URBAN HERITAGE AND CONSERVATION MANAGEMENT IN KOLKATA

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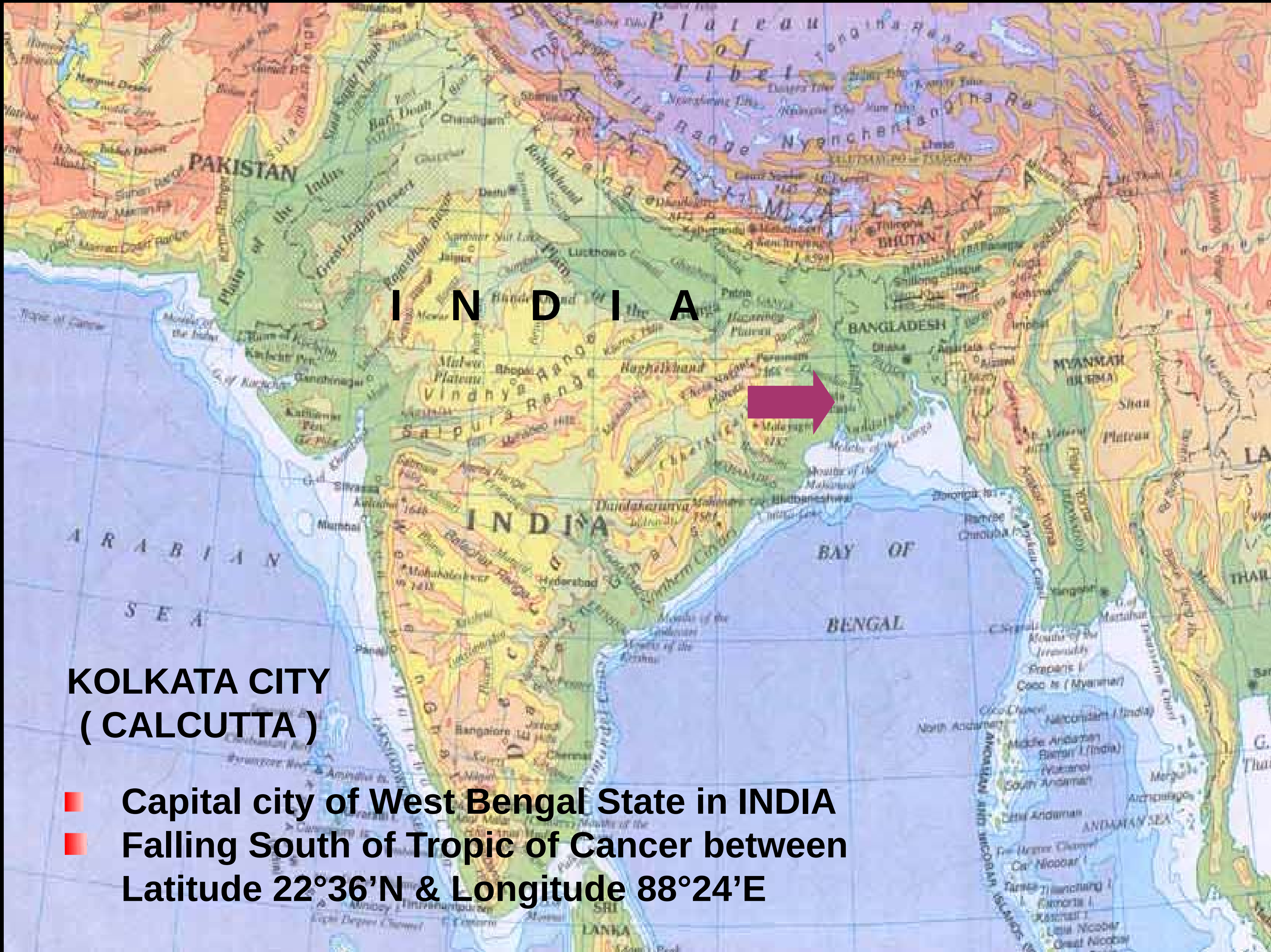
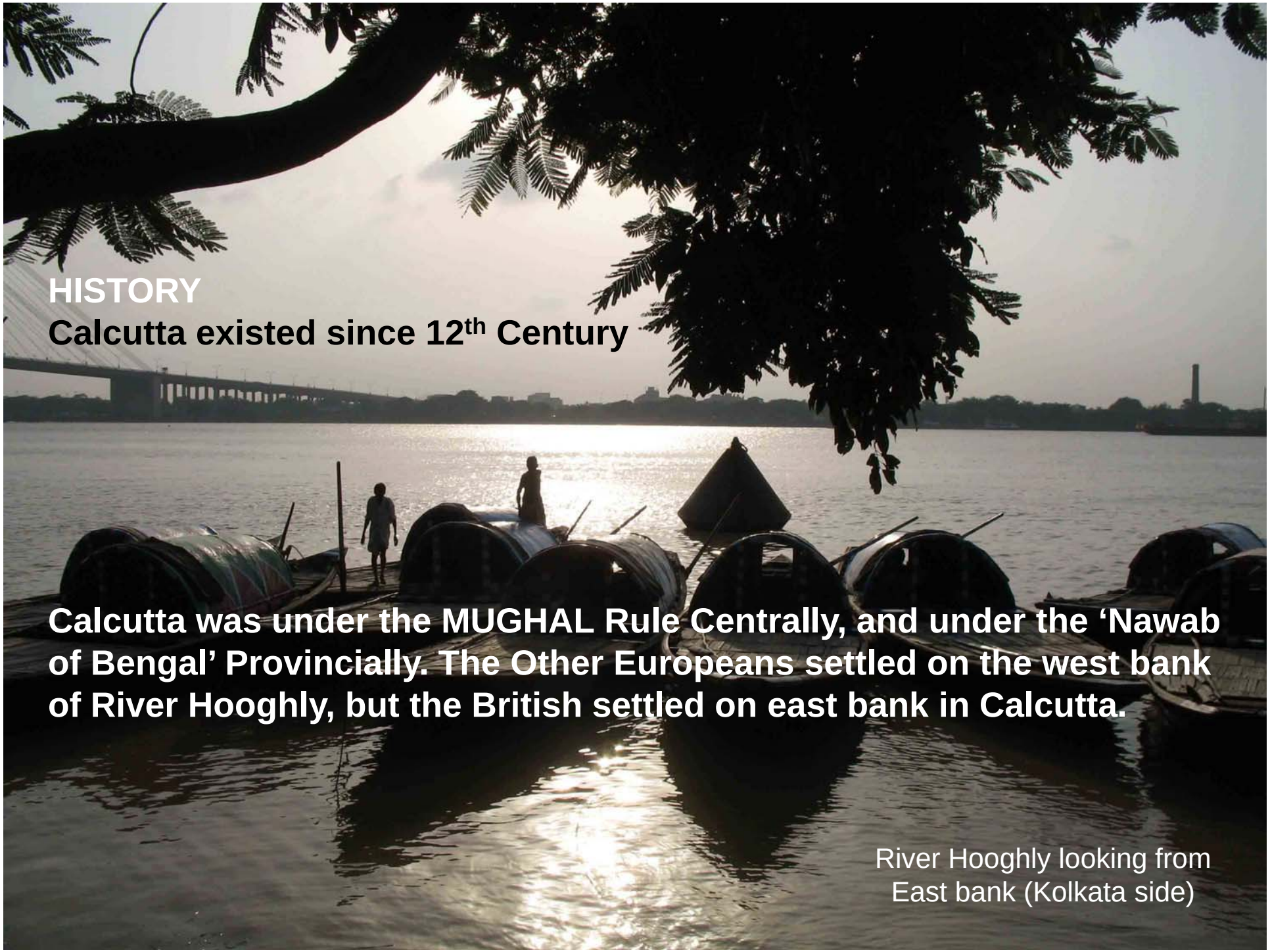


KOLKATA CITY
(CALCUTTA)

- Capital city of West Bengal State in INDIA
- Falling South of Tropic of Cancer between Latitude 22°36’N & Longitude 88°24’E

A Brief History



HISTORY

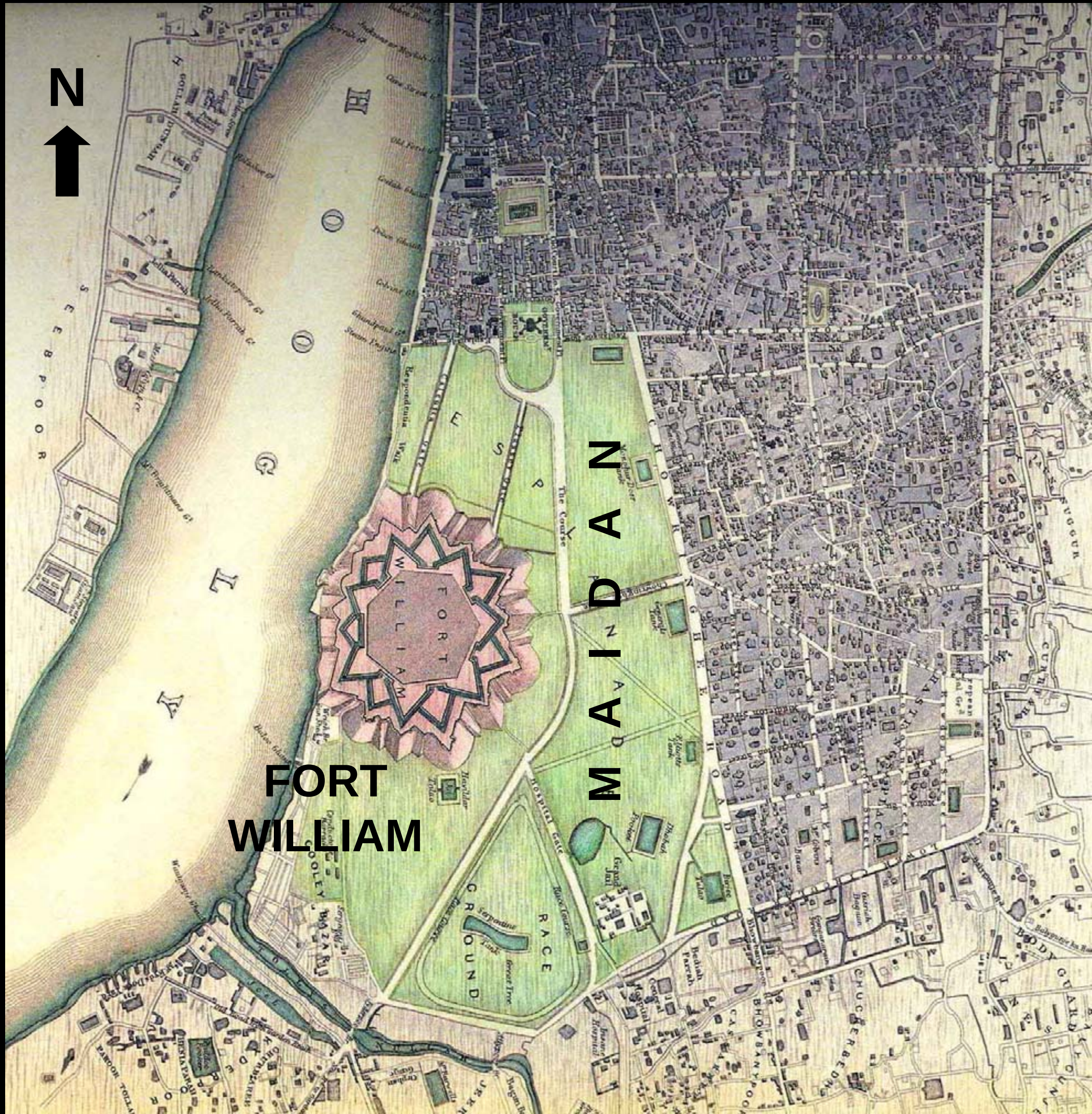
Calcutta existed since 12th Century

Calcutta was under the MUGHAL Rule Centrally, and under the 'Nawab of Bengal' Provincially. The Other Europeans settled on the west bank of River Hooghly, but the British settled on east bank in Calcutta.

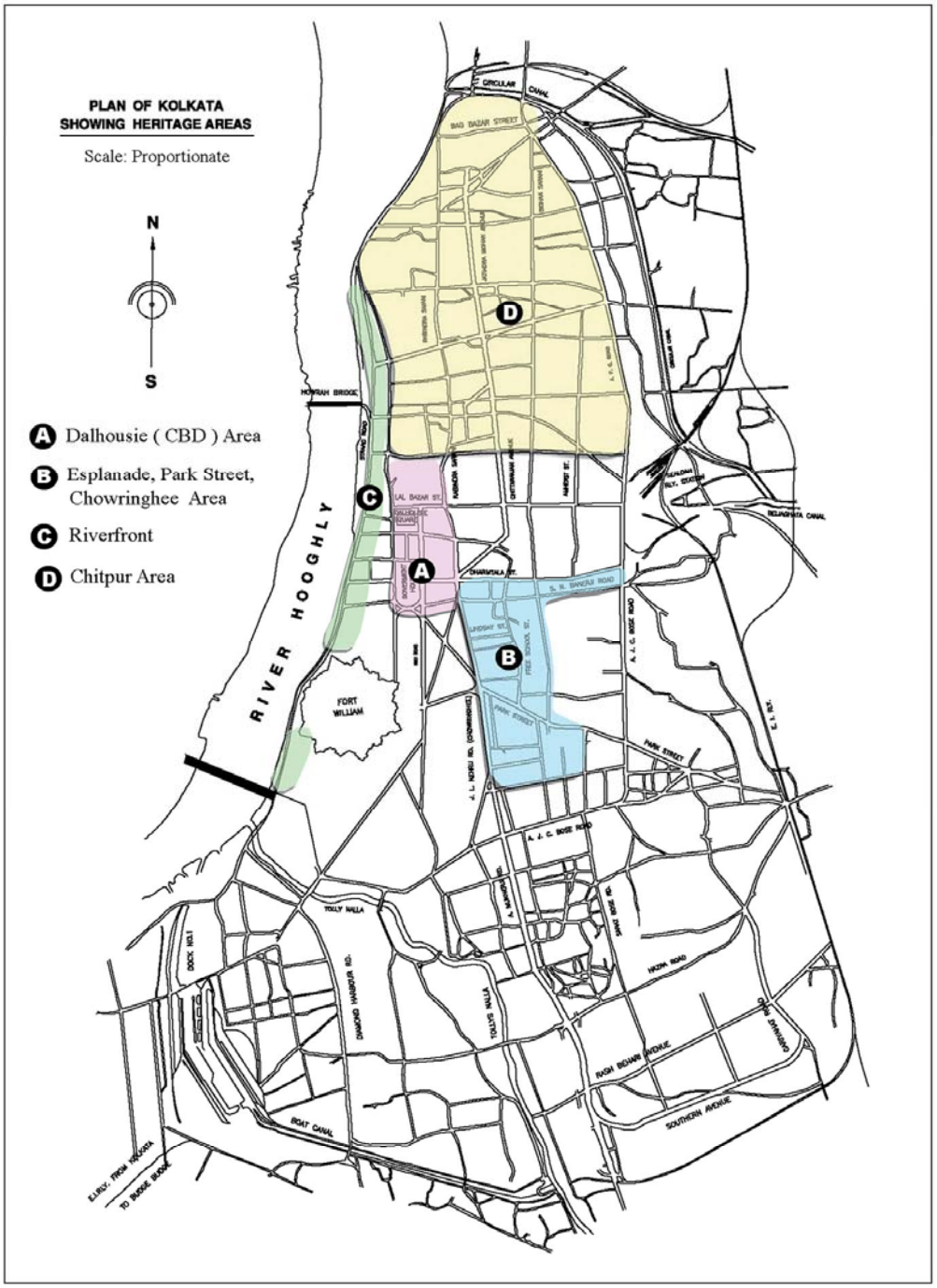
River Hooghly looking from East bank (Kolkata side)

ARRIVALS OF EUROPEANS

1. The Portuguese came to Saptagram in 1530. They later settled in Bandel and set up a Fort & a Church.
2. The Dutch built Fort Gustavous at Chinsura in 1653.
3. The French built a Factory at Chandannagar in 1673.
4. The Danes built a Factory at Sreerampore in 1692.
5. The English, after their third attempt, settled on the east bank of River Hooghly to establish Calcutta on 24th August, 1690 by buying and amalgamating three villages called ‘Sutanuti’, ‘Kalikata’ & ‘Gobindapur’.
6. The Armenians came to Chinsura and built a Church there in 1695. They also came to Calcutta earlier.



After 1757



History of First Town Planning in Calcutta City during 1757-1813

IMPORTANT FACTS ABOUT KOLKATA

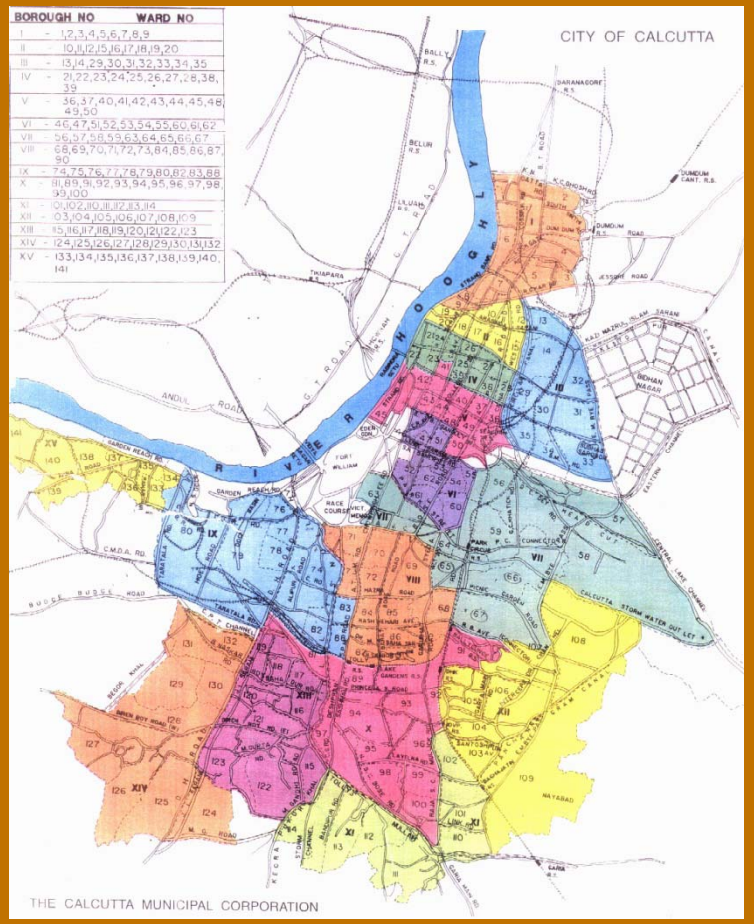
1. Ancient Texts of 12th century mentioned about Kolkata.
2. Job Charnock, a British Merchant established Kolkata by buying three villages and amalgamating them into one on 24th August, 1690.
3. Kolkata was under the Mughal Rule (Empire) Centrally, and under the ‘Nawab (King) of Bengal’ Provincially.
4. The British got territorial right for development in Kolkata in 1757 and started developing the city since 1758.
5. Kolkata became the capital of British India in 1773.
6. Delhi became the capital of British India robbing the status from Kolkata in 1911.
7. India became Independent on 15th August 1947.
8. In the course of Independence, the Bengal region was divided into East-Pakistan, which is now Bangladesh, and India.
9. During partition in 1947, hundreds of thousands of people from Bangladesh sheltered in Kolkata and its environs.

KOLKATA CITY

The area of Kolkata Municipal Corporation now is 185 sq km spreading across 141 wards.

41 wards (101-141) have been added to the city proper (with 1-100 wards) during 1984-86 on the face of population increment and rapid urban development.

As per Census of 2001, population in KMC area is 4580544 and population density is 24760 per sq km. Census of 2011 is not ready yet.




South Dum Dum
Salt Lake City
Kolkata
कोलकाता
Behala
© 2011 Google
© 2011 Mapabc.com
Image © 2011 GeoEye
Image © 2011 DigitalGlobe
©2010 Google
Imagery Dates: Apr 8, 2010 - May 3, 2010
22°33'12.03" N 88°23'02.61" E elev 21 ft
Eye alt 45861 ft


Maidan Area
Image © 2009 GeoEye
©2009 Google
Imagery Date: Feb 22, 2009
22°33'09.70" N 88°20'48.66" E
Eye alt 3.24 km


Dalhousie Region
Image © 2009 GeoEye
©2009 Google
Imagery Date: Feb 22, 2009
22°34'09.06" N 88°20'54.98" E
Eye alt 1.48 km


Dalhousie Sq.
Lal Dighi


LAL DIGHI

DALHOUSIE SQ AREA

GENERAL POST OFFICE

WRITERS BUILDING

CHURCH

RAILWAY H.Q.

