost from the face of the city forever," said Sunirmal Sinha, who is researching on the history of the city's waterbodies.

Other tanks in the heart of the city are also in a bad shape. The tank behind Indian Museum and one on the SSKM Hospital campus are no better. Worse is the condition of the one at Rawdon Square over which the cultural complex of the Information and Culture department is coming up. The tank beside St Paul's Cathedral is a little better as is the tank inside Elliot Park. The pond at Haji Mohammad Mohsin Square, off Rafi Ahmed Kidwai Road, has turned into a veritable garbage dump.

> The tanks are not only strategically located, they were very well maintained even 15 years ago
>
> Amalesh Chowdhury | MARINE BIOLOGIST

But it is the condition of the three tanks that have got a number of experts worried. "The degradation of Manohardas Tarag, J L Nehru tank and Lal Dighi is really unfortunate. They are not only strategically located, all three were very well maintained during the British era. Even after Independence, the tanks were in a very good shape. They have degraded over the last 15 years," said well-known marine biologist, Amalesh Chowdhury. "It is criminal to let such degradation take place in the heart of the city," he added.

Bathing, washing and dumping waste is going on all day. "The water of Manohardas Tarag is very filthy. All types of plastic and other waste have formed a thick layer on its surface," said a senior forest officer. Similar is the situation of J L Nehru tank.

The condition of Lal Dighi is particularly deplorable. "This was, arguably, the finest waterbody in Kolkata. Now, PWD is constructing a two-storey parking lot along the edge of the tank, causing irreparable damage. It will slowly be a concrete tub preventing the movement of bio-organisms," said environment activist Mukuta Mukherjee.

Before construction of the parking lot, no environment impact assessment (EIA) was carried out. "It spells doom for the bio-diversity of the tank," said Chowdhury.

Publication: Times Of India Kolkata;Date: Jan 8, 2008;Section: Times City;Page: 4

After ponds, canals at risk

Waterbody Along VIP Road Filled Up As Realtors Build Shortcut For Cars

Sriman Chakraborty | TNN

Kolkata: It is not only the ponds that are under threat. Even the city's canals are not being spared.

Watch out for the one flowing by VIP Road, just opposite the Big Bazaar supermarket near Teghoria. The original 20-foot-wide canal now looks like a creek with large portions filled up by construction waste to make way for cars taking a shortcut from VIP Road to areas across the canal. This has been the usual practice among realtors in this stretch as part of money-making. Every little space within Baguiati and Kotkhali, pond or marsh, has vanished in the upcoming concrete jungle.

At present, the site is Teghoria. "Work" is going on in full swing opposite Big Bazaar on the plea of constructing a "culvert" across the canal. But a peek at the site reveals much more. The "culvert" occupies a much smaller space than 20 feet. The remaining portion has been filled up with rubbish just to get some additional land space as bonus. Imagine what would happen to the neighbouring areas during the monsoon, when the constricted canal would not be able to drain out the rainwater.