BANK OF BENGAL

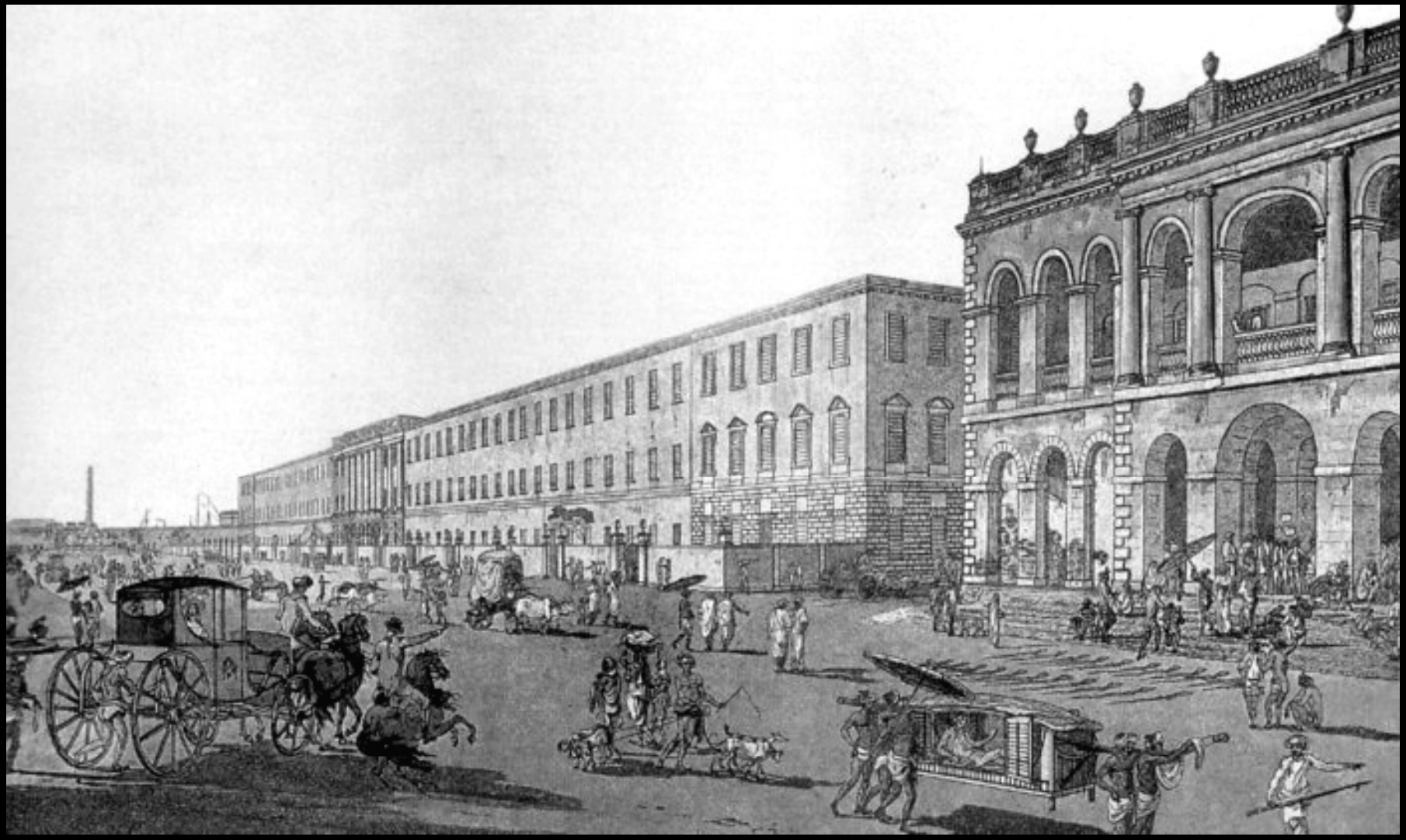
HIGH COURT

TOWN HALL

LAL DIGHI

GOVERNMENT HOUSE

CURRENCY BUILDING



WRITERS' BUILDING Built in 1780

Designed by : THOMAS LYON

WRITERS' BUILDING (1780)
Façade Added in 1880 by E. J. Martin
(Photo taken in 1950s)