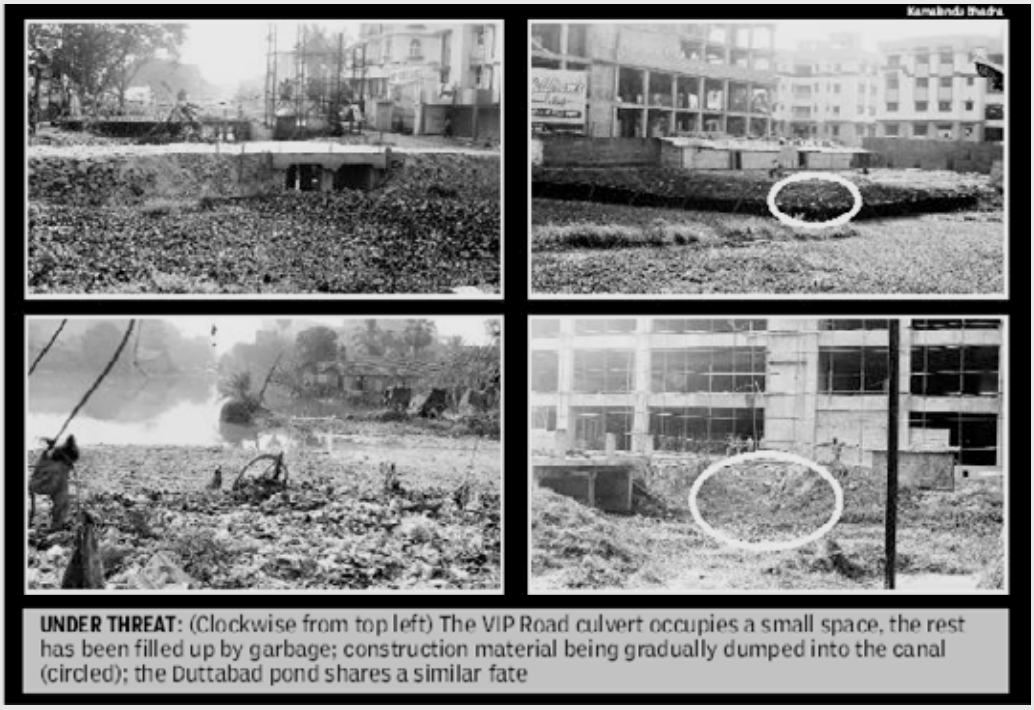
Local residents alleged that the local Rajarhat Gopalpur Municipality authorities are turning a blind eye to the rampant filling up of the ditch. "The canal has almost dried up in this stretch," said a local resident.

Rajarhat-Gopalpur Municipality chairman Tapas Chatterjee said they have received a few such complaints from various quarters. "We had launched a drive a few years ago to demolish such illegal structures that blocked the canals. We will look into the new allegations and make an inspection of the area," he added.

VIP Road is no exception. With land prices off EM Bypass soaring like never before, unscrupulous promoters are on the hunt for a piece of land here.

In fact, some years ago, there were allegations that a huge pond in Duttabad under Bidhannagar Municipality was being filled up. The civic body gave up, saying the waterbody came under the fisheries department.

Even the 12,500-hectare-wide wetland off the EM Bypass, declared a Ramsar site, is also under severe threat. The East Kolkata Wetland Management Authority, which was formed to develop the wetland site, had earlier identified nine spots where unauthorised structures have come up and lodged FIRs against the structure owners at the local police station in South 24-Parganas. "It is our constant endeavour to protect the wetland and we are working on preparing a guideline as to how the wetland could be used," said an official.



UNDER THREAT: (Clockwise from top left) The VIP Road culvert occupies a small space, the rest has been filled up by garbage; construction material being gradually dumped into the canal (circled); the Duttabad pond shares a similar fate

Survey on waterbodies soon

Kolkata: A survey of all waterbodies will be carried out in Kolkata and other municipal corporation areas of the state, urban development minister Asok Bhattacharya said on Tuesday. Based on that, a public document would also be prepared, he added. The problem of frequent filling up of waterbodies in the city over the past one month was discussed by Bhattacharya at a meeting where mayor Bikash Bhattacharya was also present. The minister said since a number of waterbodies had been filled up in this period, steps have to be taken to protect the rest. The authorities of Kolkata, Howrah and Siliguri municipal corporations would conduct the surveys. TNN

Publication: Times Of India Kolkata;Date: Jun 14, 2008;Section: Times City;Page: 3

Flood fears after canal fill-up

Sumita Deb Roy | TNN

Kolkata: A move that could ease traffic movement in a part of the city could add substantially to its drainage problem during monsoon. As part of a plan to ease traffic on VIP Road, a waterbody is being filled up, and local residents fear it would worsen flooding.

The PWD is making a service road along the stretch of VIP Road from Jora Mandir to Teghoria. Their aim: to ease traffic. To do this, however, they are partially filling up a waterbody. Fly ash has been dumped to cover a width of 8 metre on the 500-metre stretch of the waterbody. The work has been going on for about a month now.

Water from surrounding areas flows into the waterbody after rains, easing waterlogging. But now, the water has nowhere to go. As a result, the road will be severely waterlogged, fear local residents. Some parts of Baguiati and Teghoria have faced serious problems during monsoons for the past few years, and this problem would only get worse, they claimed.

> Since the water will now have nowhere to go, the stretch will be severely waterlogged after a spell of heavy rain, fear locals

"Rain water from the surrounding area drains into the waterbody. Filling up a portion will cause immense problems for residents," said Anirban Ghosh, a local resident.