28.08.2010 10:41


DALHOUSIE SQUARE

Government House (1804)
Now – Governor's House

BANK OF BENGAL – BUILT IN 1806 DEMOLISHED IN 1996

Town Hall (c1813) in Kolkata


High Court


General Post Office


Eastern Railway HQ


Palazzo Farnese in Rome

Currency Building

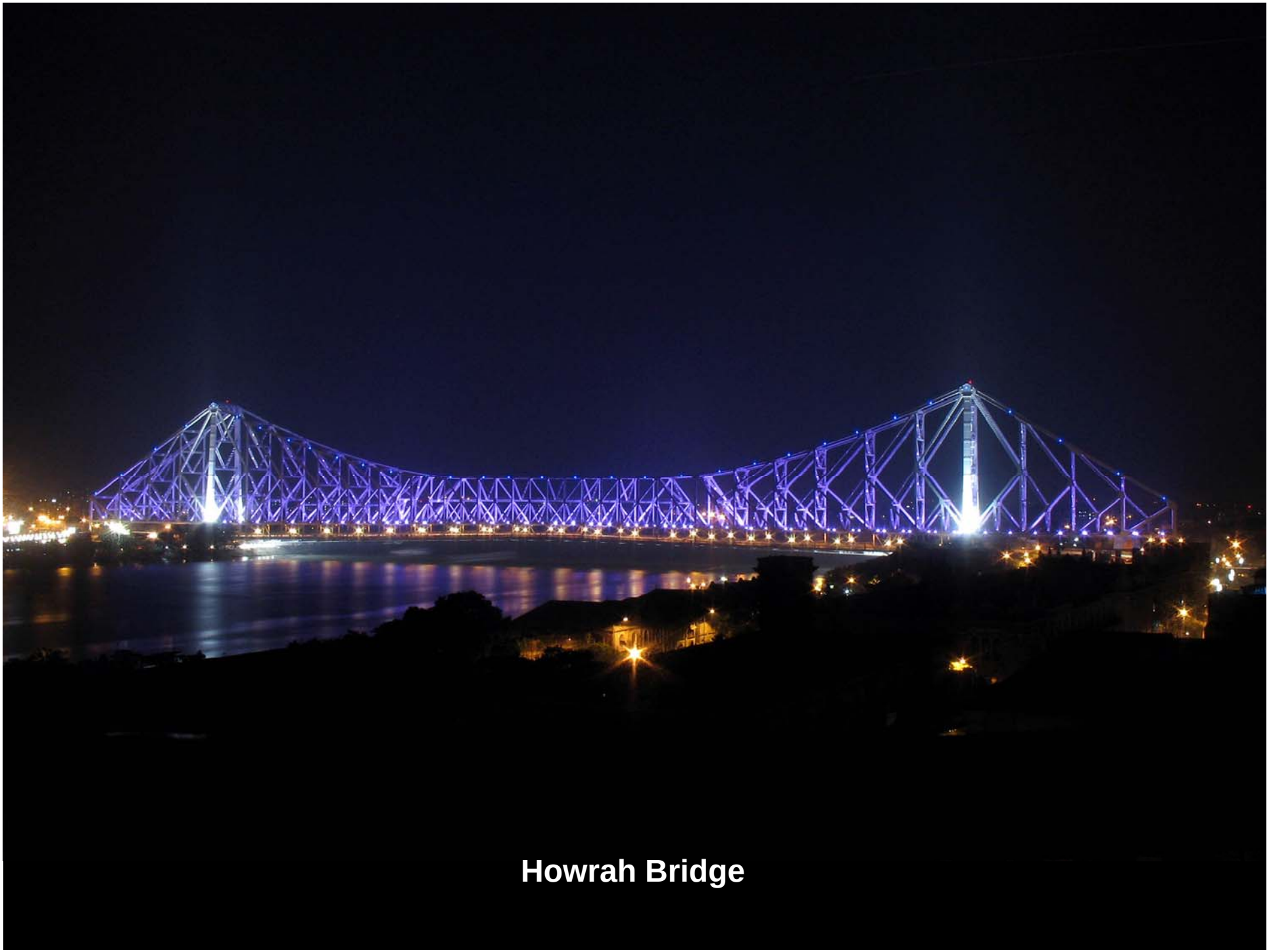

Currency Building


Palazzo Rucellai

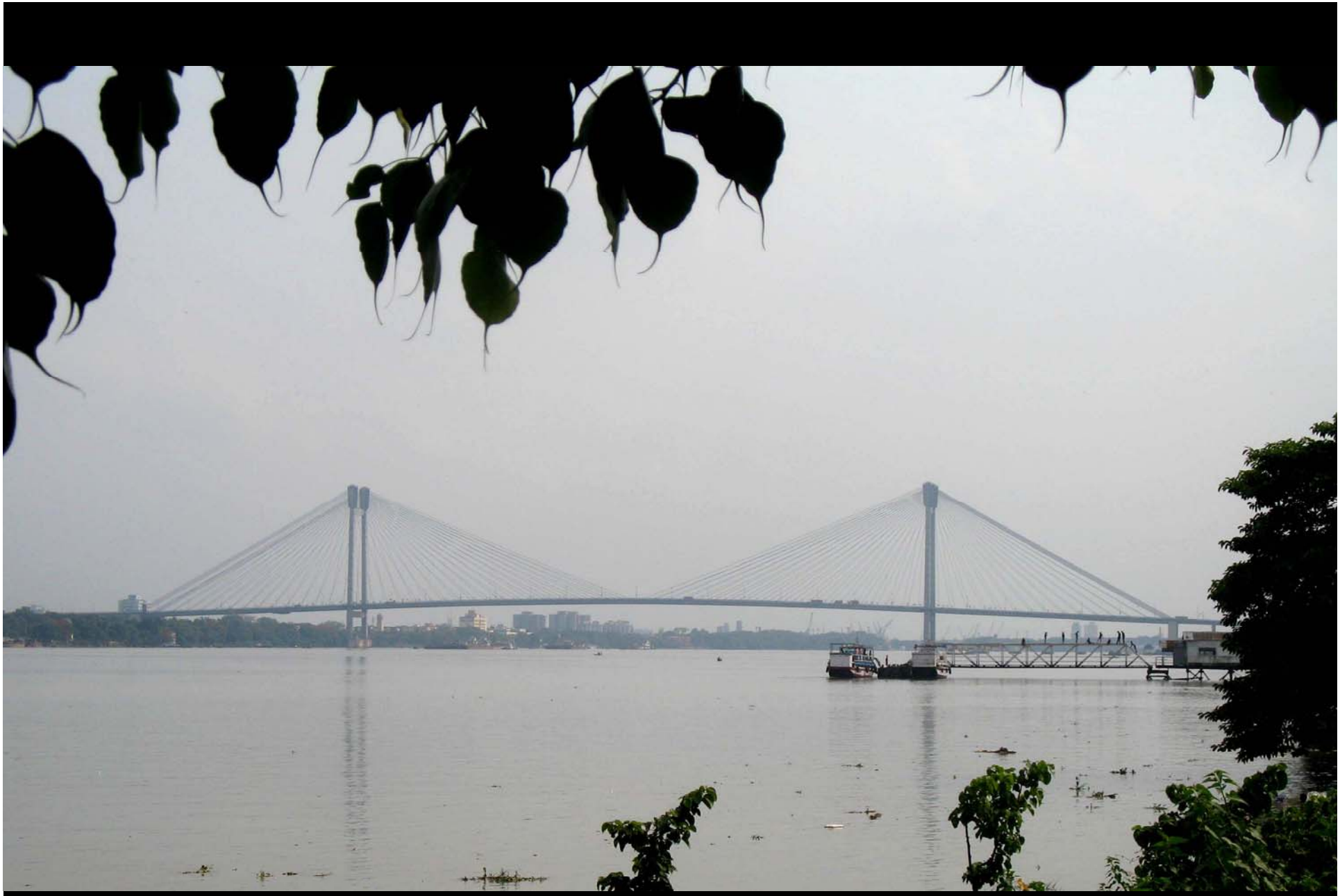
Dalhousie Area


STANDARD LIFE ASSURANCE COMPANY
28.08.2010 10:09
Dalhousie Area

Dalhousie Area

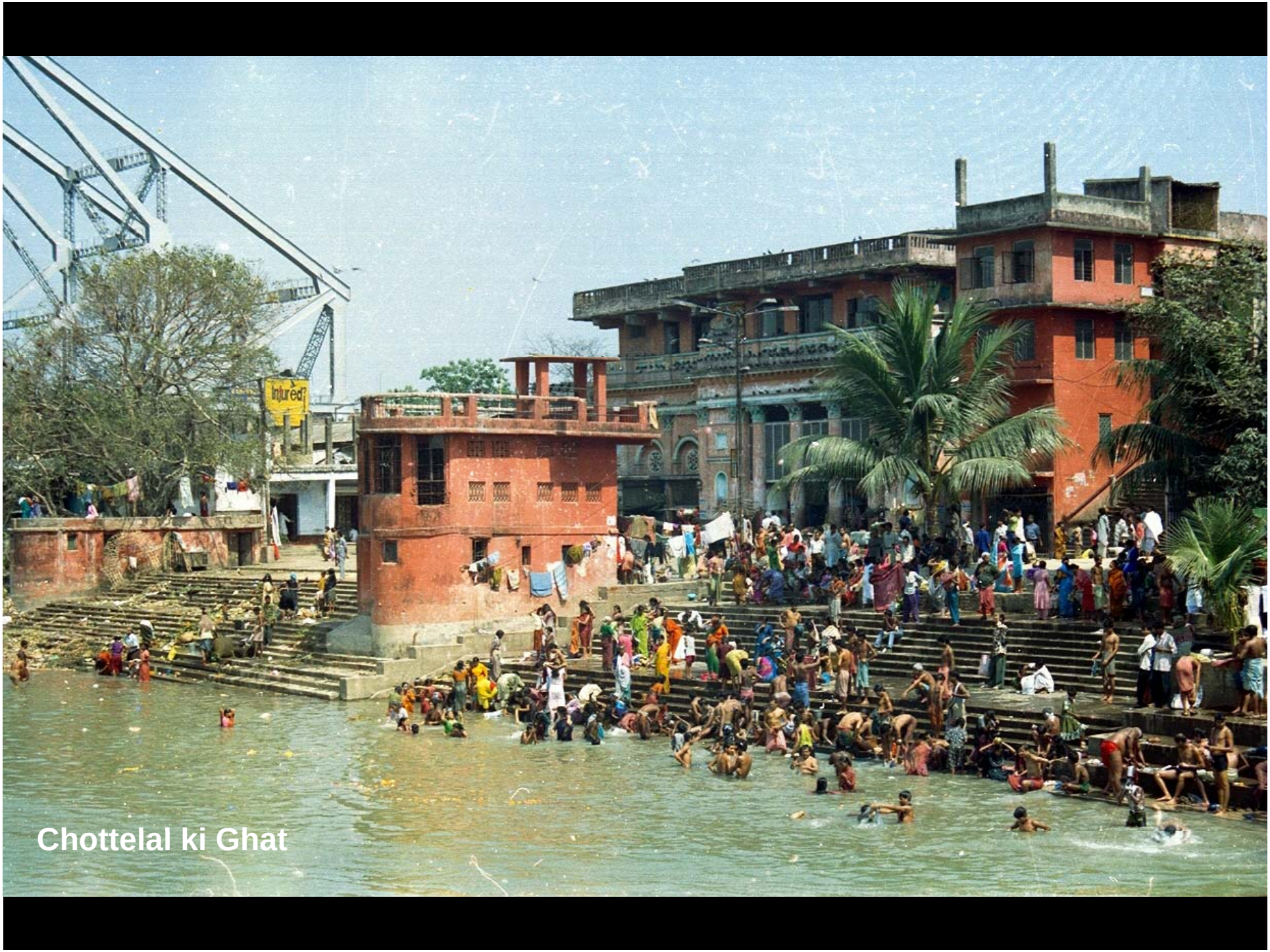


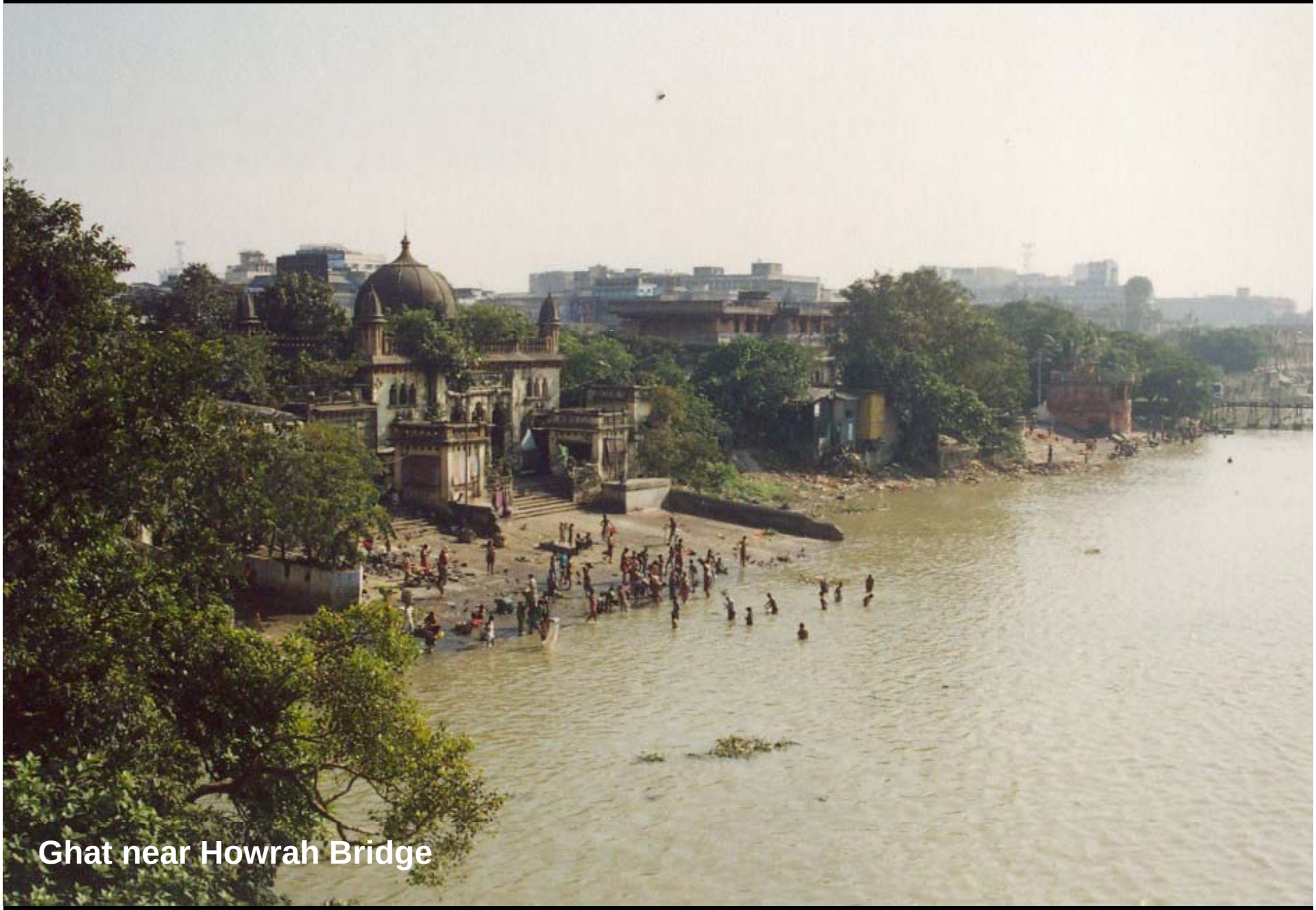
Howrah Bridge



2nd Hooghly Bridge

Princep Ghat


Chottelal ki Ghat



Ghat near Howrah Bridge


P. K. Tagore Ghat where
I saw Gangetic Dolphin

Ochterloney Monument
At Esplanade Area

Esplanade Mansion

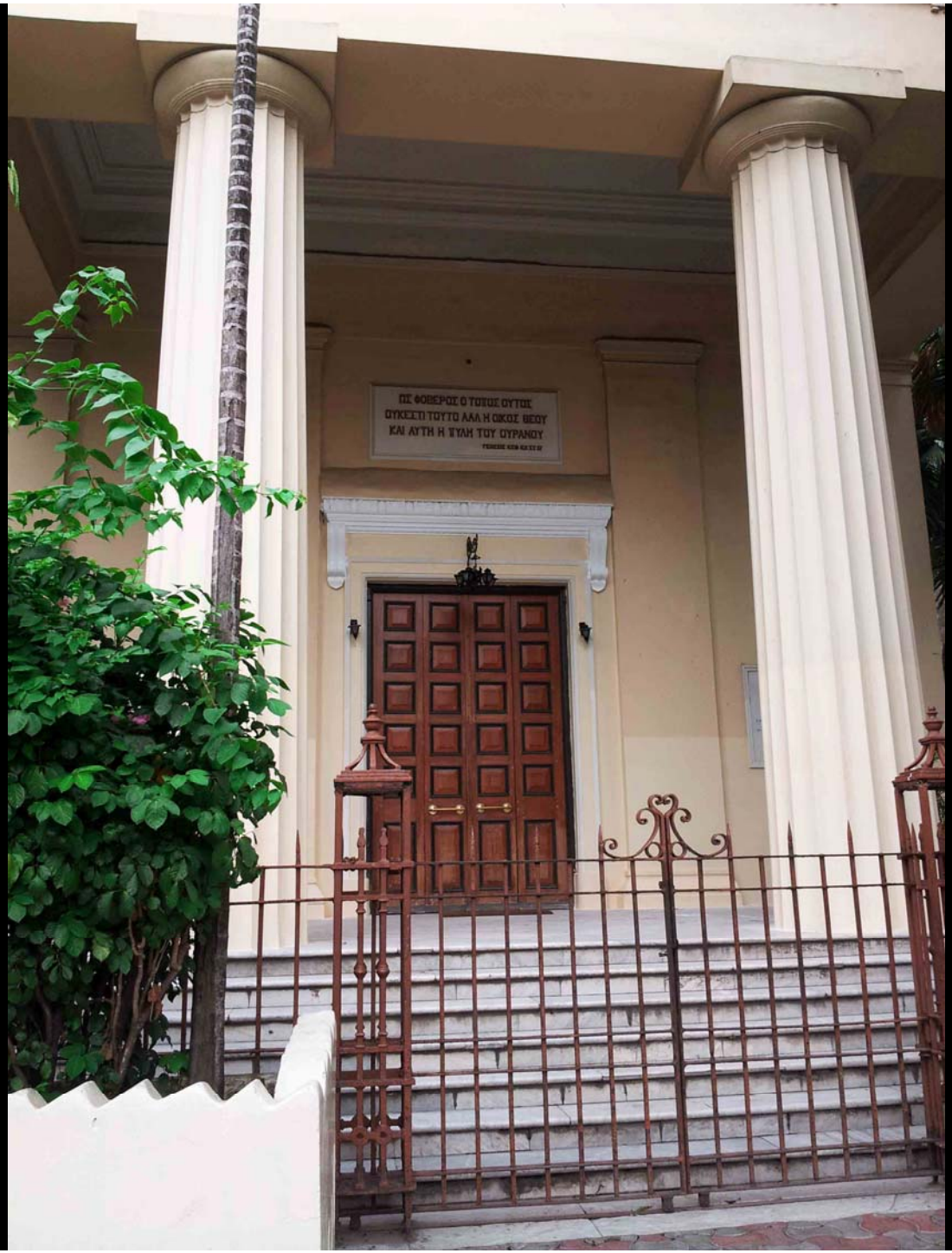
Kolkata Municipal Corporation

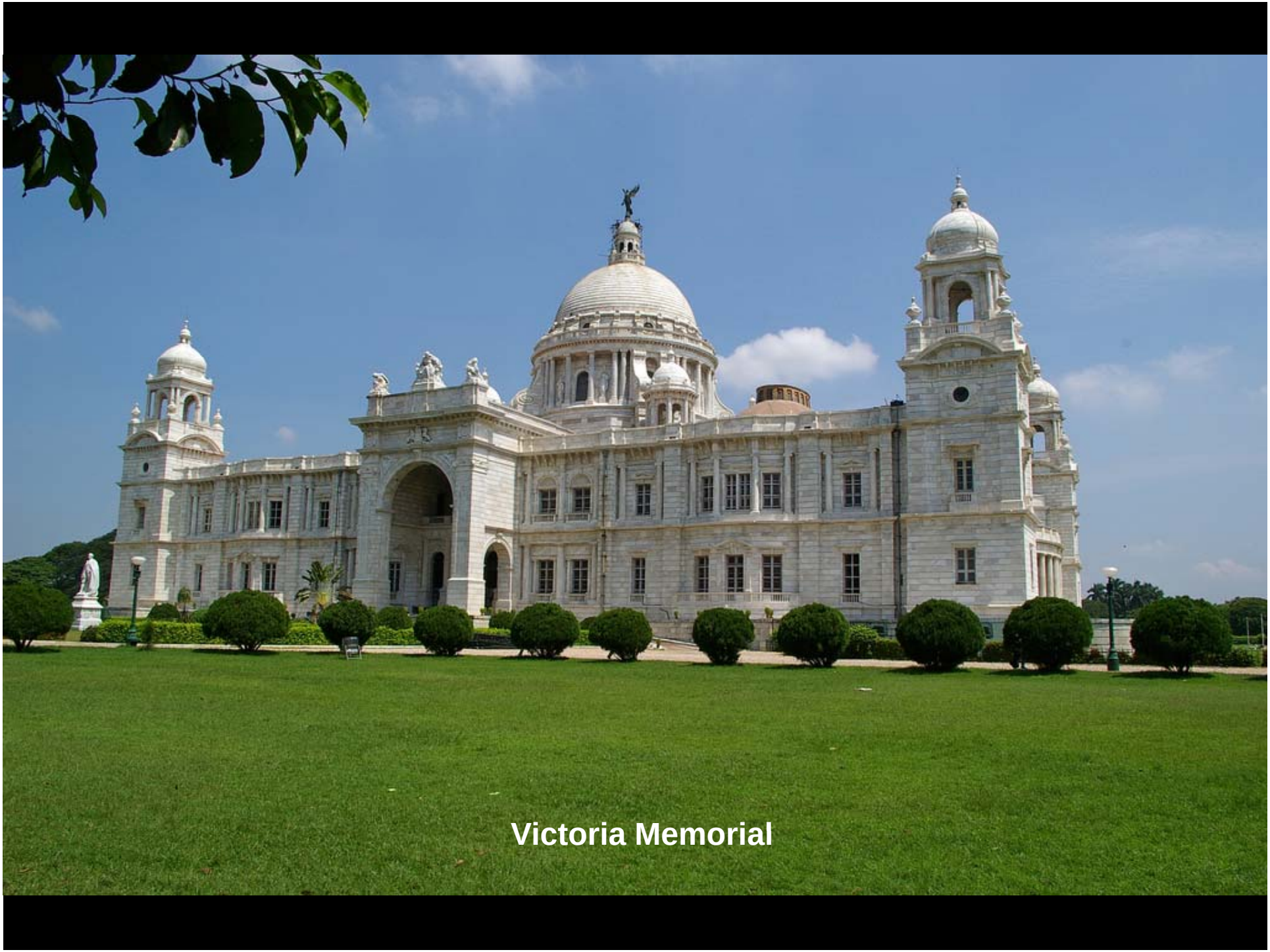

Indian Museum

St. Paul’s Cathedral

Greek Orthodox Church at Kalighat


গ্রীক অর্থোডক্স চার্চ
GREEK ORTHODOX CHURCH
সৌজন্যেঃ
কলকাতা পৌরসংস্থা

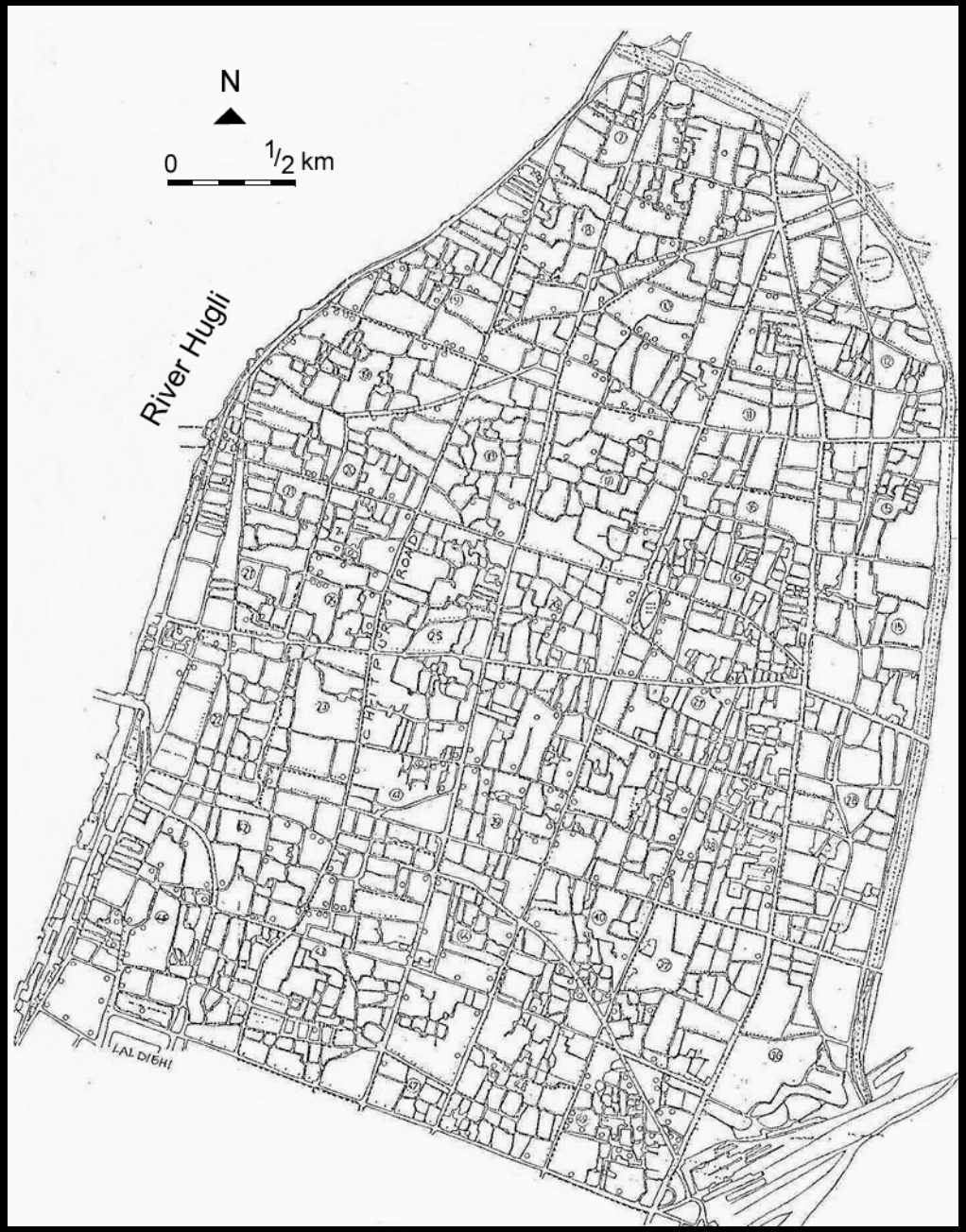

ΠΟΦΟΒΕΡΟΣ Ο ΤΟΠΟΣ ΟΥΤΟΣ
ΟΥΚΕΣΤΙ ΤΟΥΤΟ ΑΛΛ Η ΟΙΚΟΣ ΘΕΟΥ
ΚΑΙ ΑΥΤΗ Η ΠΥΛΗ ΤΟΥ ΟΥΡΑΝΟΥ



Victoria Memorial

CHITPUR

CHITPUR



Map of Chitpur

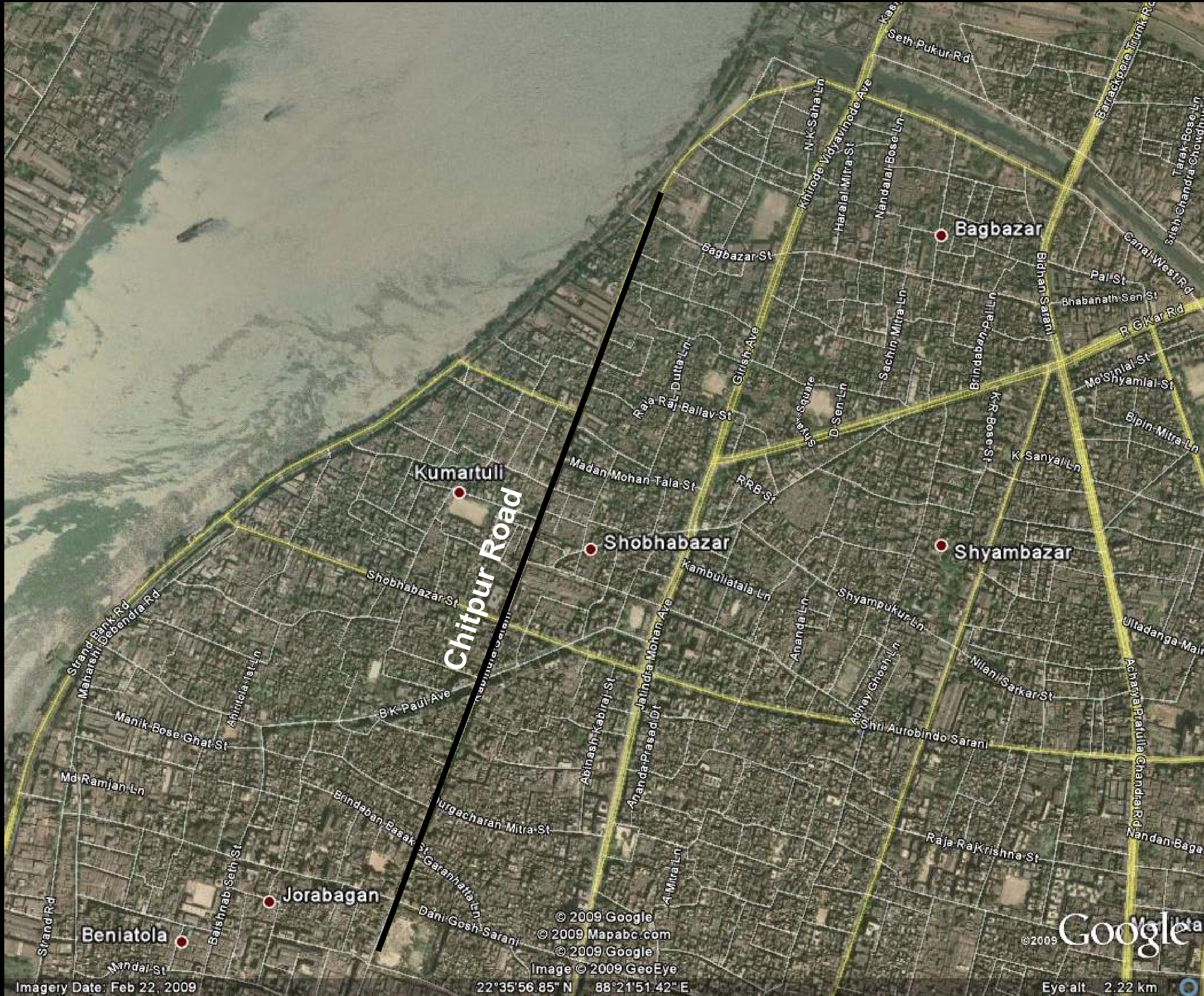

Chitpur Road
Kumartuli
Shobhabazar
Shyambazar
Bagbazar
Jorabagan
Beniatola
Seth Pukur Rd
N K Saha Ln
Khirode Vidyavinode Ave
Haralal Mitra St
Nandalal Bose Ln
Barackpore Trunk Rd
Tarak Bose Ln
Srish Chandra Chowdhury
Bagbazar St
Canal West Rd
Bidhan Sarani
Pal St
Bhabanath Sen St
R G Kar Rd
Sachin Mitra Ln
Brindaban Pal Ln
Girish Ave
Dutta Ln
Raja Raj Ballav St
Shyam Square
D Sen Ln
Motilal St
Shyamlal St
Bipin Mitra Ln
K R Bose St
K Sanyal Ln
Madan Mohan Tala St
R R B St
Kambuliatala Ln
Shyampukur Ln
Ananda Ln
Shobhabazar St
Jatindra Mohan Ave
Ultadanga Main
Nilani Sarkar St
Strand Bank Rd
Maharshi Debendra Rd
Ahiritola 1st Ln
B K Paul Ave
Abinash Kabiraj St
Ananda Prasad Dt
Achay Ghosh Ln
Shri Aurobindo Sarani
Acharya Prafulla Chandra Rd
Manik Bose Ghat St
Md Ramjan Ln
Durgacharan Mitra St
Brindaban Basak St
Garanhatta Ln
Raja Rajkrishna St
Nandan Bagan
A Mitra Ln
Baishnab Seth St
Strand Rd
Mandal St
Dani Gosh Sarani
© 2009 Google
© 2009 Mapabc.com
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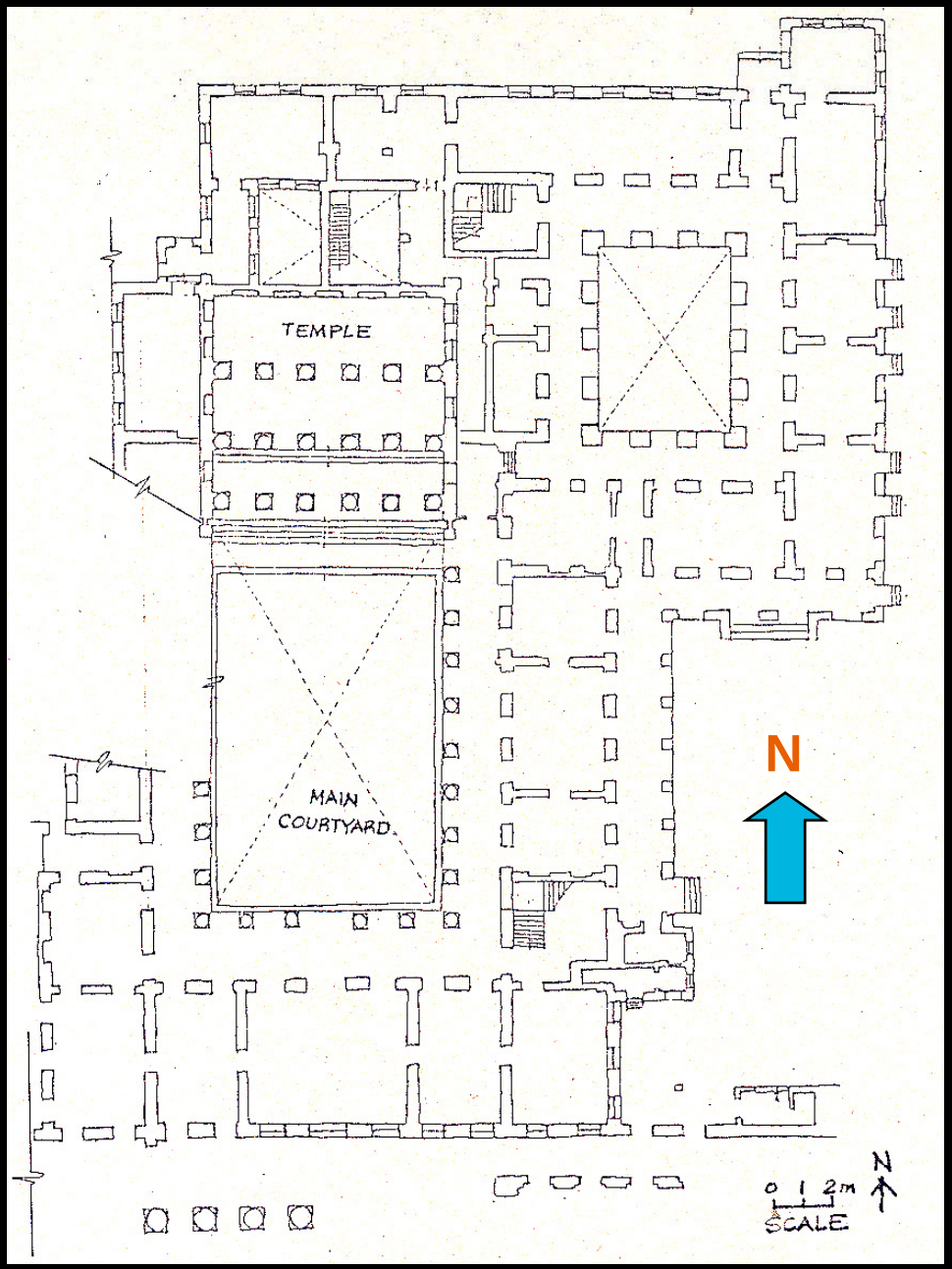
Image © 2009 GeoEye
Google
Imagery Date: Feb 22, 2009
22°35'56.85" N 88°21'51.42" E
Eye alt 2.22 km

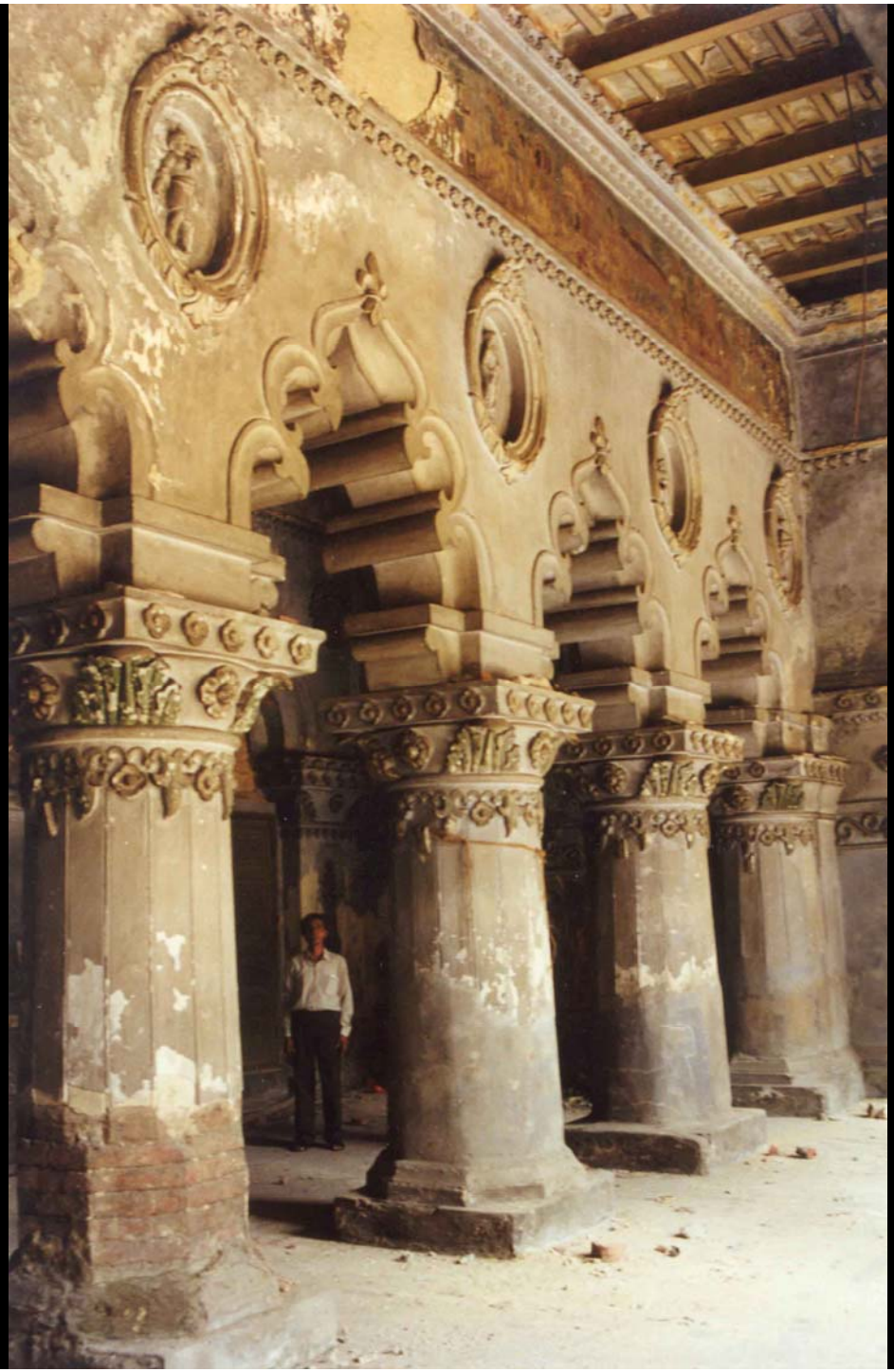

Bagbazar Bose Bari
Image © 2009 GeoEye
©2009 Google
Imagery Date: Feb 22, 2009
22°36'15.43" N 88°22'22.50" E
Eye alt 1.32 km


N
House of Bose
65/3, Bagbazar St.
BAGBAZAR STREET



Ground Floor Plan of House of Bose at Bagbazar

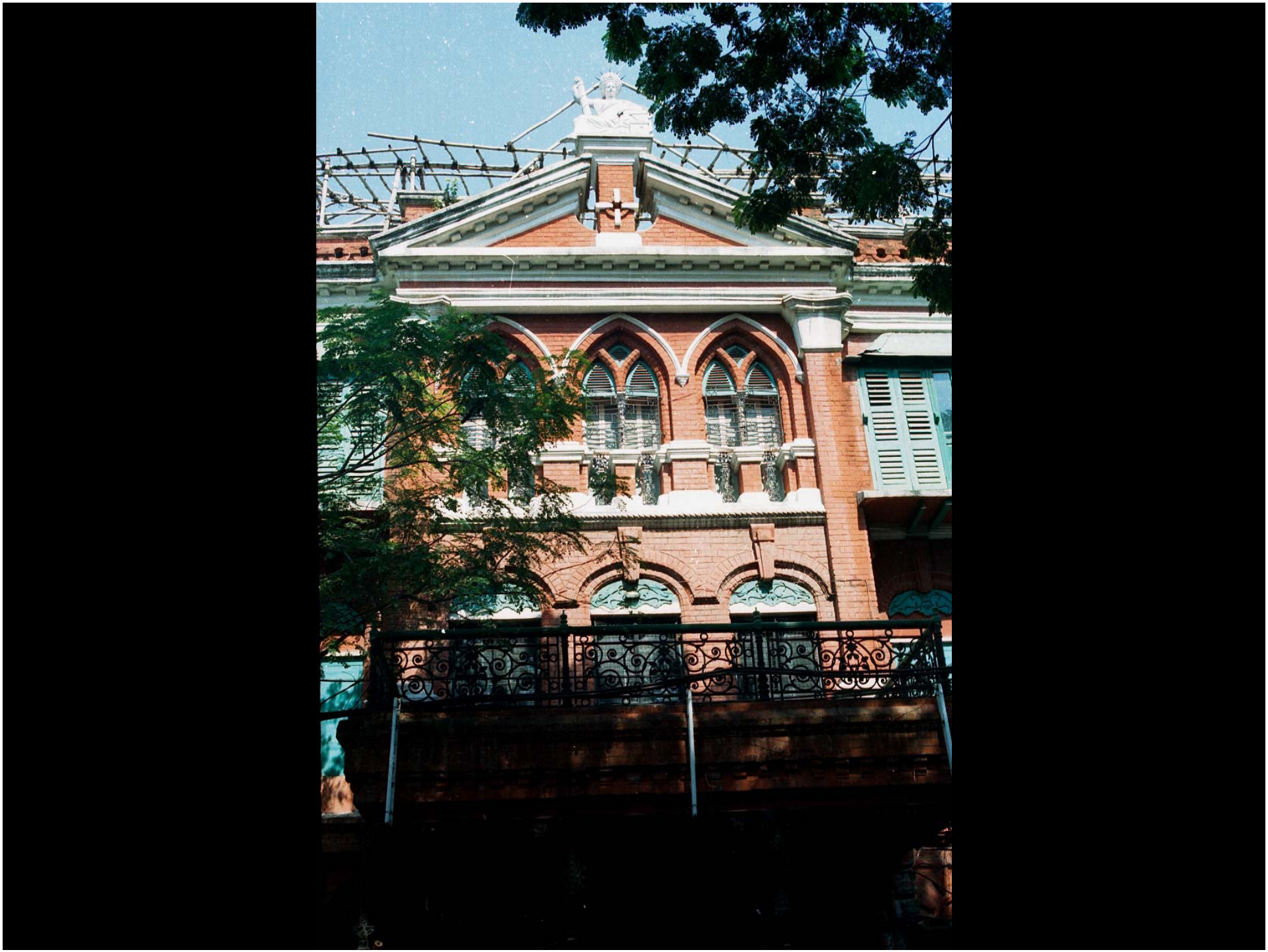
MAIN COURTYARD



NAT MANDIR

7.3m Room-height of Dance Hall at First Floor


TAXI

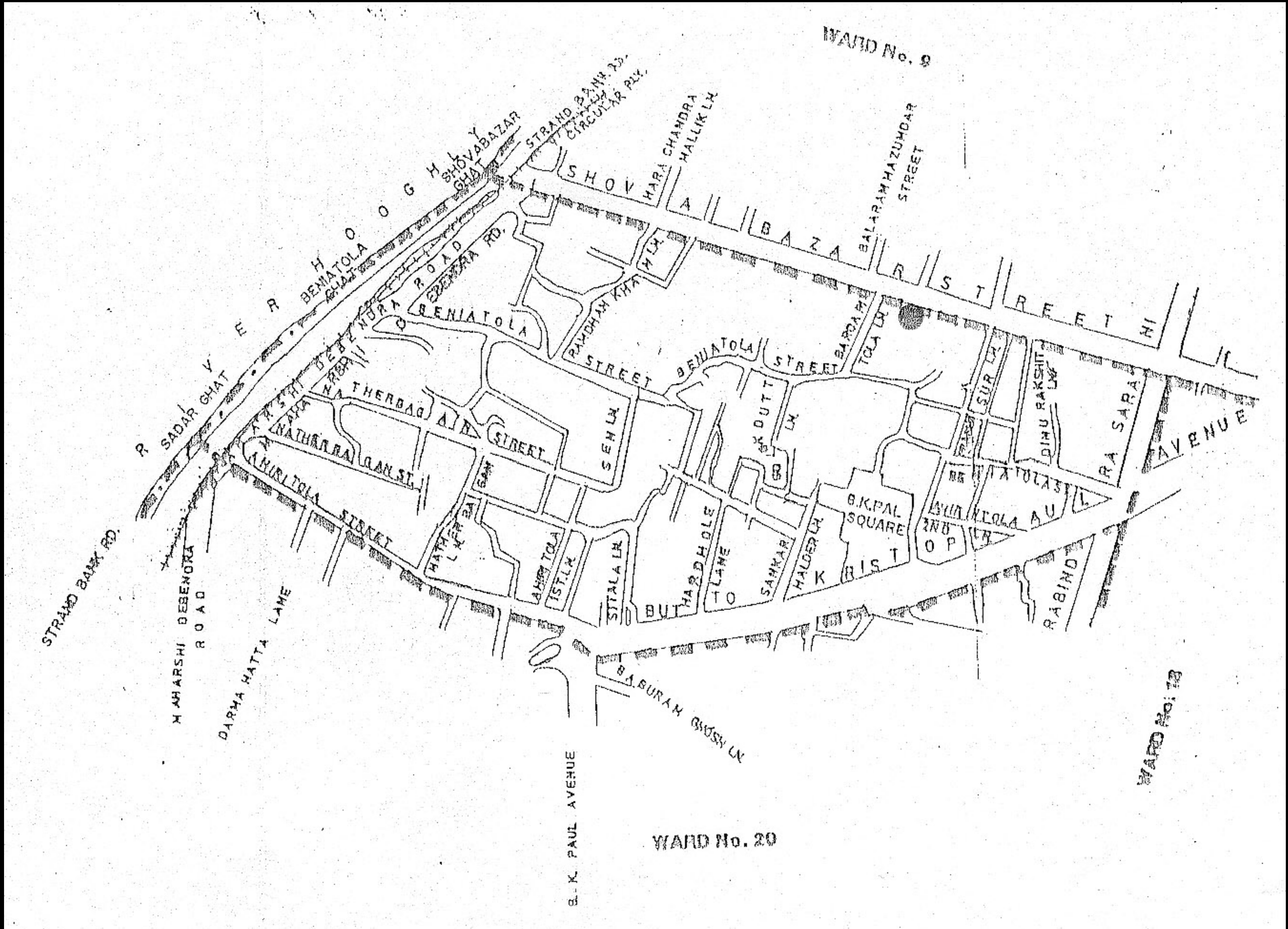



Strand Bank Rd
Kumartuli
Gopeshwar Pal St
Gopi Roy Ln
Abhay Mitra St
Haria Ch Mullick St
Ramdhan Khan Rd
Nandaram Sen Street 1st Ln
Shobhabazar St
Beniatola St
Sashi Sur Ln
Rabindra Sarani
Ahiritola 1st Ln
© 2009 Google
© 2009 Mapabc.com
© 2009 Google
Image © 2009 GeoEye
Imagery Date: Feb 22, 2009
22°35'52.90" N 88°21'35.57" E
Eye alt 674 m
©2009 Google