PWD minister Kshiti Goswami conceded that a portion of a waterbody was being filled up to make way for the service road. "The residents are right. But we sometimes have to take certain measures for their own benefit. I have been told that a sufficient portion of the waterbody has been left for draining out water," he said.

Last year, places like Deshbandhu Nagar remained submerged in water for weeks during monsoon. Locals blamed mushrooming buildings, gradually disappearing waterbodies and the municipality's indifference for their woes. "Even a decade back, the area did not experience severe floods. But last year, the locality remained marooned for weeks. In spite of a huge number of buildings having come up, civic authorities have done nothing to improve drainage and sewerage. What are they doing with tax collected from residents?" asked Monorama, a local.

Rajarhat Gopalpur Municipality chairman Tapas Chatterjee claimed that a portion of the waterbody has been left untouched. He claimed that would be enough for draining out water.

Kamalendu Bhadra

The waterbody along VIP Road that is being filled up

Publication: Times Of India Kolkata;Date: Aug 11, 2008;

Central law on the anvil to fight wetland abuse

Debasmita Kanjilal | TNN

Kolkata: Taking a cue from West Bengal, which was the first state to introduce a code for the preservation of wetlands, the Centre is all set to introduce a law to preserve these fragile eco-systems.

The Centre's environment and forest ministry is going to issue a about conservation of wetlands. Before finalising the law — being termed Wetlands (Conservation and Management) Rules, 2008 — they must send a draft to state governments for comments.

It was learnt that the new law will make it illegal to build permanent structures within 50 metres of wetlands. The proposed act will also ban motorized boats from plying on the waterbodies. The law is guided, to some extent, by the state's existing wetland laws.

In spite of the state's protective code, a number of complaints regarding wetlands have been lodged with the state's environment department. Officials too conceded that wetlands around Kolkata are not properly protected. Some of these complaints have also reached the central environment ministry, said an official.

The Centre's law will be a major boost to preserve these waterbodies, which contribute greatly to maintain ecological balance of an area. The law will forbid dumping of solid waste and discharge of untreated effluents in wetlands and call for public hearing at the site or nearby to ascertain concerns of the area's affected people.

The environment ministry is also against withdrawal of water from the waterbodies. Again, it will forbid conversion of a wetland into non-wetland use unless it is in public interest. There are provisions for punishment in case the rule is flouted. It will also provide financial assistance to state governments for various conservation activities.

A Central Wetlands Conservation Committee (CWCC), to be constituted by the Centre, will have 17 experts to supervise the protection of wetlands. Similar committees would be also formed at the state and district levels to check illegal activities.

Maps of each wetland will be maintained by the committee. These maps will record potential threats to the wetland. They would also keep on record regulatory activities. Each wetland shall be placed under a single identified agency. Wetlands within protected areas, such as national parks and sanctuaries, would be protected under the Wildlife Act.

State environment secretary M.L. Meena said: "Since we have an existing law, we have given suggestions. If needed, the buffer could be increased to 100 metres in some zones."

Publication: Times Of India Kolkata;Date: Jan 1, 2008;Section: Times City;

Hope floats for city's wetlands

NGO To Make First Presentation In January

TNN | Times News Network

Kolkata: Finally, there is some hope for East Kolkata Wetlands. Wetlands International — a reputed NGO appointed by the East Kolkata Wetlands Management Authority (EKWMA) to prepare a comprehensive plan and frame guidelines to develop the 12,500 hectare wetlands — will make its first presentation to the authorities this month.

This decision was taken comes more than five years after the Wetlands was declared the Ramsar site in August 2002.

EKWMA chief technical officer Nitai Kundu said Wetlands International was working on a comprehensive plan to develop the huge wetland area. "We will start implementing the plan in March," he added. EKWMA had earlier floated tenders to invite firms having a previous experience of preparing plans to develop wetlands. After a thorough scrutiny, Wetlands International was chosen to do the job.

Besides framing guidelines, the NGO is also drawing up a comprehensive management plan to develop the wetlands. The plan would help the authorities develop the area without violating the instructions of the Ramsar authorities. The state government did a survey of the wetlands way back in 1997. According to government officials, the government has itself made changes in land use in the wetland area beyond that mentioned in the information sheet.

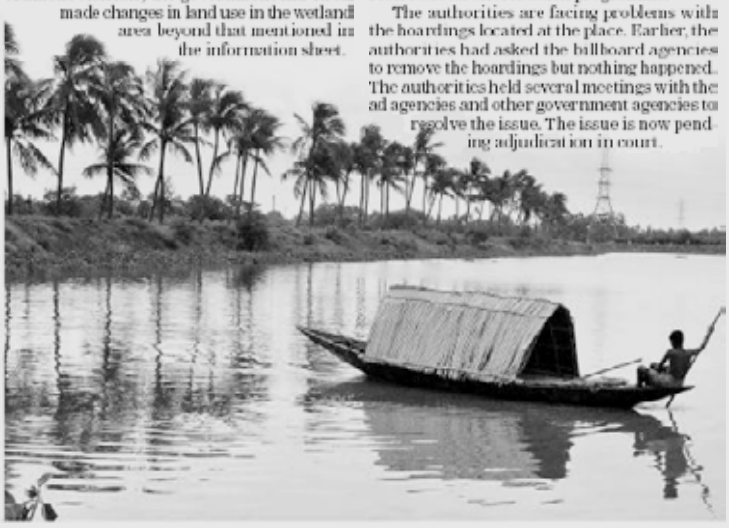
In fact, the baseline document refers to pressures from the "promoter-real estate-developer lobby" to grab parts of the buffer zones spread over 8,000 acres just outside the core area.

The primary document — Baseline Document of Management Action Plan — has already specified the technical details defining the command area, its salient features and also suggested a sustainable ecological plan with the villagers inside the buffer zone. Wetlands International is likely to develop the plan with inputs from the government report.

"For example, there are several people staying in the area. If anybody wants to construct a building, they would be able to follow the guidelines as to how they could set up their houses without violating the Ramsar instructions," said an official. The authorities are also working on a plan to set up a nature and wetland interpretation centre in the area.

According to plans, the wetland area will have eco-tourism, water sports, food huts, recreational centres, landscaping and afforestation without violating the Ramsar norms. For example, the NGO would prepare plans as to how kiosks could be set up in place of signboards. The NGO would also lay down plans as to what exactly could be done without disturbing the eco system of the place. The authorities will soon start an afforestation programme.

The authorities are facing problems with the hoardings located at the place. Earlier, the authorities had asked the billboard agencies to remove the hoardings but nothing happened. The authorities held several meetings with the ad agencies and other government agencies to resolve the issue. The issue is now pending adjudication in court.



THE TIMES OF INDIA, KOLKATA
MONDAY, OCTOBER 27, 2008

Wetland plan on govt table

Netherlands-Based NGO Suggests Measures To Preserve & Develop East Kolkata Wetlands

Suman Chakraborti | TNN

Kolkata: Wetlands International, the Netherlands-based organization having expertise on wetlands, recently gave its final presentation to the state government on how to develop and preserve the 12,500-hectare East Kolkata wetlands, declared a Ramsar site.

East Kolkata Wetlands Management Authority (EKWMA) chief technical officer Nitai Kundu said the organization presented a detailed management plan. EKWMA will now decide how the recommendations can be implemented.

The organization has observed that silt is accumulating in the wetland, slowly drying it up. "They have suggested that drainage and rainwater has to be flown through the wetlands constantly to prevent this accumulation of silt," Kundu said.

Another recommendation was the revival of old canals surrounding the wetland area that got disconnected after they dried up. "They suggested that the best possible way to preserve the wetland is to revive the old canals such as Churial Khal, Tolly's Nullah and old Bagjola canal and to connect the canals with the wetland area," Kundu said.

The organization has also recommended that the canals should be saved to ensure the flow of water and maintaining a proper ecological balance. "The canals should be saved, they said. They suggested that we do not touch the core area of the wetlands," Kundu said. The authorities had earlier lodged complaints against the developers of nine illegal structures that were constructed on the wetlands. Many unauthorized structures have come up on the wetlands since the state government last surveyed the area in 1997.

It was also suggested that the wetland area should be developed with lots of trees, open green spaces and promotion of eco-tourism. EKWMA already plans to set up a Wetland Interpretation Centre, to spread awareness about wetlands and the importance of saving them. The organization has suggested developing eco tourism and horticulture on agricultural lands near Rajarhat, that falls within the wetland area.