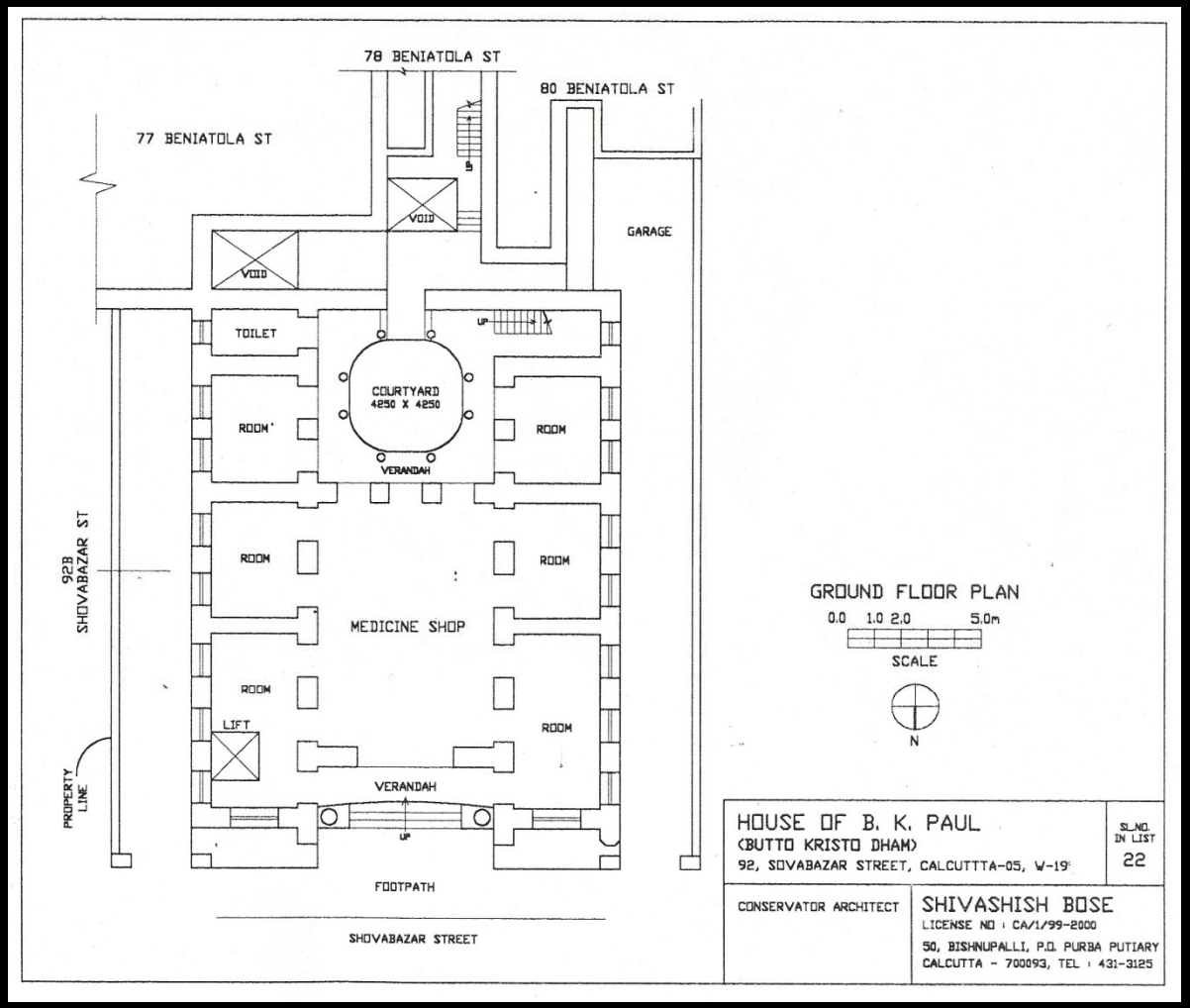
Kumartuli

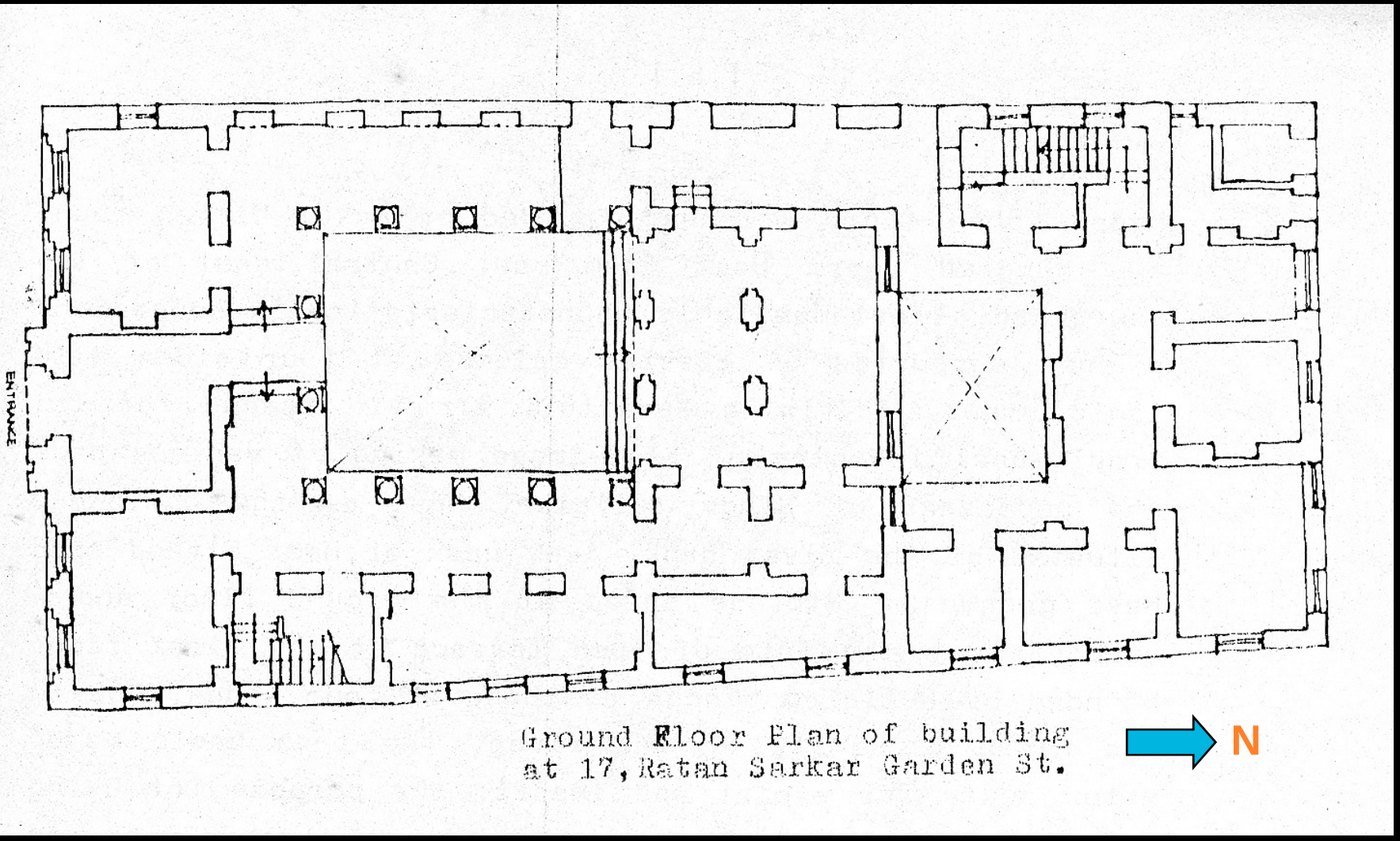
GODDES ‘DURGA’

KUMARTULI
Image Making Area


WARD No. 9
SHOVABAZAR GHAT
STRAND BANK RD.
CIRCULAR RLY.
HARA CHANDRA MALLIK LN.
BALARAM MAZUMDAR STREET
SHOVA BAZAR STREET
R I V E R H O O G H L Y
BENIATOLA GHAT
SADAR GHAT
ROAD
BENIATOLA STREET
NATHERBAGAN STREET
AHIRITOLA STREET
SEN LN.
BENIATOLA
DUTT
B.K.PAL SQUARE
DINU RAKSHIT LN.
AVENUE
RABIND
ARDHOLE LANE
HALDER LN.
SITALA LN.
AHIRITOLA 1ST. LN.
STRAND BANK RD.
MAHARSHI DEBENDRA ROAD
DARMA HATTA LANE
BABURAM GHOSH LN.
B. K. PAUL AVENUE
WARD No. 20

HOUSE OF
B.K.PAUL


78 BENIATOLA ST
80 BENIATOLA ST
77 BENIATOLA ST
GARAGE
VOID
VOID
UP
TOILET
UP
COURTYARD
4250 X 4250
ROOM
ROOM
VERANDAH
ROOM
ROOM
92B
SHOVABAZAR ST
MEDICINE SHOP
ROOM
ROOM
LIFT
PROPERTY
LINE
VERANDAH
UP
FOOTPATH
SHOVABAZAR STREET
GROUND FLOOR PLAN
0.0 1.0 2.0 5.0m
SCALE
N
HOUSE OF B. K. PAUL
(BUTTO KRISTO DHAM)
92, SOVABAZAR STREET, CALCUTTTA-05, W-19
SL.NO. IN LIST
22
CONSERVATOR ARCHITECT
SHIVASHISH BOSE
LICENSE NO : CA/1/99-2000
50, BISHNUPALLI, P.O. PURBA PUTIARY
CALCUTTA - 700093, TEL : 431-3125



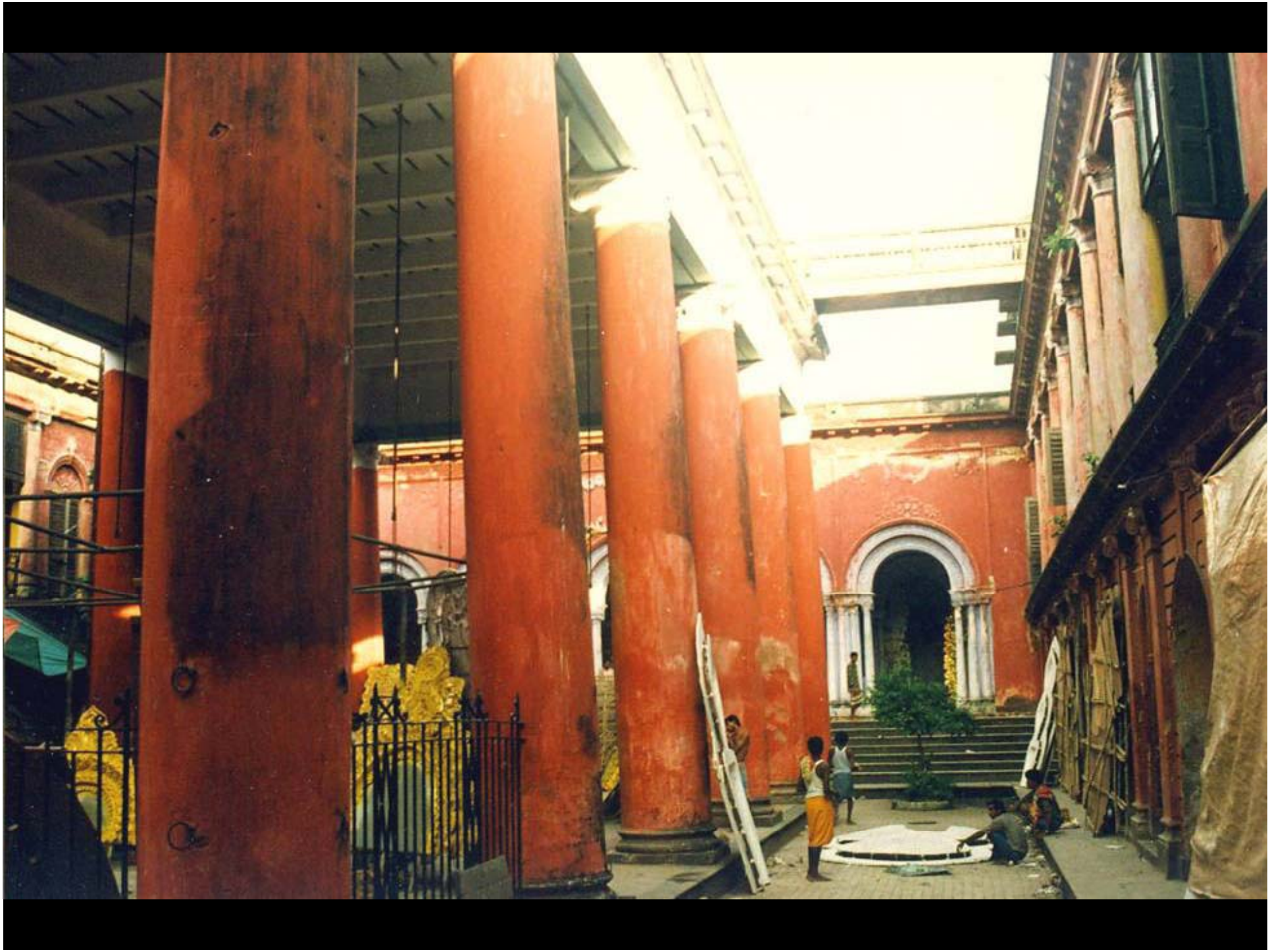
Ground Floor Plan of building
at 17, Ratan Sarkar Garden St.

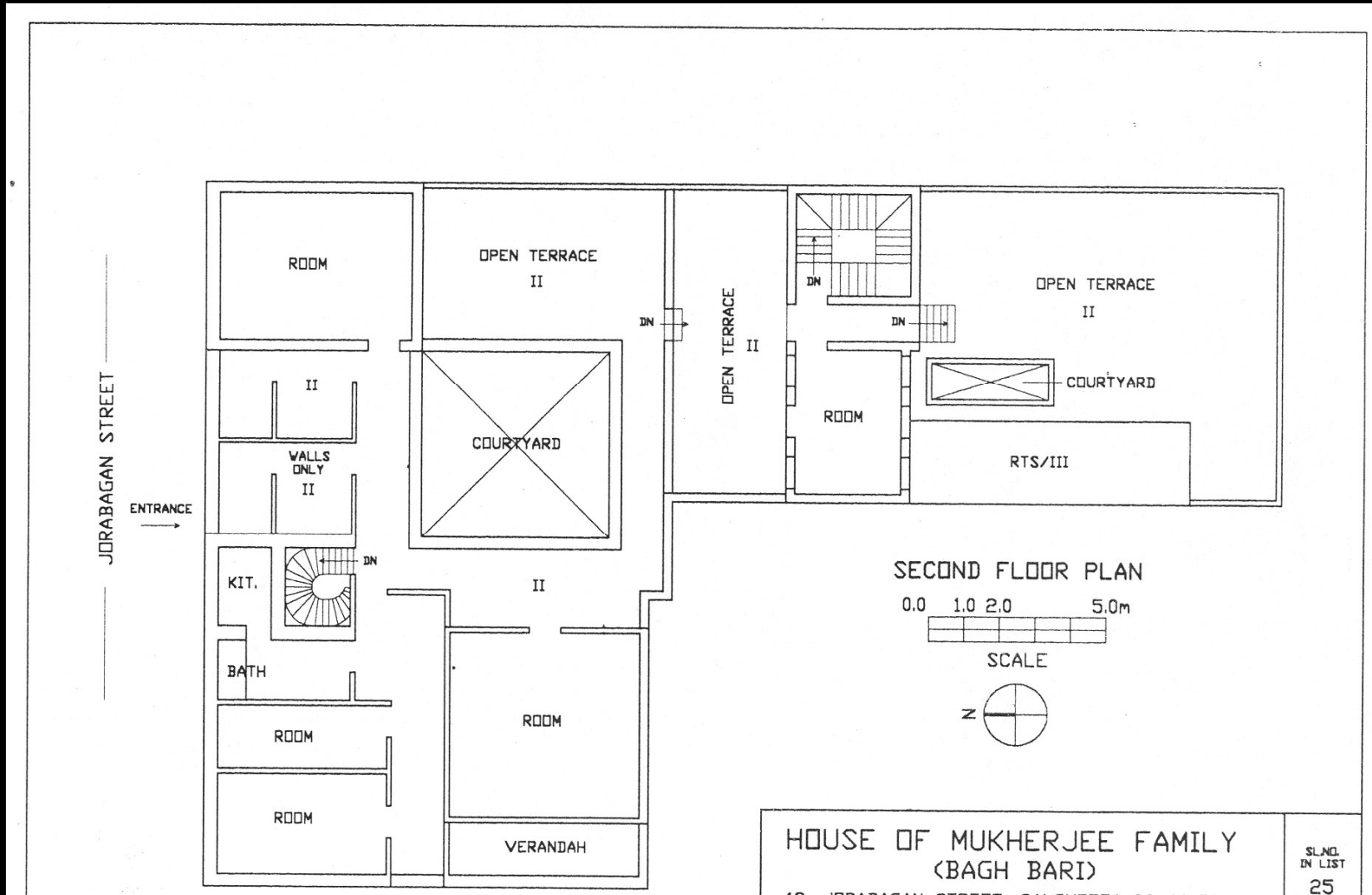

HOOGHLY RIVER
N
STRAND ROAD (NORTH)
Putul Bari
SORHA BAZAR STREET

Sketch by
Desmond Doig
in 1966

Putul Bari in 1992

In 2008





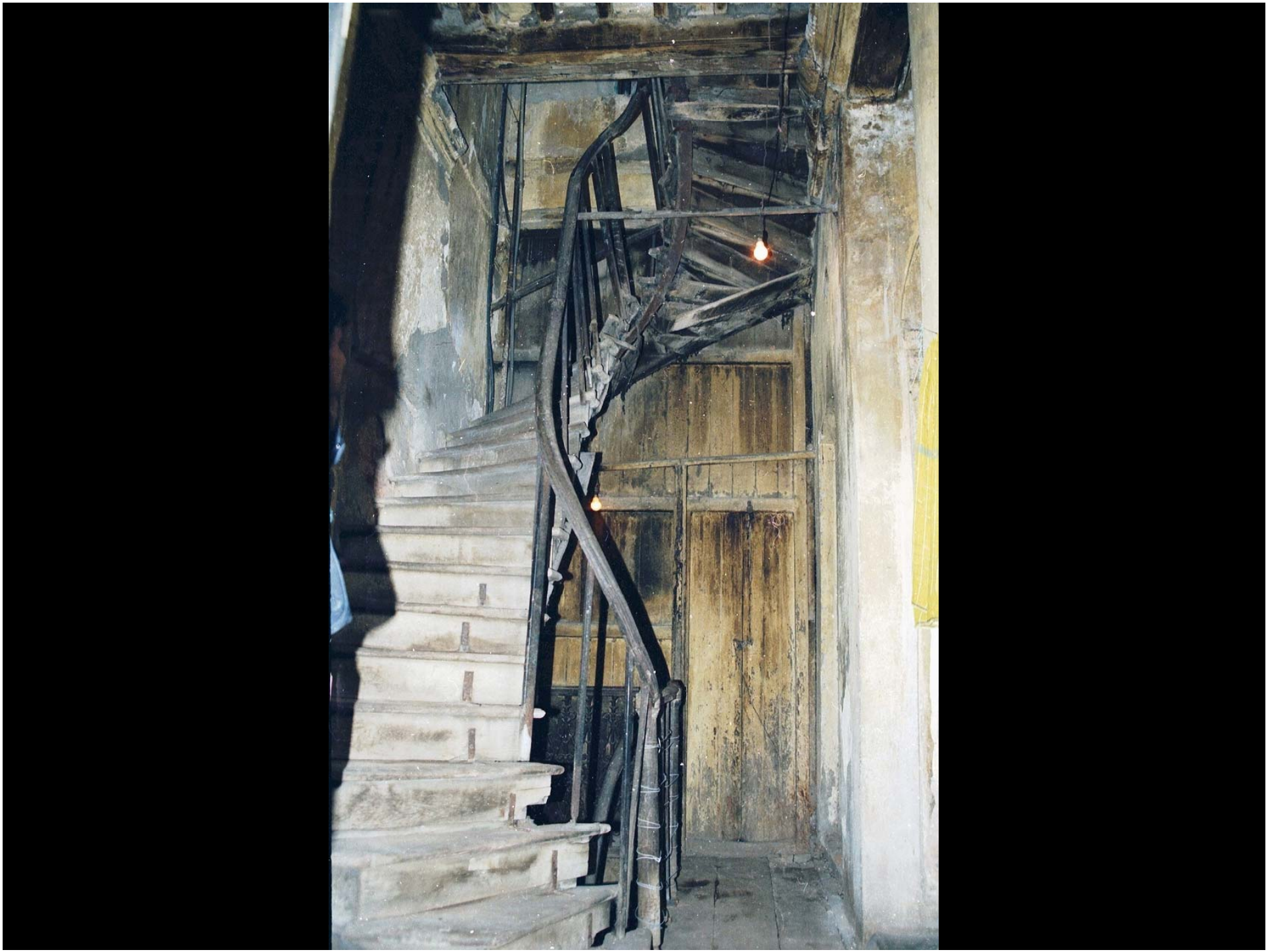
HOUSE OF MUKHERJEE FAMILY
(BAGH BARI)

13, JORABAGAN STREET, CALCUTTTA-06, W-21

SL.NO. IN LIST
25

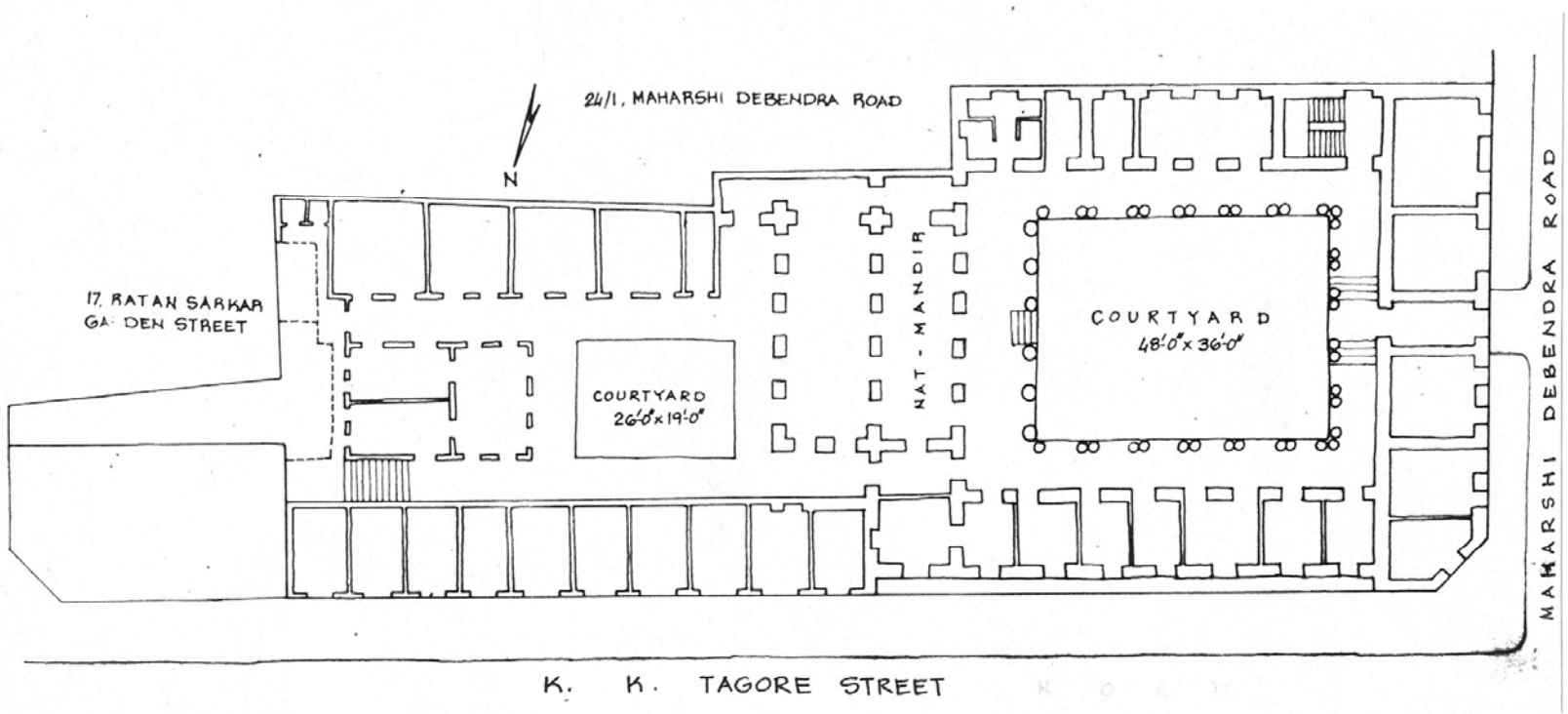
CONSERVATOR ARCHITECT

SHIVASHISH BOSE
LICENSE NO : CA/1/99-2000
50, BISHNUPALLI, P.O. PURBA PUTIARY
CALCUTTA - 700093, TEL : 431-3125



House of Maharaja Sukhamay Roy

AREA OF LAND : 20K-11CH-15SFT.