Another important aspect that the organization pointed out was sanitation. "The sanitation system of the wetland area is very poor and they have recommended that it be developed. There would be guidelines for all plans to be followed," Kundu said.

Wetlands International has also suggested that local dwellers be imparted vocational training so that they can get employment. "They gave us a comprehensive presentation. They'll submit the final report in November, after which we'll start work on the recommendations," Kundu said.

Wetlands International, which works to sustain and restore wetlands and its bio-diversity all over the world, was appointed by EKWMA to conduct surveys and to frame a comprehensive management plan and guidelines to protect the East Kolkata wetlands. Representatives from the organization conducted surveys in the area from time to time to find out the present scenario and find out ways to improve it.

EKWMA officials said that by observing the guidelines, people living in wetland areas would be able to construct buildings without Ramsar instructions, as the land use pattern of the wetland area has changed. The authorities are working to develop the wetlands with facilities to promote eco-tourism, water sports, food huts, recreational centres, landscaping and afforestation without violating Ramsar norms.

Publication: Times Of India Kolkata;Date: Dec 29, 2005;Section: Times City;Page: 3

New board to protect wetlands

Times News Network

Kolkata: The state government has set up the East Kolkata Wetland Management Authority (EKWMA) to protect and develop the 12,500-hectare East Kolkata wetlands that has been declared a Ramsar Site.

Rajarhat also has some wetlands to the east of Newtown. According to Housing Infrastructure Development Corporation (Hidco) authorities, they want to develop and protect the wetland.

"Though development of wetlands is not part of the Newtown project, we have given a new lease of life to the Rajarhat wetlands to protect them for the sake of Newtown," Hidco GM P K Biswas said.

However, since all development work on the wetlands has to undergo scrutiny, the Hidco authorities will follow guidelines laid down by the new authority.

"If it asks us to develop the wetlands, we will take it up," housing minister and Hidco chairman Goutam Deb said.

"Though the Rajarhat wetlands are not part of East Kolkata Wetlands, we will try to protect it," chief secretary Amit Kiran Deb, who also heads EKWMA, said.

"We will develop Newtown in such a way that the cool southern breeze will flow over the wetland and waft into the buildings," he said, adding that amusement parks, social forestry and small sanctuaries would be set up to protect it.

Publication: Times Of India Kolkata;Date: Jul 12, 2007;Section: Times City;Page: 3

FIR against wetland buildings

Sunjan Chakraborty | TNN

Kolkata: The East Kolkata Wetlands, ravaged by billboards and pockmarked with illegal construction, may finally get some breathing space. The authority in charge of the 12,500 hectare Ramsar site has lodged FIRs against nine structures that have come up illegally on the wetlands.

"All these structures have been constructed in areas under the Kolkata Leather Complex (KLC) police station," said Nitai Kundu, chief technical officer of East Kolkata Wetlands Management Authority (EKWMA), which is responsible for the wetland's well-being.

The crackdown came after the first phase of EKWMA action, in which the authority identified some of the illegal structures within the wetland area. The nine unauthorised structures include marble godowns, buildings, garages and a primary school at Bantala. "We have issued instructions to demolish all these structures," Kundu said.

The authorities are also conducting surveys to identify other such illegal structures. Over the years, the wetland, located off the Eastern Metropolitan Bypass, has been a prime target of land sharks and illegal settlers.

"Once the surveys to identity illegal structures are complete, we will have a complete list of such buildings. We would then serve notices on their owners, asking them to demolish these. If they don't comply, we will do that ourselves," Kundu said. Officials concede that it is tough identifying all illegal structures coming up in every nook and corner of the sprawling wetlands. "The reason why these have come up in the first place is that government agencies have failed to inspect and identify the violators," said an official.

The EKWMA, which is keen on developing the wetland area, will first have to prevent rampant filling up of ponds before any such plan could be executed.

Authorities have already taken the first step towards this. EKWMA has appointed Wetlands International — a reputable NGO for framing comprehensive guidelines to develop the wetlands following Ramsar directives.

"We had earlier floated tenders to invite firms who have experience of preparing wetland development plans. After a thorough scrutiny, Wetlands International, a reputed non-profit-making NGO and an expert in this field, was selected. It will prepare a comprehensive guideline and will submit their final report by December this year," said EKWMA chief technical officer Nitai Kundu.

Apart from framing the guidelines, the NGO will also lay down a comprehensive management plan. The plan will help the authorities develop the area without violating the instructions laid down to protect Ramsar sites.

BUILDING BAN: The leather complex area in the East Kolkata Wetland, where all the illegal structures named in the FIRs have come up

Publication: Times Of India Kolkata;Date: Jan 10, 2008;Section: Times City;Page: 5

New plan for city wetlands

Govt to bring more areas under East Kolkata Wetland area

Kolkata: Filling up of ponds in the city is nothing new. But the rising resistance from local residents has made the state government sit up and take note. It now wants to keep tabs on wetland areas and waterbodies across the Kolkata Metropolitan Area.

When one thinks of conservation of wetlands, one thinks of East Kolkata Wetland Authority. But there are other wetland areas and waterbodies, which need to be protected from land grabbers, the government has realised. Accordingly, the environment, wetland, parks and gardens sector of the Kolkata Metropolitan Planning Committee (KMPC) has now come up with an action plan for the wetlands and waterbodies under KMA.

CPM MP Sujan Chakraborty, who is the chairman of this sector, recently held a meeting on the issue. An official at Writers' Buildings said: "It was decided at the meeting that the rest of the wetlands in and around the city will be evaluated and a report will be filed to chief secretary Amit Kiran Deb once the compilation and the evaluation is completed."

The effort to save the Ultadanga waterbody, in fact, is just a one-of-a-kind incident. In the past, there have been several incidents when the ponds, waterbodies or wetlands haven't been saved. The official said, "In fact, there is no legal body, no legal provision for these wetlands other than EKWA, which has enjoyed special privileges because it has been declared a Ramsar site." The official added, "Therefore, the government, once it manages to evaluate the other waterbodies and wetland areas, wants to extend EKWA into a Kolkata Metropolitan Wetland Authority." A proposal to this effect is thus being prepared by the environment sector of Kolkata Metropolitan Planning Committee. The proposal will be submitted to the chief secretary and chief minister Buddhadeb Bhattacharjee, who happens to be the chairman of Kolkata Metropolitan Planning Committee.

> It was decided at the meeting that the rest of the waterbodies in and around the city will be evaluated and a report will be filed to chief secretary A K Deb once the compilation and the evaluation is completed
>
> **An official at Writers' Buildings**

Among the first things that are being done for the evaluation of the water bodies is preparing a vision document and satellite images of the waterbodies and the wetland areas. Once the satellite pictures are in place, the document will be submitted to the chief secretary. Once the water bodies are enlisted, KMPC will interact with municipal authorities to take steps to protect them.

The official said: "There are several waterbodies and wetlands, spread across an area double the size of that under EKWA. These badly need to be conserved and saved from land-grabbers. KMPC will seek legal protection for all these waterbodies and wetland areas."

The wetlands and waterbodies that top the KMPC's priority list are Borti Beel on Kalyani Expressway, Beelkanda in Kharda-Panihati area, Mathura Beel and Kuliaya Beel in Gayespur-Kalyani, Rani Jheel in Howrah and the Dankuni Beel, which ran into a controversy last year when it was included in the land earmarked for the DLF's Dankuni Township.

Publication: Times Of India Kolkata;Date: Oct 12, 2007;Section: Lead India;Page: 6

Save *Wetlands*, Save *Kolkata*

TIMES NEWS NETWORK

Governor Gopalkrishna Gandhi on Thursday gave a clarion call to save Kolkata's wetlands, equating the vital ecological site with the endangered Himalayan glaciers and polar permafrost.

"As glaciers melt and polar permafrost shrinks, sea levels will rise, affecting everyone. Maldives in the Indian Ocean, Bangladesh in the neighbourhood and Sundarbans closer home will see land area shrink, causing large-scale displacement and migration. But there's something right here that needs to be preserved with equal zeal: the wetlands," the Governor said at the Intergovernmental Panel on Climate Change workshop on Thursday.