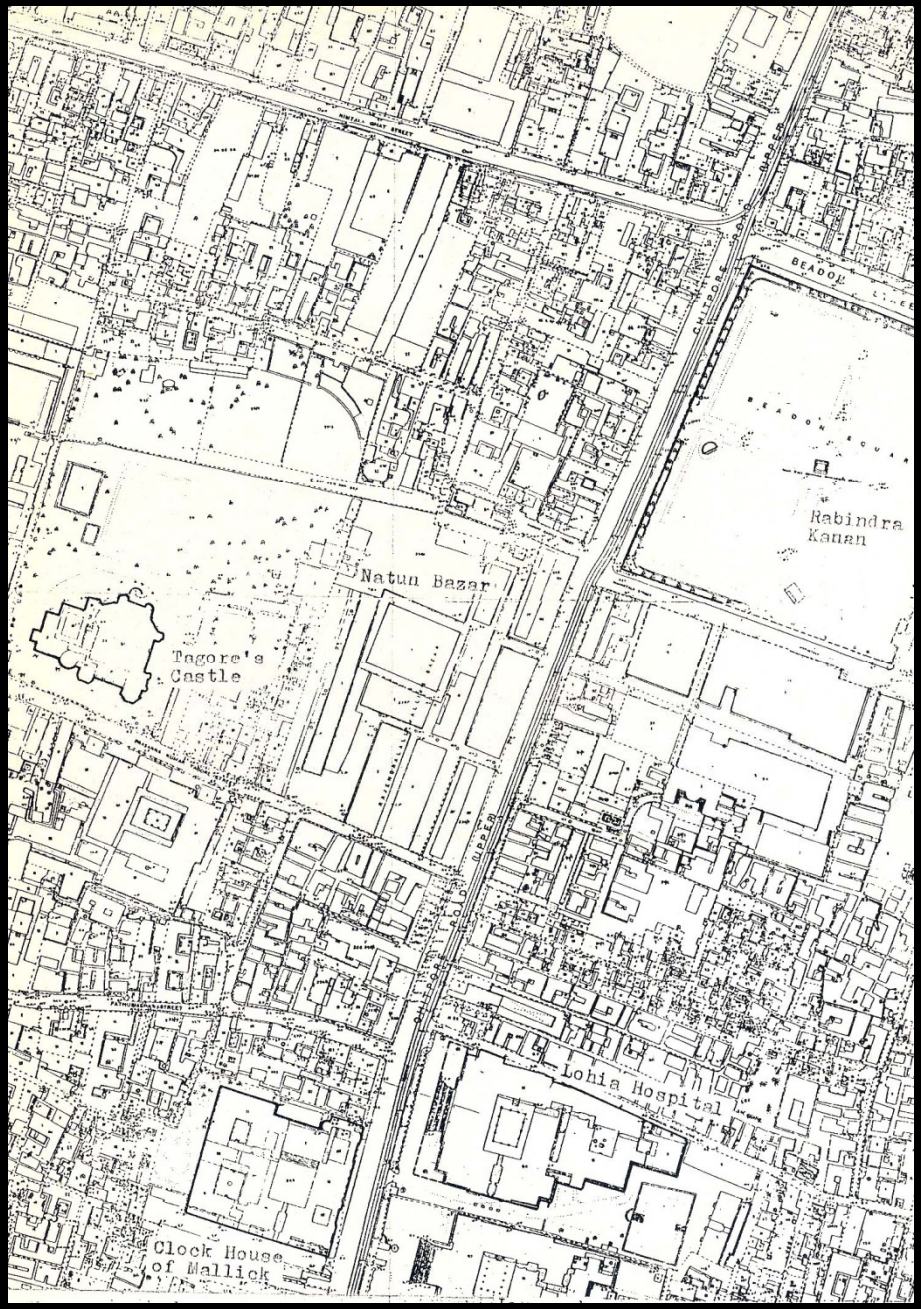
HOUSE OF MAHARAJA SUKHOMOY ROY. 25, MAHARSHI DEBENDRA ROAD CALCUTTA-700007. W-22.	SL. NO IN LIST 29
CONSERVATION ARCHITECT :	SHIVASHISH BOSE LIC. NO. CA/91/99-2000 50, BISHNUPALLI. P.O. PURBA PUTIARY CALCUTTA-700093, TEL: 4313125

POSTA RAJBARI

GROUND FLOOR PLAN

0 10' 20'

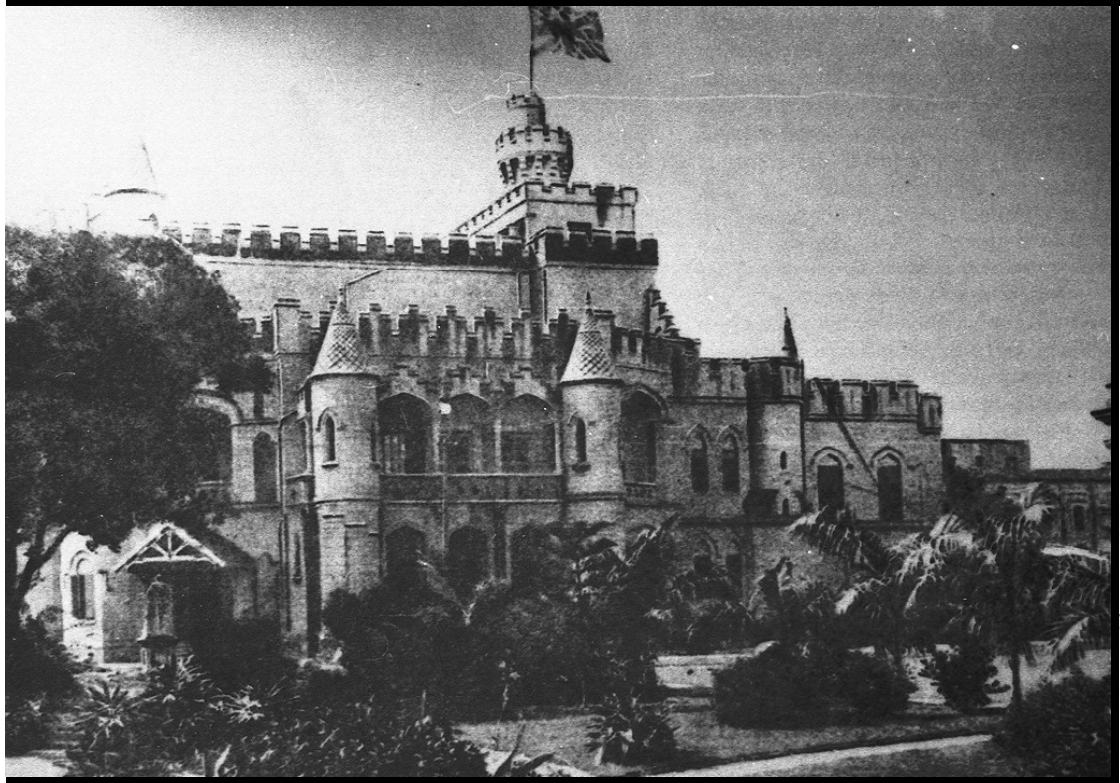
SCALE



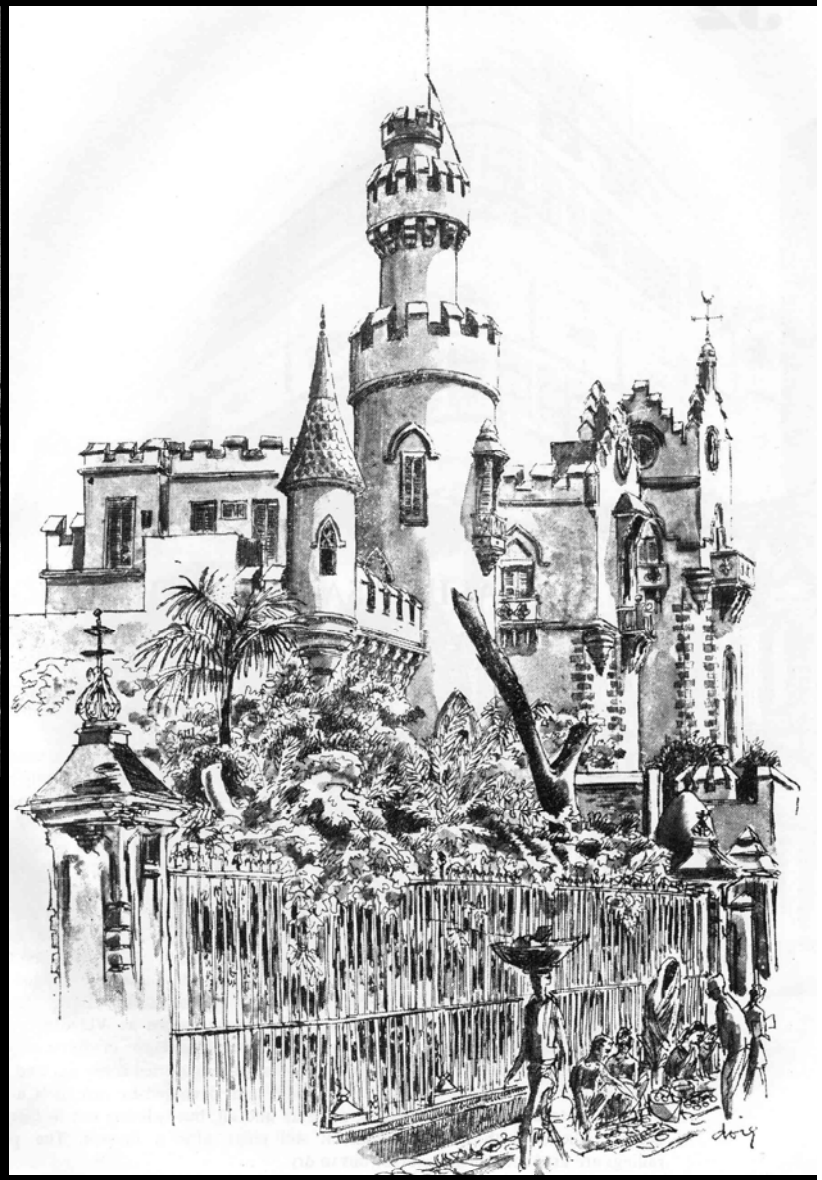
N

Map of Pathuriaghata


Pathuriaghata
Tagore's Castle
Nutan Bazar
Metropolitan Institution
Mullick Bari
House of Jatindra Mahon
River
House of Khelat Ghosh
Lohia Matribhawan
Clock House of Mullick
Jorasanko Rajbati
Rabindra Sarani
Vivekananda Road
Image © 2009 GeoEye
©2009 Google
Imagery Date: Feb 22, 2009
22°35'18.03" N 88°21'26.44" E
Eye alt 698 m



P. K. Tagore’s Castle
Built in 1898 with French Influence

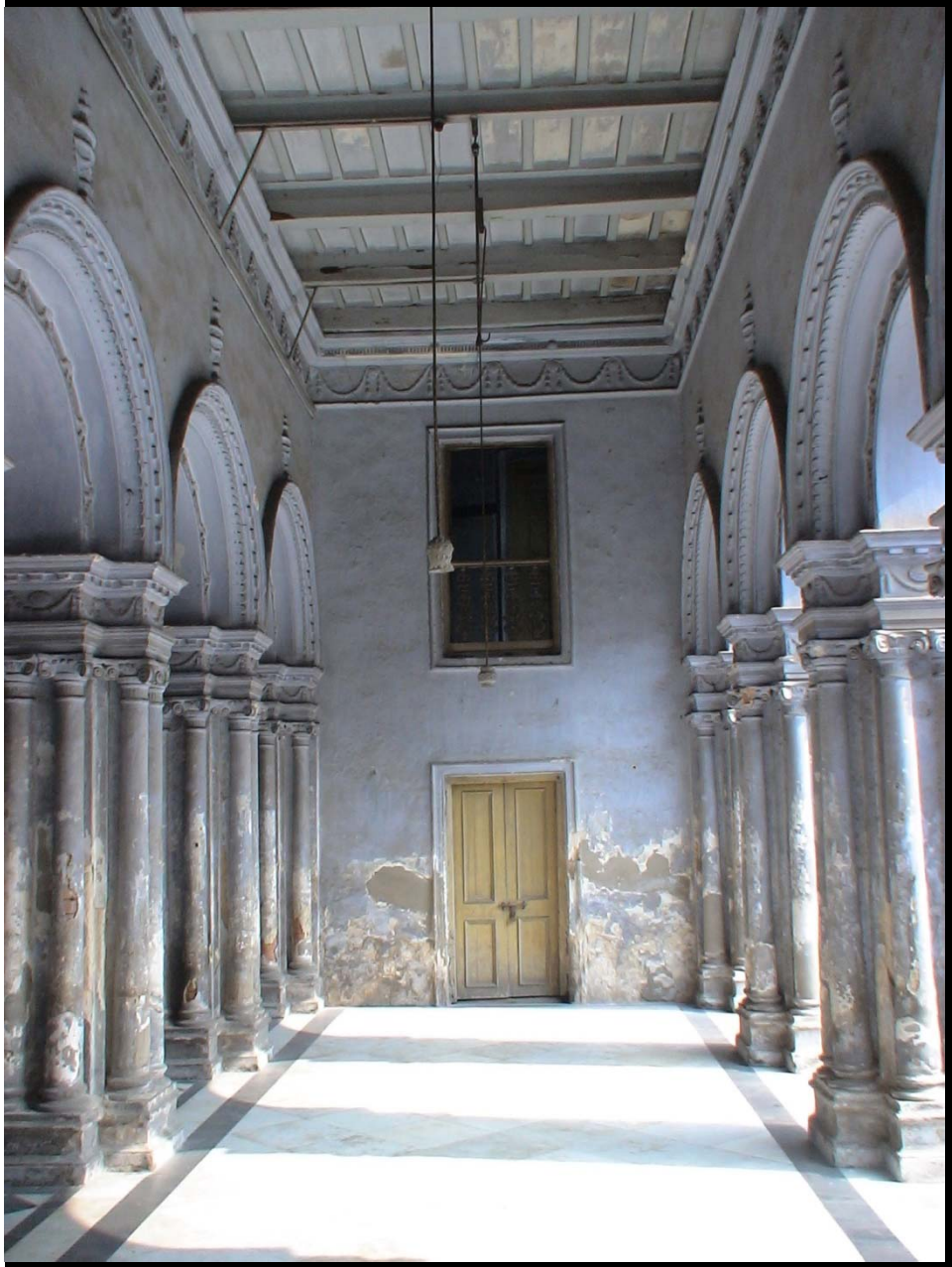


Sketch by Desmond Doig in 1966

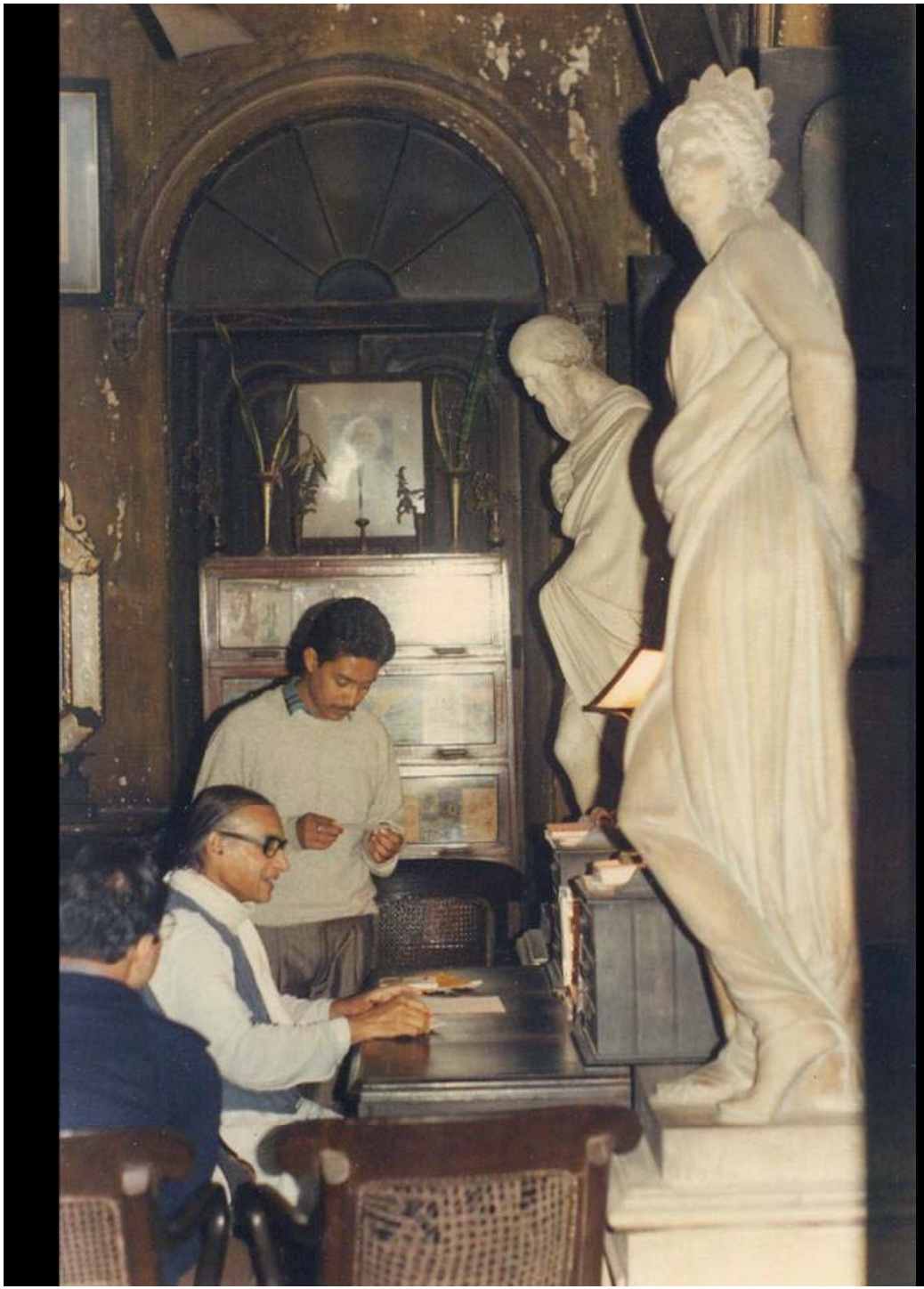
… as it is now in 2013


Metropolitan Institute


Jorasanko Rajbati



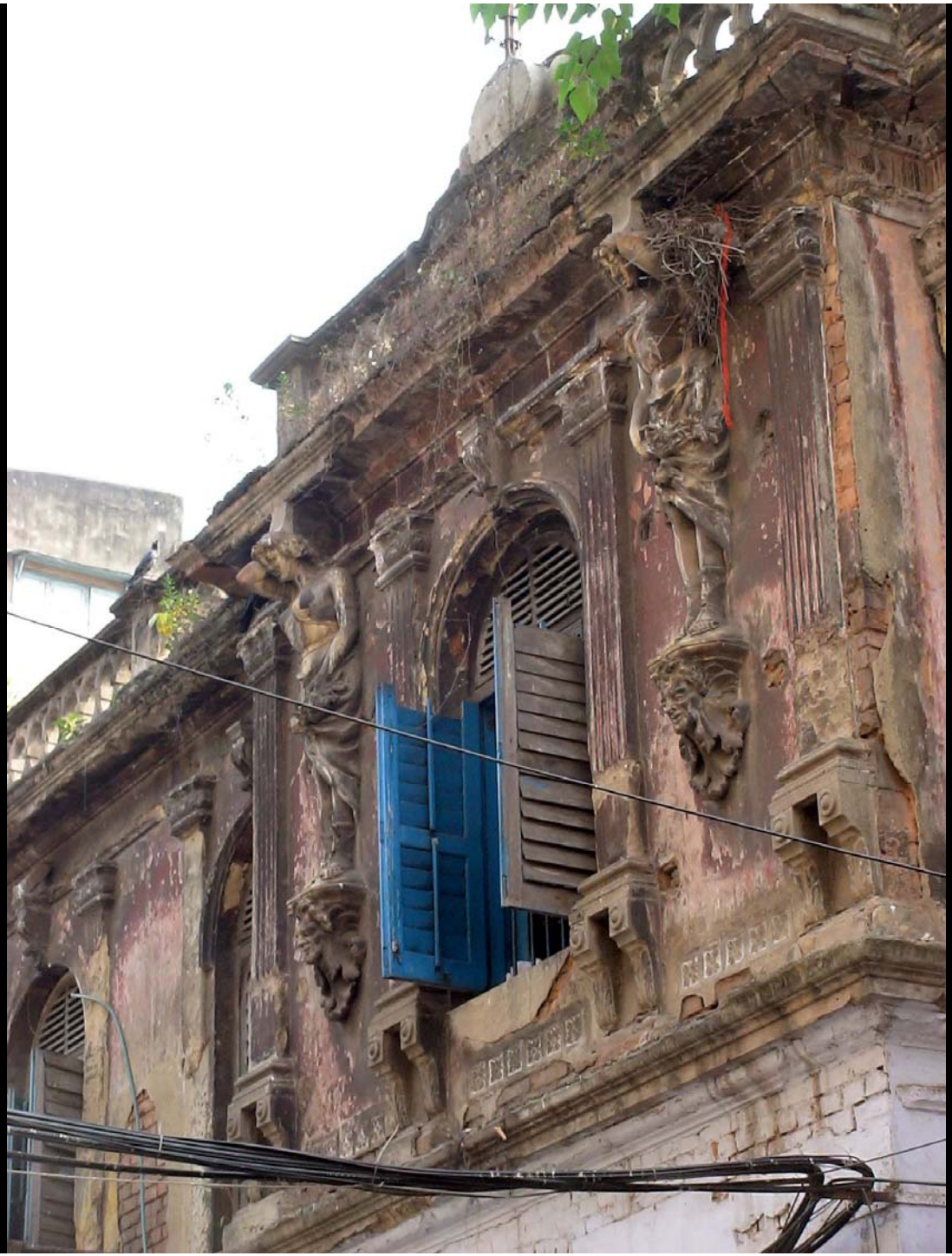
Courtyard with Iron Columns Grill Works at Mullick House, Pathuriaghata