The Governor's remark came a day after the state government finally drew up an action plan to save the East Kolkata Wetlands — five long years after its inclusion in the Ramsar site list of protected wetlands. "We received the Bengal government's plan on Wednesday," a Union environment official in charge of the wetlands told TOI.

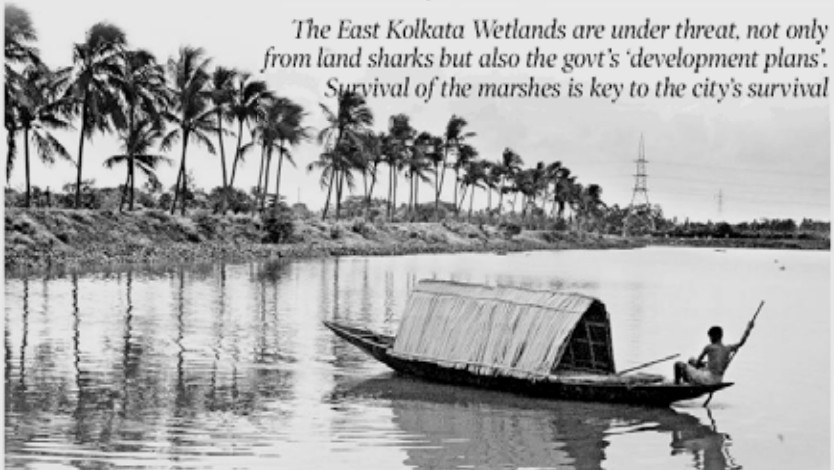
In the past five years, there have been allegations of massive encroachment of the buffer zone of the wetlands off the Kolkata-Basanti Road — including the prime plot opposite Science City that the Kolkata Municipal Corporation has put on sale.

The Ramsar Bureau selected 17 case study sites from all over the world to demonstrate and understand wetland use. East Kolkata Wetlands is the only entry from India that is acclaimed as the only "natural facility for sewage treatment".

This unique characteristic of the wetland explains why Kolkata did not get funds for sewage treatment under the Ganga Action Plan.

The delay in drawing up a wetland action plan seems intriguing because the government had done the groundwork for it. Baseline Document for Management Action, way back in December 1997.

The East Kolkata Wetlands are under threat, not only from land sharks but also the govt's 'development plans'. Survival of the marshes is key to the city's survival



The urgency of the plan becomes in an information sheet furnished by the state to Ramsar. It reveals that "out of 20,000 acres of wetlands in 1915, we now have even less than 10,000 acres left."

According to the government report, there has been a massive change in land use pattern in the wetlands since 1956, due to rapid urbanisation initiated by the government itself. "The northwestern part of the wetlands were converted into the Salt Lake township," the information sheet says.

The Governor also indicated that not enough was being done to protect the wetlands. "Do we have a list of wetlands in the public domain that details which ones are at low, medium and high risk? If not, there should be one. The day a major development project is stopped in its tracks to protect our wetland, it will be a golden one," Gandhi said.

Though Gandhi did not clarify if he was referring to any project in particular, environmentalists have been crying hoarse over a proposed water filtration plant by Kolkata Municipal Corporation, in the middle of the East Kolkata Wetlands. The Rs 100-crore project that KMC says is critical for Kolkata's development, flouts wetland preservation norms laid down under the Ramsar convention.

The danger looms large even within the 4,000 acres of the core area shown in the map. The threat comes from industrial wastes, with unscrupulous land sharks waiting to grab the buffer zones spread over 8,000 acres, the state's report says.

That is why the scientific and technical review panel of the Ramsar Bureau makes it a point to come down to the city and inspect the site before it certifies the Site No: 1208, the code for the East Kolkata Wetlands.

The high-powered management committee under the chief secretary now needs to make the plan along with the map defining the contours of the wetland public so that efforts to change the plan come under public scrutiny. For any such change, once pointed out by the scientific and technical review panel of the Ramsar Bureau, would be a loss of face for the state government. The Ramsar Bureau can finally remove the East Kolkata wetlands from the Montreux Records as it had done to the Chilka Lake Project in Orissa once.

Gandhi also made an impassioned plea for giving more teeth to the West Bengal Pollution Control Board. "I wait for a day when the PCB chairman will exercise the kind of hold on environmental matters as the chief election commission does in the poll process."

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