Mr. Bose & Mr. Ramen Mullick at study room of Mullick House of Pathuriaghata in January, 1993

House of Manmatha Ghosh


জনসভা



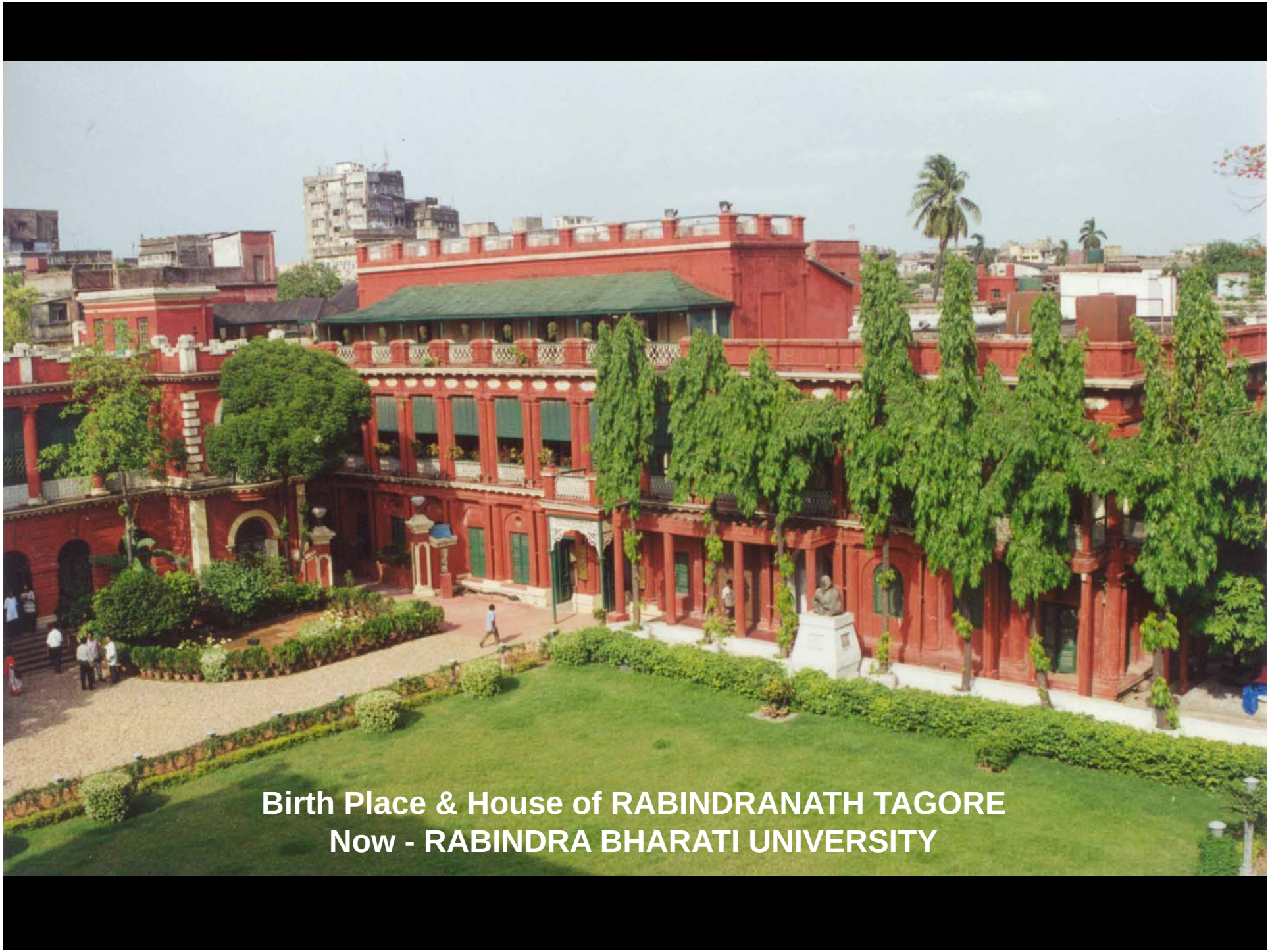
Lohia Matri Sewasadan

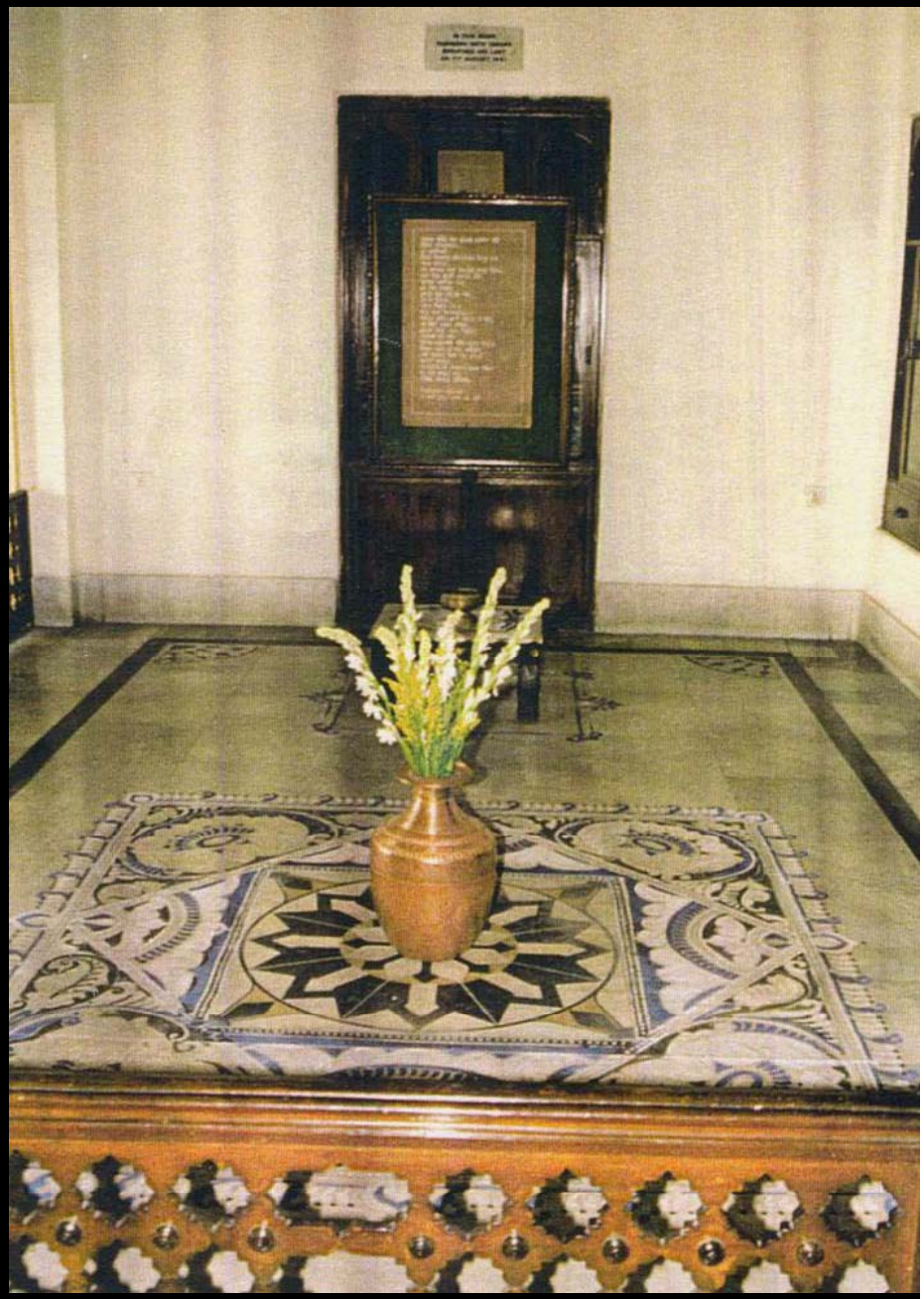

Clock House of Mullick


House of
Tagore
Marble palace
Image © 2009 GeoEye
©2009 Google
Imagery Date: Feb 22, 2009
22°35'01.85" N 88°21'36.55" E
Eye alt 745 m

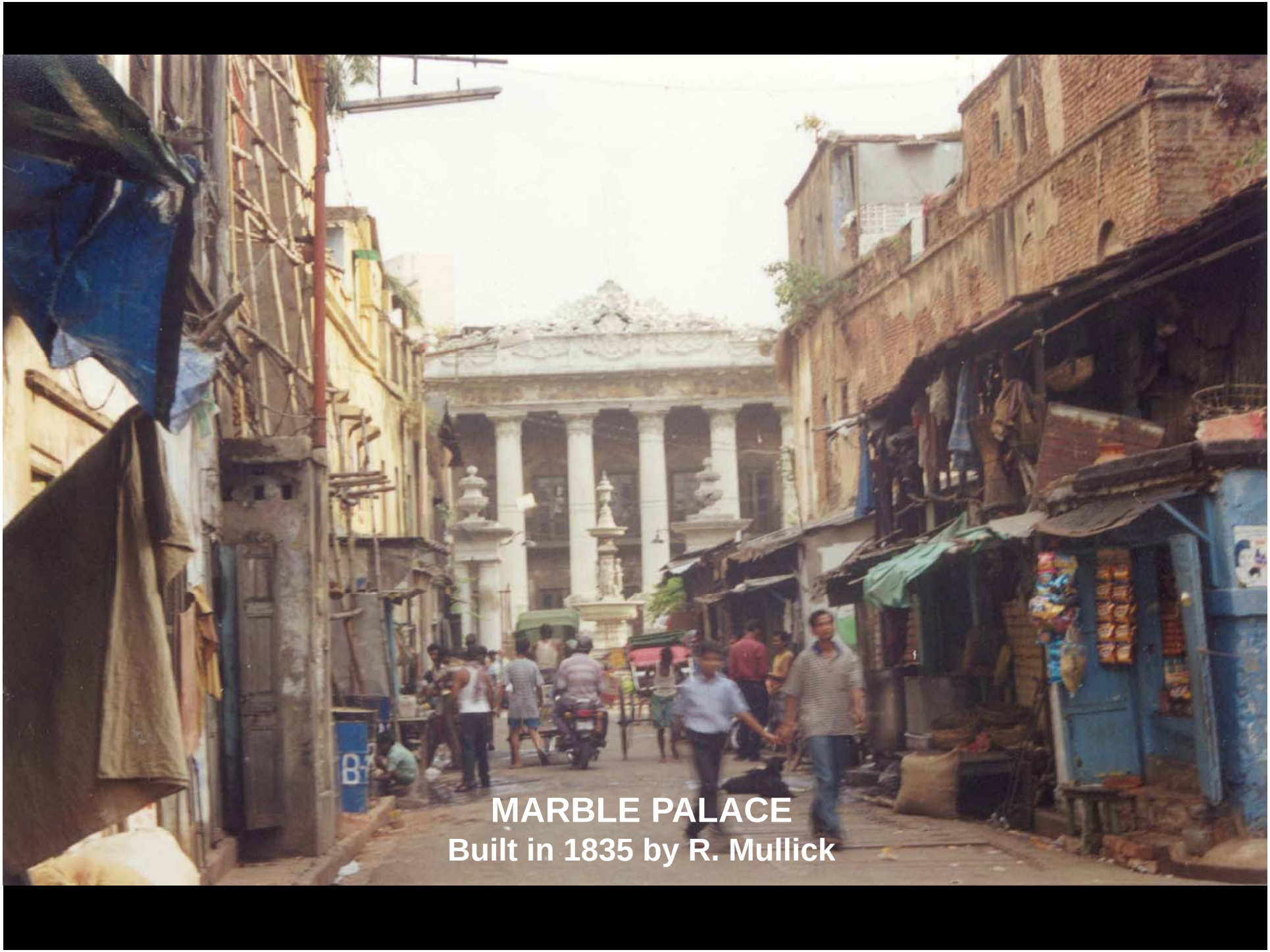
BIRTH PLACE OF RABINDRANATH TAGORE

Now - RABINDRA BHARATI UNIVERSITY


Birth Place & House of RABINDRANATH TAGORE
Now - RABINDRA BHARATI UNIVERSITY



Courtyard


MARBLE PALACE
Built in 1835 by R. Mullick


Marble Palace

LAW HOUSE

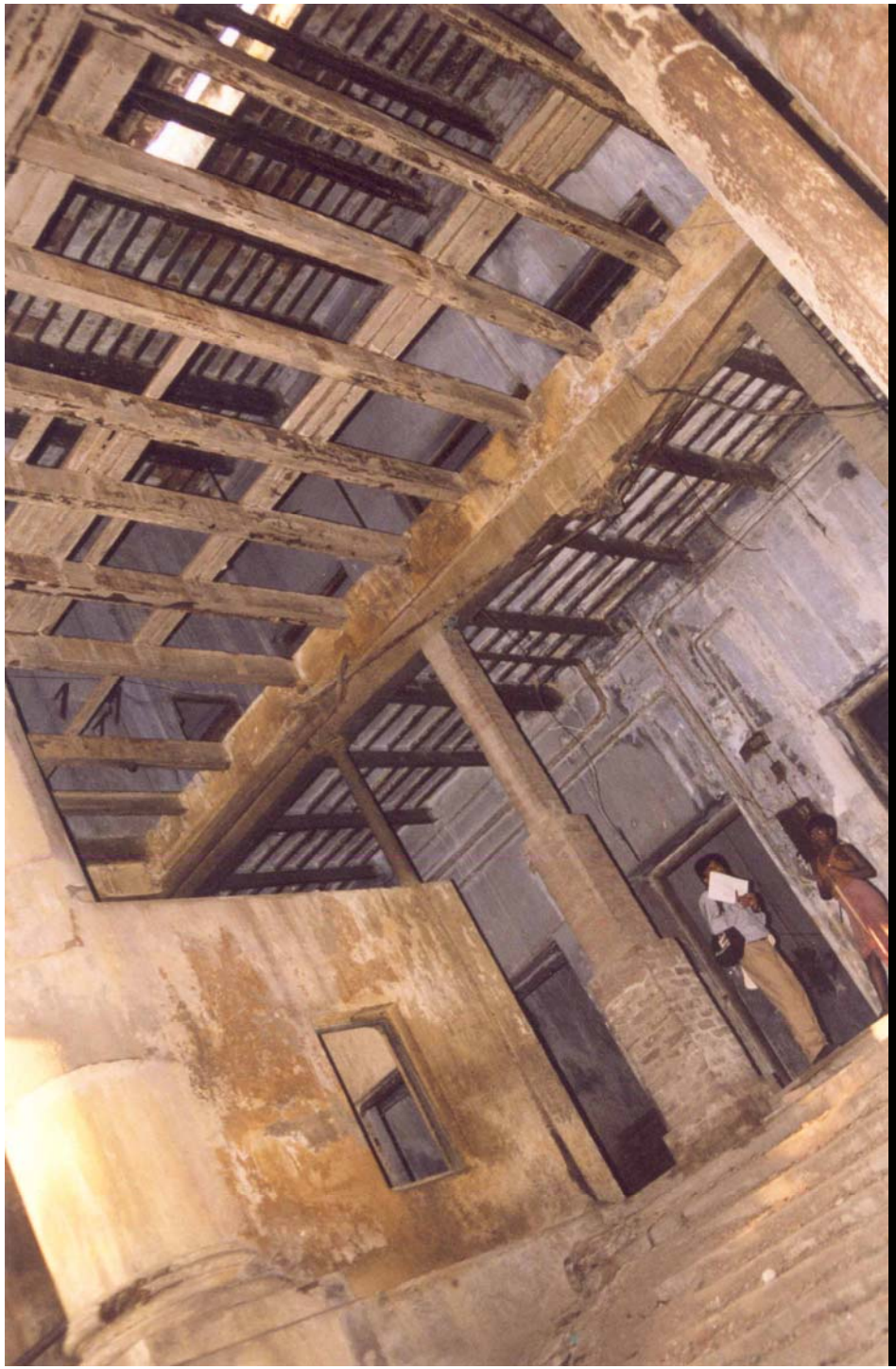
Painting on Ceiling

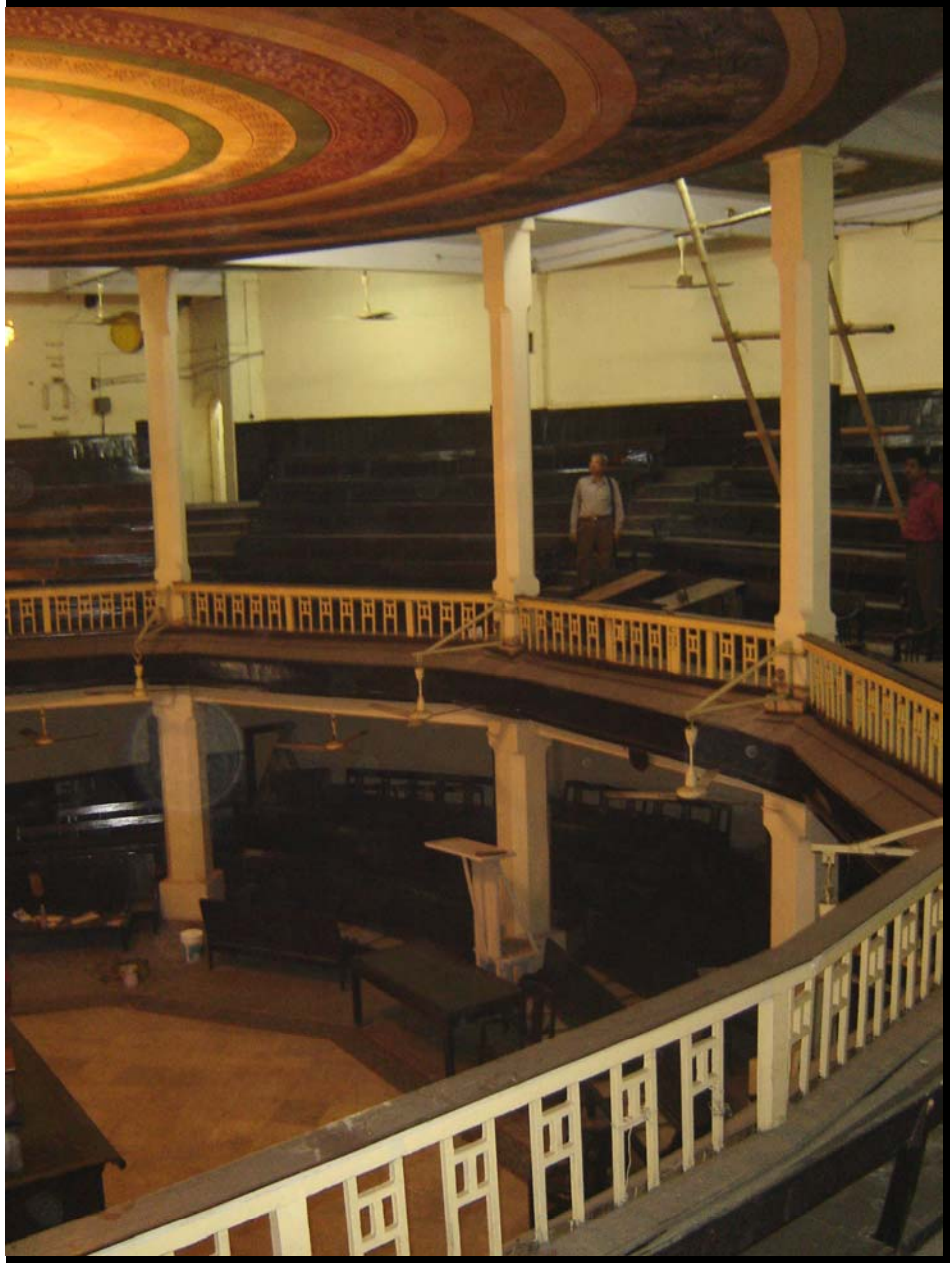
Detail of Floor Decoration

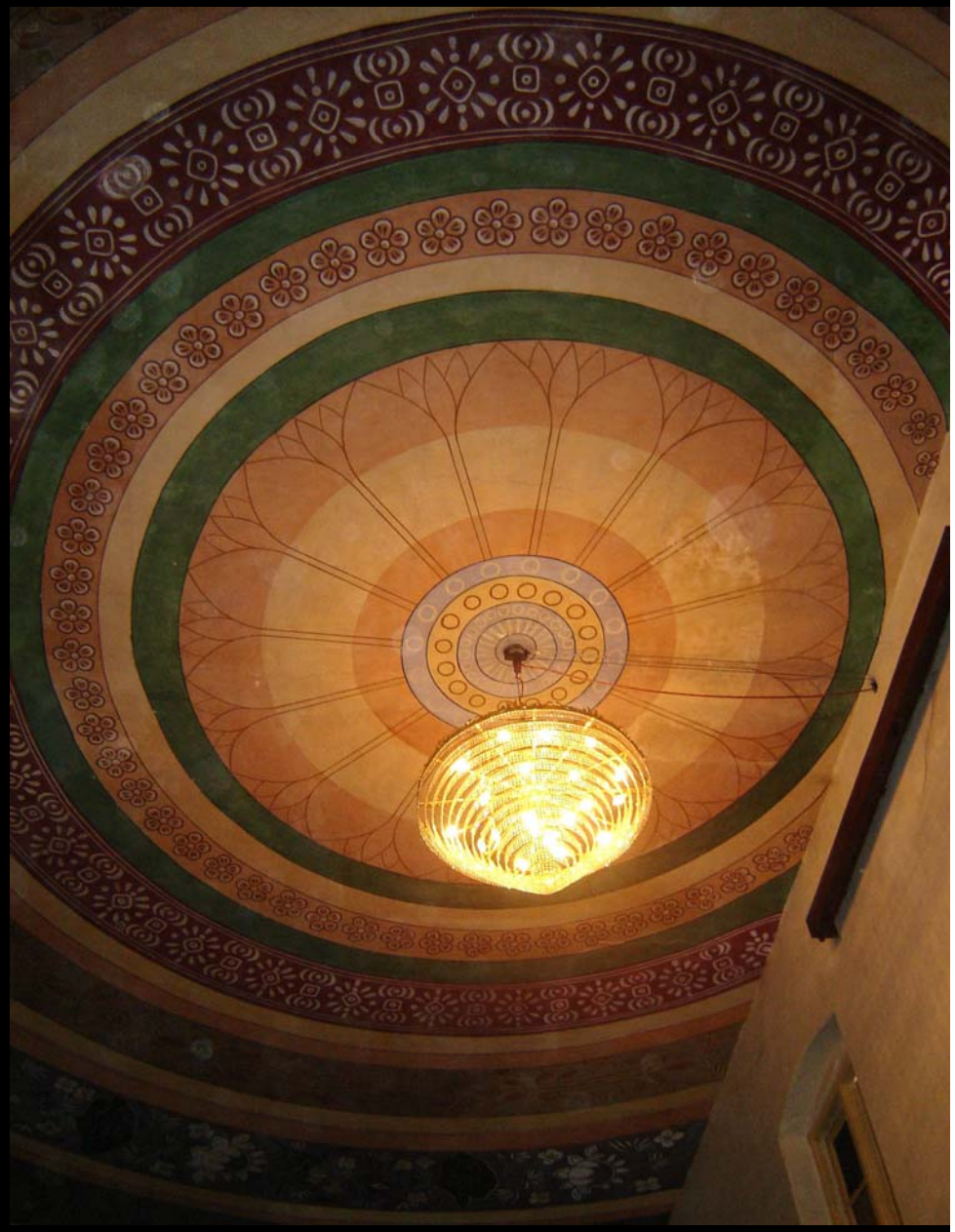
Interior: Archive Photo


Bethune School

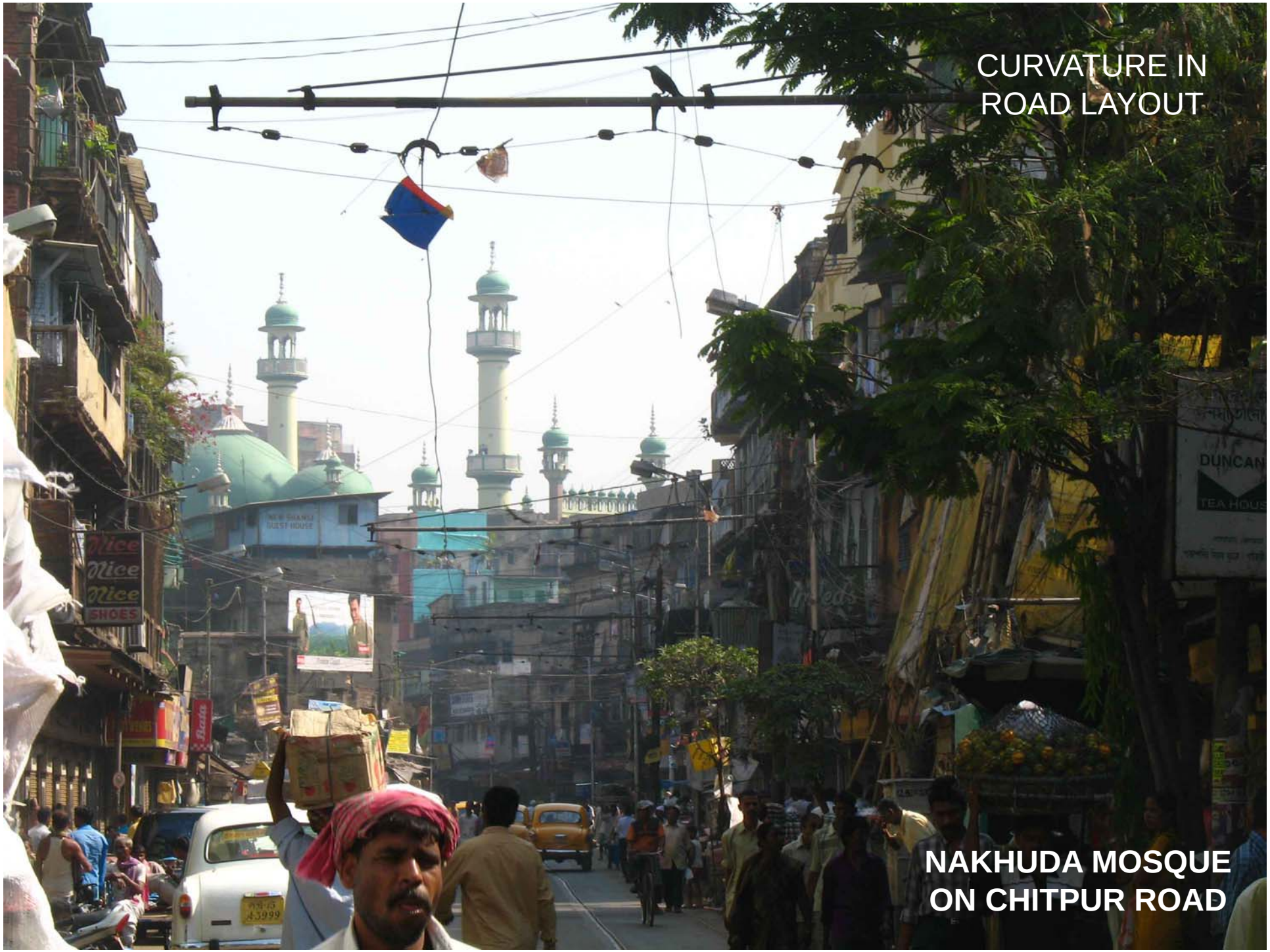

DUFF COLLEGE
Built in 1845 now in ruins
Now Jorabagan P.S.





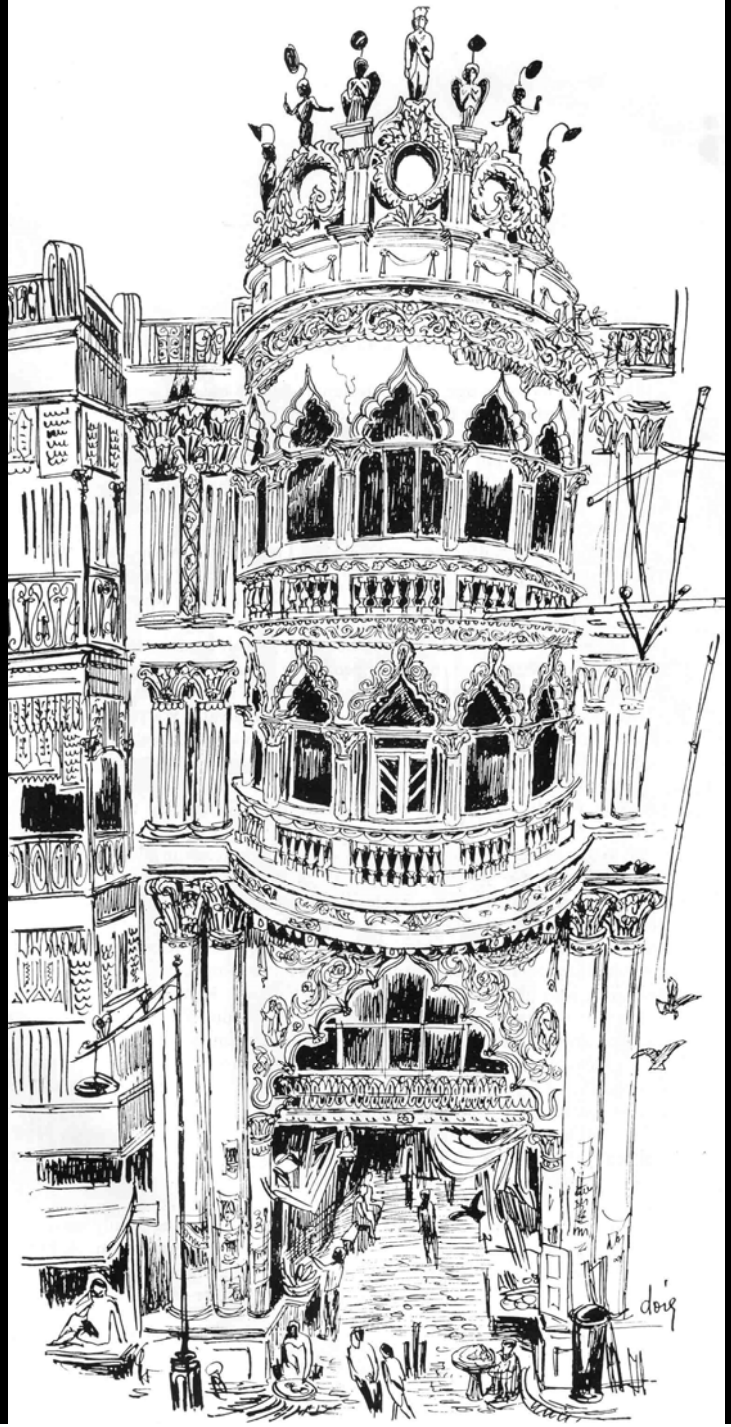


Auditorium of A. J. C. Bose Institute with Mural Painting by Nandalal Bose


CURVATURE IN
ROAD LAYOUT
NAKHUDA MOSQUE
ON CHITPUR ROAD
Nice
Nice
Nice
SHOES
DUNCAN
TEA HOUSE

Surprise-Vista


Rare Housing Typology



Nahabatkhana
Jharoka

Business along Spine (Chitpur Road)


শিল্পীলোক অপেরা
মঞ্জুষা অপেরা
মুক্তমঞ্জরী
সত্যবর অপেরা
লোকনাট্য
WOODEN TYPES
STD
ISD
PCO

Old Street Furniture

EXPLORE IN KOLKATA

The 20th Century witnessed rapid world urbanisation. Global urban population rose from 13% in 1900 to 49% in 2005 – from 220m to 3.2bn.

India is rapidly industrialising and urbanising. Its population is currently less urbanised than China's (29% compared to 37%), and while China's population is forecast to grow by 10% between 2006 and 2050, the forecast for India is 45%, taking its population to 1.6bn and making it the most populous country in the world by 2050.

Impact of Globalization: Loss of “Asian-ness” in Cities

While Asian cities are increasing in size, their 'Asian-ness' (cultural and physical identity) is disappearing rapidly as they are now looking more and more like Western cities.

It is an assumption that economic globalization is associated with cultural globalization, which is often meant Westernization. The modernization of Asian cities is producing a physical-ness and blandness that is a loss of aesthetic values, craft and artistic skills and community memories associated with traditional built forms.

Globalization with flow of global and regional capital into urban redevelopment projects is presenting a major threat to the existence and maintenance of the cultural heritage of Asian cities.

Development & Energy Consumption

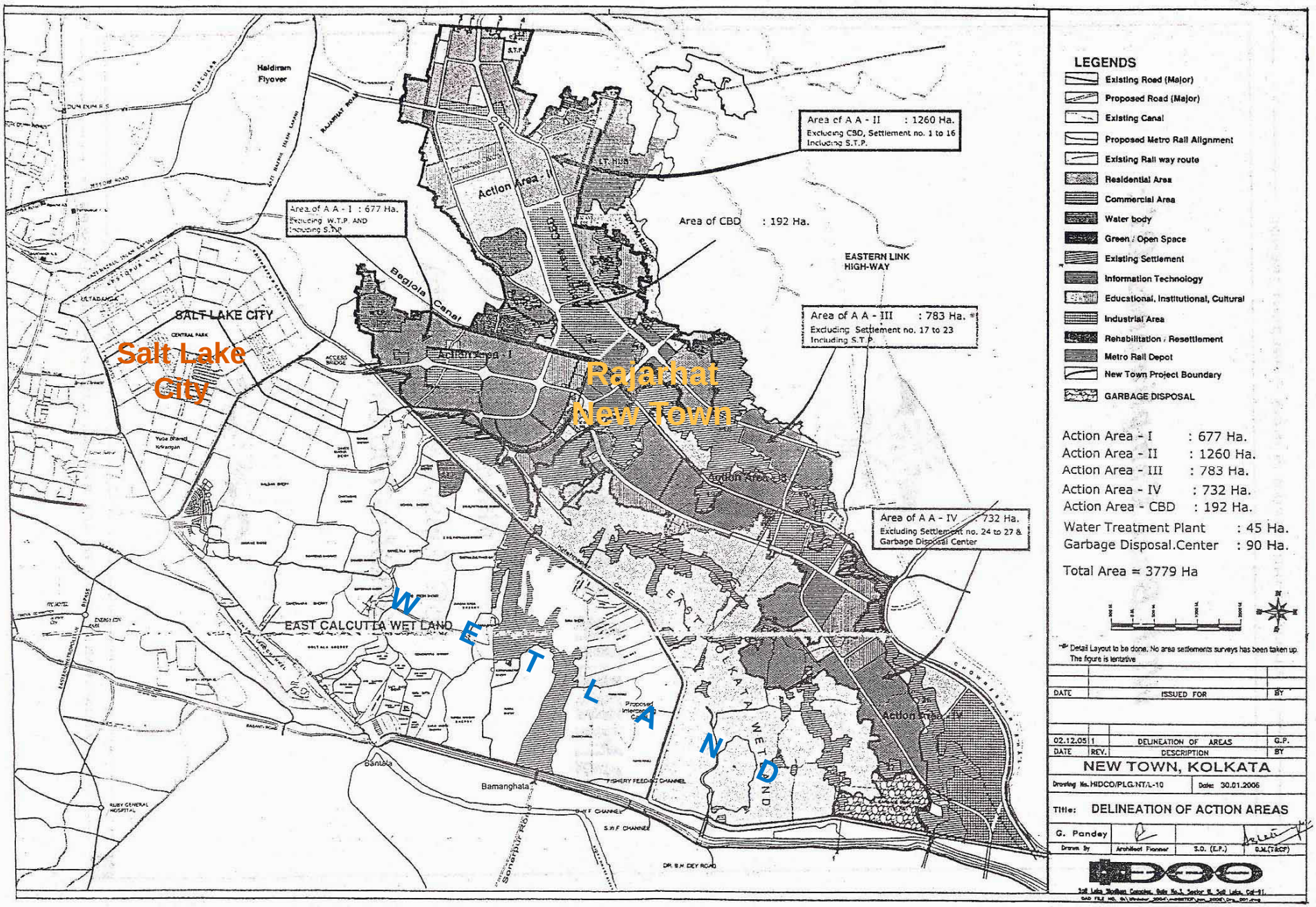
The Sears Tower in Chicago has an impact of urban activities on the global environment, since this “monster uses more energy in 24 hours than an average American city of 1,50,000 or an Indian city of more than one million inhabitants” (Hahn & Simonis, 1991).

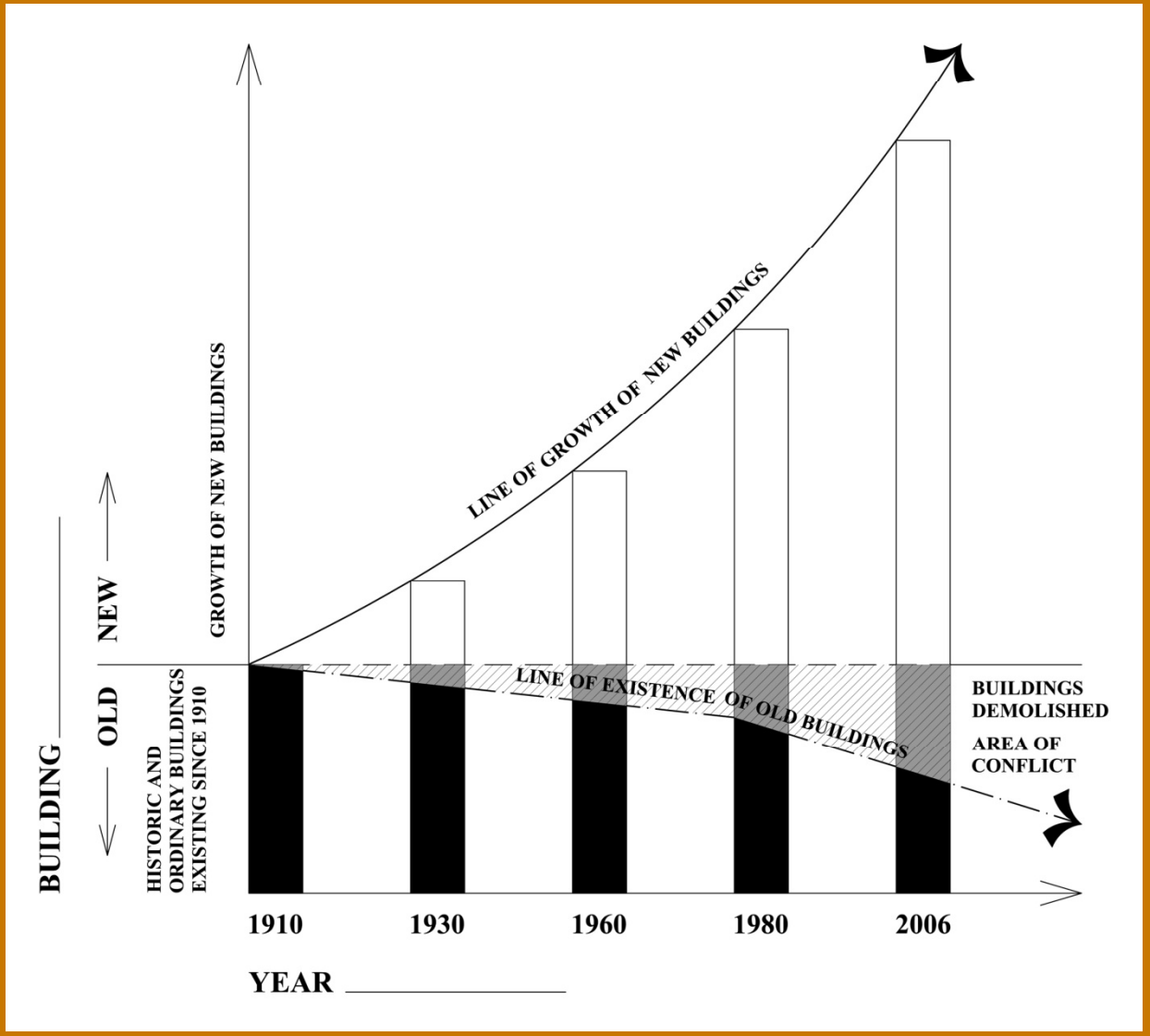
Development & Energy Consumption

Perhaps, Petronas Towers in Kuala Lumpur and Taipei 101 in Taipei, each also consumes equivalent energy like Sears Tower for its operation. There are sky-high buildings built and being built in the developing nations of Asia with largest fanfare of support from both the governments and privates in a competitive and festive mood.


35-STORIED
HOUSING COMPLEX


HIGHLAND PARK
DEVELOPMENT
06/08/2006 17:43


Haldiram Flyover
Area of A A - II : 1260 Ha.
Excluding CBD, Settlement no. 1 to 16
Including S.T.P.
Action Area - II
Area of A A - I : 677 Ha.
Excluding W.T.P AND
Including S.T.P.
Area of CBD : 192 Ha.
EASTERN LINK HIGH-WAY
Beglola Canal
SALT LAKE CITY
Salt Lake City
Action Area - I
Area of A A - III : 783 Ha.
Excluding Settlement no. 17 to 23
Including S.T.P.
Rajarhat New Town
Action Area - III
Area of A A - IV : 732 Ha.
Excluding Settlement no. 24 to 27 &
Garbage Disposal Center
EAST CALCUTTA WET LAND
WETLAND
EAST KOLKATA WETLAND
Action Area - IV
Santala
Bamanghata
Sonarpur Road
DR. S.N. DEY ROAD
LEGENDS
Existing Road (Major)
Proposed Road (Major)
Existing Canal
Proposed Metro Rail Alignment
Existing Rail way route
Residential Area
Commercial Area
Water body
Green / Open Space
Existing Settlement
Information Technology
Educational, Institutional, Cultural
Industrial Area
Rehabilitation / Resettlement
Metro Rail Depot
New Town Project Boundary
GARBAGE DISPOSAL
Action Area - I : 677 Ha.
Action Area - II : 1260 Ha.
Action Area - III : 783 Ha.
Action Area - IV : 732 Ha.
Action Area - CBD : 192 Ha.
Water Treatment Plant : 45 Ha.
Garbage Disposal.Center : 90 Ha.
Total Area ≈ 3779 Ha
* Detail Layout to be done. No area settlements surveys has been taken up. The figure is tentative
DATE ISSUED FOR BY
02.12.05 1 DELINEATION OF AREAS G.P.
DATE REV. DESCRIPTION BY
NEW TOWN, KOLKATA
Drawing No. HIDCO/PLG.NT/L-10 Date: 30.01.2006
Title: DELINEATION OF ACTION AREAS
G. Pandey
Drawn By
Architect Planner
S.O. (E.P.)
G.M.(T&CP)
HIDCO



Graph showing schematically the rate of demolition of old buildings, growth of new buildings and the area of conflict / under threat

BANK OF BENGAL – BUILT IN 1806 DEMOLISHED IN 1996


30.08.2010 16:40
NEW BUILDING

DEMOLISHED IN 1997

HOUSING TYPOLOGY DISTURBED AT BHOWANIPORE

BREAK OF HOUSING TYPOLOGY AT BHOWANIPORE

Table 1. Rate of Construction of Buildings in Kolkata Municipal Corporation Area

Year (April-March)	Total Floor Area Sanctioned for Construction (in Sq m)	Total Number of Buildings Sanctioned	Number of Buildings Sanctioned above 14.5m Height	Number of Residential Buildings Sanctioned	Number of Other Buildings Sanctioned
2005-2006	2060177.773	4160	73	4119	41
2006-2007	2062665.422	3324	70	3268	56
2007-2008	1527151.972	2893	69	2850	43
2008-2009	1991453.943	3668	64	3614	54
2009-2010	1819277.046	3774	80	3718	56

(Source: S. Banerjee, Deputy Manager (Systems), Kolkata Municipal Corporation, Information given on 03.12.2010)

Environmental Impacts of Urbanization

Environmental Component	Urban Component			
	Population (Numbers and Density)	**Land Use**	**Transportation**	**Services**
Atmosphere	**Increasing release of carbon dioxide**, decreased oxygen production, as trees are decreased by urbanization	Increased average temperatures for most urbanized areas	Air pollution from combustion of fuels Creation of photo-chemical smog Emission of lead from some engines	Particulates, noxious fumes from incinerators, landfills, sewage treatment works, etc.
Hydrosphere	Greater demand on water resources, both surface & subsurface	More intense use of hydrologic resources causing increased pollution load	Rain, surface waters polluted with lead, Drainage patterns altered by infrastructure	Leaching of pollutants from landfills, Discharges from sewage outfalls, Pollution from boats
Lithosphere	Increased transfor-mation of uninhabited agricultural or unutilized land to urban uses	Complete changes due to construction, landscaping, etc.	Disruption or disfigurement of landscape, etc.	Sanitary landfill of urban wastes and installation, repairs of services disturb landscape
Human Impacts	Psychological impacts of high-density living	Psychological impacts	Increased noise levels, Health effects of noise, air pollution	

Major Potential Health & Ecological Effects of Air Pollutants

Pollutants	Effects on Human Health	Effects on Natural Environment
Carbon Monoxide (CO)	CO can affect the cardiovascular system by reducing oxygen delivery to organs and tissues, exacerbate cardiovascular disease symptoms, particularly angina; may also affect fetuses, anaemic and young children; Can affect the central nervous system, impairing physical coordination, vision and judgement, creating nausea and headache, reducing worker productivity and increasing personal discomfort;	
Nitrogen Oxides (NO_X)	Nitrogen dioxide (NO_2) can affect the respiratory system causing irritation in lungs, bronchitis, pneumonia and infection; Nitrogen monoxide (NO) and NO_2, where they play a part in photochemical smog formation, may contribute indirectly to increased susceptibility to infections, pulmonary disease, impairment of lung function and eye, nose and throat irritations;	NO and NO_2 can contribute significantly to acid deposition, damaging aquatic ecosystems and possibly other ecosystems such as forests;
Sulphur Oxides (SO_X)	Sulphur dioxide (SO_2) can affect by producing breathing difficulty, respiratory illness, breakdown of lung defenses, aggravation of existing respiratory and cardiovascular disease, and even death; The elderly and children are affected most;	SO_2 and other Sulphur oxides can contribute significantly to acid deposition causing impairment of aquatic and possibly other ecosystems; Sulphates can affect the perception of the environment by reducing visibility even at low concentrations;
Particulate Matter	Fine particulate matters may be toxic in self or may carry toxic (and carcinogenic) trace substances, can alter the immune system; Fine particulates can penetrate deep into the respiratory system irritating lung tissue and causing long-term disorders; Particulate matter can aggravate existing respiratory and cardiovascular disease, damage lung tissue, result carcinogenesis and premature mortality; persons with chronic obstructive pulmonary or cardiovascular disease, influenza, or asthma, the elderly, and children are the most sensitive;	High dust and soot levels are associated with a general perception of dirtiness of the environment; Fine particulates can significantly reduce visibility;
Lead	High Lead exposure can cause seizures, metal retardation, and behavioural disorder; Fetuses, infants and children are susceptible to low doses, resulting in central nervous system disorders; Lead uptake may be a factor in high blood pressure and heart disease;	

High Air Pollution in Kolkata

30% Pollution comes from Building Construction

প্রতি চুমুকে গরল গিলছে শহর

নিজস্ব সংবাদদাতা

অবশেষে ঝুলি থেকে বেড়াল বেরিয়েই পড়ল!

কলকাতাকে আর্সেনিক-পীড়িত বলে গবেষকেরা গলা ফাটালেও এত দিন তাতে আমলই দেয়নি কলকাতা পুরসভা কিংবা রাজ্য সরকার। শুক্রবার নিজেদের একটি প্রকল্পের অনুমোদন পেতে গিয়ে পুরসভার আইনজীবী অলোক ঘোষ কলকাতা হাইকোর্টে এত দিন না-মানা সত্যই প্রকাশ করলেন।

প্রধান বিচারপতি এস এস নির্ঝর এবং বিচারপতি ভাস্কর ভট্টাচার্যের ডিভিশন বেঞ্চে নথি পেশ করে অলোকবাবু জানালেন, মধ্য ও দক্ষিণ কলকাতার অল্প কিছু এলাকা বাদ দিলে গোটা কলকাতাই ভয়াবহ আর্সেনিক-দূষণের কবলে।

একটি জনস্বার্থের মামলায় শুক্রবার পুরসভার আইনজীবী হাইকোর্টে জানান, কলকাতার সামান্য একটি অঞ্চল ছাড়া গোটা মহানগরীই আর্সেনিক-দূষণগ্রস্ত। ওই এলাকাটিকেও বৃত্তাকারে ঘিরে ফেলেছে আর্সেনিকের দূষণ। বিভিন্ন সংস্থাকে দিয়ে একাধিক বার কলকাতার ভূগর্ভস্থ জলের পরিমাণ পরিমাপ করিয়ে দেখা গিয়েছে, জলে আর্সেনিকের সহনমাত্রা (প্রতি লিটারে ০.০৫ মিলিগ্রাম) ছাড়িয়েছে। সোনারপুর, গড়িয়া, রাজারহাট, বারাসতে ভূগর্ভস্থ জলের পুরোটাই আর্সেনিক-দূষিত। তাই মানুষকে বাঁচানোর জন্য ভূপৃষ্ঠের জল (সারফেস ওয়াটার) সরবরাহ করা ছাড়া পথ নেই।

আর্সেনিক-দূষণ যে খাস মহানগরীকে গ্রাস করে ফেলেছে, তা নতুন কথা নয়। ১৯৯৫ সালেই বিপজ্জনক মাত্রায় আর্সেনিক পায়। দক্ষিণ কলকাতার যোধপুর পার্ক, লেক গার্ডেন্স এলাকাও যে আর্সেনিকের কবলে পড়েছে, ১০ বছর আগেই তা জানা গিয়েছিল। নলকূপ বসানো বন্ধের নির্দেশ দিয়ে দায় সারে কলকাতা পুরসভা। সেই নির্দেশও অবশ্য মানা

বিষের গ্রাসে কলকাতা

কারণ অতিরিক্ত নলকূপ, গভীর নলকূপ খনন।

বাঁচার উপায় ভূপৃষ্ঠের জল (সারফেস ওয়াটার) পান।

পুরসভা কী করছে নাম-কা-ওয়াস্তে নলকূপ বন্ধের নির্দেশ।

গ্যালন জল শোধন করে কলকাতা ও পার্শ্ববর্তী এলাকায় দেওয়া হবে। কেন্দ্রীয় সরকারের জওহরলাল নেহরু আর্বান রিনিউয়াল মিশনের অন্তর্গত ওই প্রকল্পের ব্যয় ধরা হয়েছে ১০০ কোটি টাকার মতো। ৩৫ শতাংশ দেবে কেন্দ্রীয় সরকার, ১৫ শতাংশ রাজ্যের।

করেছিল। বিচারপতি উমেশ বন্দ্যোপাধ্যায়ের নির্দেশ তুলে ধরে হাইকোর্টকে তারা জানায়, কলকাতার প্রাকৃতিক ভারসাম্য রক্ষা করছে পূর্ব কলকাতার ওই জলাভূমি। তাই পুরসভার এই প্রকল্প বন্ধ করা হোক।

পুরসভার আইনজীবী আদালতকে

জমি পাচ্ছি না। সেখানে জল আনা হবে হুগলি নদী থেকে। সর্বস্তরের অনুমতি নিয়ে আমরা কাজে হাত দিয়েছি। টেন্ডারও ডাকা হয়েছে।"

দু'পক্ষের সওয়াল শুনে গোটা প্রকল্প নিয়ে রাজ্য সরকার ও কলকাতা পুরসভাকে দু'সপ্তাহের মধ্যে হলফনামা

ARSENIC IN UNDERGROUND WATER (DRINKING)

Also depletion of groundwater by 7m-11m has occurred in Kolkata

1966


Anyone can fill a place
with amenities.
We fill your life with joy.

2006

PROBLEMS (FROM URBANIZATION)

- Destruction of historic buildings & cultural patinas
- Lack of open spaces (parks, plazas, squares, tot lots)
- Filling up of water bodies and wetlands; silted canals
- Over-burdened infrastructure
- Traffic congestion
- Environmental degradation
- High air pollution
- Depletion of ground water level & Arsenic problem in it
- Drainage congestion, urban flooding during monsoon
- Frequent power failure (daily 500mw shortfall from demand)
- Lack of proper urban design principles, no zoning regulation, same Building bylaws are applied at all parts of the city
- Solutions are not integrated into coherent whole of city/urban planning & design
- Need of mass population (public realm) quite unanswered
- Corruption, non-cooperation, non-caring, lazy

Gradual demolition of historic and old buildings happened during many decades due to –

1. widening of existing roads, construction of flyovers and underground metro railways under traffic improvement programmes of the city;
2. large scale real estate development;
3. dissatisfaction and loss of sense of belonging of present generation to inherited historic properties and subsequent extreme human neglect and vandalism;
4. common belief in people that conservation is problematic work and it costs more than modern construction, plus modern building provides desirable nuclear family space;
5. many of the old historic materials, techniques and traditionally skilled masons and labourers of old building construction are not available in the market and society;
6. lack of proper economic affordability of present owners of such properties;
7. fragmented and multiple ownership and tenancy with often legal disputes;
8. the problem from huge rise of municipal tax and lowest existing rents received painfully through rent-control over existing legal litigation with tenants;
9. Government's earlier attitude of not providing strong legal and most importantly financial support for safeguard and conservation of heritage properties;
10. lack of motivation of the Government and the plural society of Kolkata to include architectural conservation within the overall development planning policy and management of the city.

The Urgent Need in Asian Cities

At the dawn of twenty first century, a growing conflict between ‘conservation’ and ‘development’ has been observed especially in the Asian countries, which strengthens the necessity of inclusion of conservation in the community planning and development.

There is urgent need for Retention of Cultural Identity and Environmental Sustainability in the Changing Urban Perspectives in Asian Cities.

The Need for Sustainable Development Approach with Conservation, Urban Design and Environmental Planning Measures for Sustainability in Kolkata

The tremendous urban development during about last fourteen years in and around Kolkata has undesirable effects especially on historic and old buildings and traditional settings, that is the cultural identity ('Kolkata-ness') and sense of place in the city; on the scenario of non-renewable energy consumption and further demand which has been raised enormously in the city; and on environment raising air pollution and emission of Greenhouse Gases, thus contributing to global warming and climate change. **Without proper urban design approach, policy and control, the metamorphosis of the city would lead up to a non-characteristic, unsustainable and unlivable form, while the city once happened to be the "London" of Asia.** There is immediate need for a sustainable development approach (model) for the city which will encompass architectural and urban conservation and conversion as part of intelligent management of existing building stock, tuned with proper urban design within a holistic environmental planning towards environmental safety and sustainability.

Role of Historic Buildings and Places in an Urban Settings

The history of urban environment in a city is the chronological story of architectural and urban development and the evidences of physical changes in it. This metamorphosis portrayed in a series of time-frames of development is characteristic of the pattern of its growth and change for certain purposes. The historic buildings, monuments and precincts are any city's cultural properties and physical assets which carry the patina of history and cultural growth of the city along with great aesthetic, architectural, technological, educational, social, religious, identity, landmark, symbolic, economic, tourism and use values. Historic buildings are located at the old and historic centre of the city, at central business district, at a special area along an urban spine, at riverfront, and scattered in many parts of the city.

Urban Design

Urban design is a design application for appropriating and beautifying parts of a city with an objective of bringing functional enhancement and coherence of parts with whole, while imparting a sense of place and image of the city (Shivashish Bose, 2008).

Every city carries evidences of planning and urban interventions in it at various periods of time. Historic buildings, monuments and sites are results of great architectural design and construction efforts during centuries imparting functionalism, form, aesthetics and identity of the city, and sometimes are either the result of individual artistic endeavour appropriated later by urban design in its surrounding setting, or part of an urban design principle for creating a special site or ‘place’ in the city. Hence, any urban setting should always respect the presence of historic buildings and monuments as the most important existing man-made component in it.

Conservation and Conversion as an Element of Urban Design and a Tool for Sustainable Development in a City

The historic built environment is the multiple layers of chronological multidisciplinary development of a community in a series of time-frames and is a large part of any city's physical and capital resource.

The historic and old buildings are to be seen from a new perspective of achieving sustainability through their management. **The great challenge in management of existing building stock is to project and define how old buildings can be conserved, and intervened where necessary for conversion to prepare them as compatible urban structures to live and work in a present day requirement, thus ensuring the longevity of existing urban mass towards sustainability.** In this, conservation and conversion is an application of intervention methodology to retain and sustain urban historic cultural patina, fabric and elements in a changing urban image (world).

- **Technological advancements have created enormous possibility to preserve, conserve, restore and convert old buildings with mitigation of problems of rising dampness, rainwater penetration, poor air-ventilation, structural decay and inadequacy, service systems degradation and other physical factors.**

- **Modern facilities can be skillfully inserted in the existing buildings and fabric to suit for adaptability.**

- **Skilful rehabilitation of historic buildings can be economical, often costing only two-thirds of new buildings of the same area and saving the cost of renewing the infrastructure (Sir Bernard Feilden, ICCROM 1994).**

Table 7.1 *Maximum cost of improvement per dwelling as proportion of cost of new building*

Useful life (years)	Quality of improved dwelling as percentage of that of new dwelling					
	100	90	80	70	60	50
40	0.96	0.87	0.77	0.68	0.58	0.48
30	0.91	0.82	0.73	0.64	0.55	0.46
20	0.79	0.71	0.63	0.56	0.48	0.40
15	0.69	0.62	0.55	0.48	0.42	0.35

Source: MOHLG Circular 65/69, Appendix B.

Source: Economics in Urban Conservation – by Nathaniel Lichfield

In the “Management Guidelines for World Cultural Heritage Sites” (by Prof. J. Jokilehto & Sir B. Feilden, ICCROM Publication, 1993), conservation has been prescribed to be included into the overall town planning and management policies, so that existing historic fabric has equal status as that of the other factors in the general planning process.

There is a Master Plan (*Piano Regolatore*) for Rome which regulates, controls and guides conservation, structural restoration and internal modifications of buildings in the historic centre of the city. Maintenance of the ‘Volume’ (of urban mass) at any part of the historic centre has been prescribed to be strictly followed. By this rule, the old and existing urban mass in the already beautifully composed spatial settings is maintained and restored. Internal conversion of some buildings – if structurally and physically possible keeping the ‘Volume’ intact is allowed only after critical scrutiny by the competent administrative authority.

In various European cities, urban planning and development strategy has encompassed heritage conservation as to be an effective catalyst for social and economic sustainable development in those cities.

Street conservation programmes (under urban renewal programme) have been successfully demonstrated in the cities of USA (Main Street Programme) and some other countries including Asian countries.

The Graphic Representation of the Model for Sustainable Development in a City through Conservation and Conversion

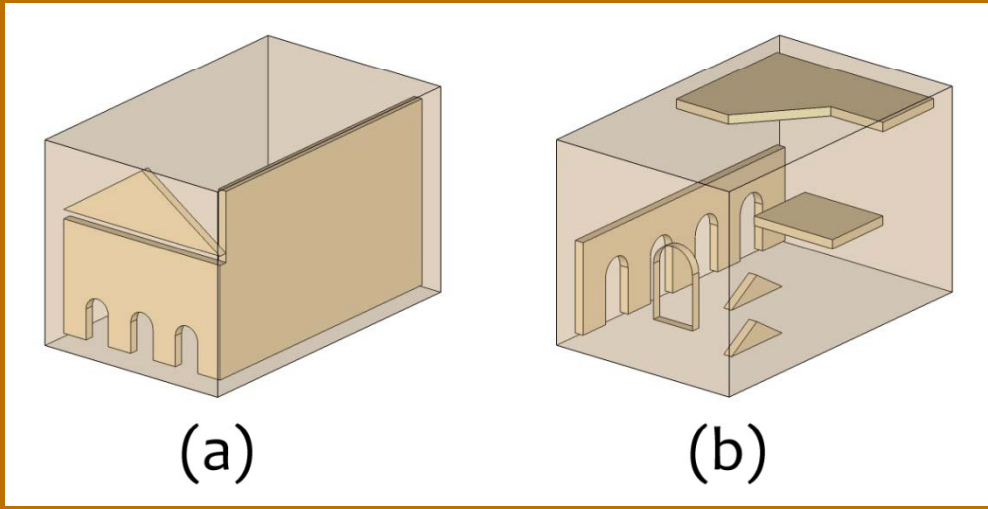


Fig. (a) & (b) Illustrates conservation and restoration work where the mass, volume, internal elements and external façades of the old building are retained.

Example of Fig. (a & b)
Restoration of Town Hall in Kolkata (1996-98)

The Graphic Representation of the Model for Sustainable Development in a City through Conservation and Conversion

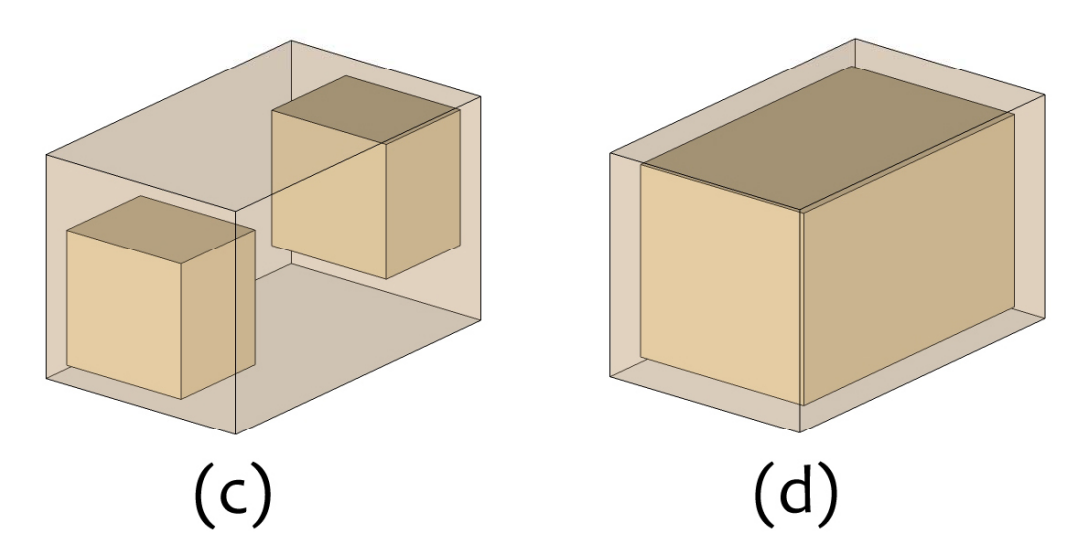


Fig. (c) & (d) Illustrates internal conversion work, which modifies the old structure to suit for the required new function while retaining the external façades and volume.

Example of Fig. (c & d)
Proposed Conversion of Building at Riverfront in Kolkata
Into a Shopping Centre while keeping the facades intact

The Graphic Representation of the Model for Sustainable Development in a City through Conservation and Conversion

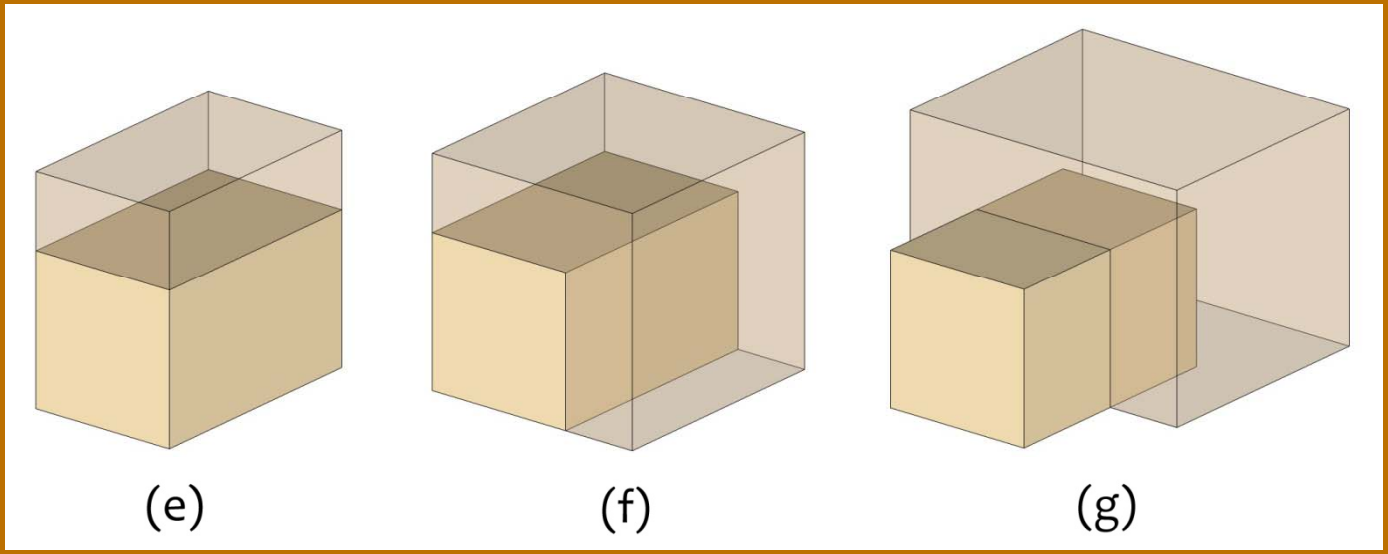


Fig. (e), (f), & (g) Illustrate major addition and conversion work over the old building by which the new structure has an added volume of mass and area of space though retaining old (façade, mass and space) layer of architecture.

Museo Nacional Centro de Arte Reina Sofia in Madrid former General Hospital built in 1776-1781, Converted

Interior of the Museum

On Via di S. B. de Vaccinari at Historic Centre of Rome

Action Taken for Conservation in Kolkata City

During the 1990s, a strong conservation movement was generated in the society which was gradually supported by government and municipal authority. The West Bengal Chapter of the Indian Institute of Architects organized an International Conference on "Architecture of Cities" in Kolkata in 1990 in which architectural and urban conservation was included in discussion and its Charter emphasized on the necessity of environmental planning for a city encompassing conservation of historic buildings and areas, and nature.

The Centre for Built Environment (a non-profit Society in Kolkata) took up a joint research project with French collaboration (IPRAUS of Paris) for identification and documentation of historic buildings at Chitpur area during 1992-95, organized International Conference on "Architectural and Urban Conservation" in 1994 in Kolkata, and published the Proceeding Volume in 1996.

Some other organizations and individuals also started identifying some historic buildings during early 1990s.

The State Government, the Kolkata Municipal Corporation (KMC) and a Private business organization jointly took up the work of Restoration of the Town Hall (c1813) of Kolkata in 1995 and the work was completed in 1998.

The State Government first published in 1996 a list of only seventy two heritage buildings in Kolkata. This raised immediate criticism from many sectors of the society. Hence, a new open-ended list was prepared and gradually the numbers of listed heritage buildings in the municipality exceed one thousand three hundred marks up to the record of March 2007.

Finally, the KMC has declared 611 buildings under Grade-I category, 203 buildings under Grade-IIA and 109 buildings under Grade-IIB categories by publication on 25.02.2009.

In 1999, the KMC formed the 'Heritage Conservation Committee' which has been empowered to decide which listed building should be finally declared 'Heritage' and which one should be omitted from the list, plus approval of proposals of addition-alteration and conservation work of heritage buildings. The department of the Chief Municipal Architect and Town Planner (CMA&TP) of KMC has entrusted the listed Conservation Architects since 1999 for the work of survey, documentation and recording of listed heritage buildings of the city for preparation of Inventory of the Cultural Properties in Kolkata and for final declaration of heritage status of recorded buildings. All the research reports have been digitized and stored by the said department. Necessary Municipal Rules have been enforced for protection and preservation of heritage buildings. As some of the old and important historic buildings were demolished during 1996-97 and afterwards, some equally important historic buildings were also restored and conserved during 1996-2007.

RECOMMENDATIONS

1. Restoration of buildings, modification of structures for conversion and adaptive reuse
2. Restoration of façades of buildings in case the restoration of the entire building is not feasible or legally possible because of ownership problems and standing litigation
3. Rectification of physical and mass appearance by removal or appropriation of discordant elements, temporary/unauthorized façade treatments or additions, removal of inappropriate advertisement hoardings
4. Enhancement of the streetscape through improvement of sidewalks, installation or upgrade of street furniture and introduction of landscape elements

RECOMMENDATIONS

5. Exploring measures for controlling Chitpur Road as a pedestrian road by disallowing vehicular movement except for tram and auto rickshaw along it from 8:00–20:00 and through better utilization of two parallel roads: Strand Road along the riverbank on the left of Chitpur Road (looking north) and Chittaranjan Avenue on the right side, which are already linked by crossroads through Chitpur Road

6. Introduction of control mechanisms over future development by introducing special building bylaws for this historic area and allowing construction of new buildings with controlled height, compatible architectural style, fenestration and color and only at suitable places without disturbing the existing heritage (cultural) character

7. Introduction of special treatment at selected and sensitive areas such as the Kumartuli image-making zone

RECOMMENDATIONS

8. Introduction and enforcement of new (legal and municipal) rules to restructure the rent slab and define the responsibility of the tenants with regard to compulsory maintenance and restoration of the properties they use

9. Raising a conservation fund by the government and municipality to support conservation projects and to provide loans and grants to owners of heritage buildings, and exploring the possibility of inclusion of the private sector to take an active partnership with the government in urban conservation works. Possibilities are also to be explored to find external aid funds for urban conservation.

CONCLUSION

The present need for environmental sustainability in Asian cities is equally important as retention of their cultural properties where the population explosion and need for shelter, urban spaces and infrastructure is very high.

Urban development is to be sensitized to its capacity to cope with environmental tolerance of the city.

In Asian developing countries, construction of new buildings for development would be obvious. However, the prescription for conservation or development should be case specific and appropriate to the area itself. The development, which is case-specific solution to urban problem, need-based, value based, respecting historic patinas of cultural properties, creating minimum impact on ecology and environment, providing maximum benefit to the society, and being part of a whole urban development, design and planning policy of the city within the society's common goal is "**Appropriate Development**".

"Appropriate Development" guided by the principles of "Sustainable Development" with urban intervention as solution to specific problem should be exercised by which, conservation of historic old buildings and places, and conversion projects integrated seamlessly into the development with new appropriate buildings and interventions altogether and vice-versa will express a new kind of urban design in Asian cities where 'old – the gold' and 'new – the appropriate' will live together complementing each other reflecting the cultural legacy of 'artistic expression of traditional urban life', as well as the 'modern aspiration' of the community and 'technological solution' of present day urban problems, constituting a new urban image. This philosophy of transformation should be incorporated within the overall planning policy of development and the mandate of the society's common goal in Asian region. This is the appropriate path of development based on the theory of sustainability (Bose, 2004-2009).


THANK YOU
A PRESENTATION BY
SHIVASHISH BOSE