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Historic Buildings at Chitpur in Kolkata: Problems and Prospects Through Urban Conservation and Planning

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Abstract: Kolkata (historically Calcutta) is a linear city that has grown along the eastern bank of the river Hugli (also spelled Hooghly, and traditionally called the Ganges, in the West Bengal State of India. It served as the capital city of British India from 1773–1910. The British developed colonial architecture mostly in the central business district and the residential area designated for them. In the Chitpur area of north Kolkata, the Indians constructed buildings following European styles, but modifying parts according to their own social customs, individual choices and dictation – thus introducing a new style which was termed "Bengal Baroque" by some and generally called the "indigenous style". Other old buildings also follow certain architectural typology and bear the history of eminent personalities of the society, thus constituting an overall cultural setting. However, many old buildings are in bad physical condition and have legal litigation. Meanwhile, tremendous real estate development and uncontrolled traffic circulation within this historic district are destroying the buildings, the historic cultural patina and the essence of the place. An urban design and planning solution is to be sought which would encompass the conservation of historic and old buildings and elements of the area as well as control over development for cultural compatibility and environmental sustainability.

Introduction

History has recorded the existence of Kolkata since the twelfth century. Kolkata was under central Mughal Rule and under the provincial *Nawab* (king) of Bengal up to the late eighteenth century. Many European nationals such as the Portuguese, Dutch, French, Danes and Armenians came to areas on the western side of the river Hugli near Kolkata during the sixteenth to seventeenth centuries and mostly settled in these areas (Ghosh 1996). It was Job Charnock, a British merchant who came to Kolkata on 24 August 1690 (Cotton 1909; Deb 1905) and bought three villages on the east bank of the river Hugli called Sutanuti, Kalikata and Gobindapur, which constituted the north, central and south of what was then Kolkata, from the Bengali merchant Sabarna Raychoudhury. Charnock amalgamated the three villages and seeded the British Empire in India. The British initially built a fort, a church and some houses in Kolkata. A survey of Kolkata made in 1706 showed eight *Pucca* (permanent brick houses) and 8000 *Kutcha* (temporary mud houses with a thatched roof), with two streets and two lanes and a population of 22,000. In 1756, the number of *Pucca* houses increased to 498 and *Kutcha* houses to 14,450 (Ghosh 1996), and there were no less than 27 big streets and 52 smaller streets (Deb 1905). The British dug the Maratha Ditch in 1742 to protect the British territory in the central part of Kolkata. Eleven km in circumference, it defined the boundary of Kolkata at the time (Ghosh 1996). The city experienced its first planned intervention in terms of town planning, land use, zoning and development in 1757 after the British defeated the King of Bengal (*Nawab Siraj-ud-Doullah*) in the battle of Plassey (in Murshidabad) and acquired administrative rights from the newly appointed King for territorial expansion of Kolkata (Cotton 1909).

It became the capital city of British India in 1773 (Cotton 1980) and remained so up to 1911 when Delhi became the capital city of India (Sinha 1990). Early important places of development in Kolkata by the British were:

- Dalhousie area as the British administrative citadel and the central business district of the nascent city
- Esplanade Park Street/Chowringhee area as the residential, commercial, educational and recreational area of the British and other Europeans
- Riverfront area for commercial and recreational activities
- Chitpur area, mostly along the Chitpur Road, (now Rabindra Sarani) as the residential, commercial and educational area of native Indians (Figs. 1, 2).

Early architectural developments by the British were around the Dalhousie area with the construction of the Writers Building (ca. 1780), the Government House (presently the Governor's House, ca. 1804), Bengal Bank Building

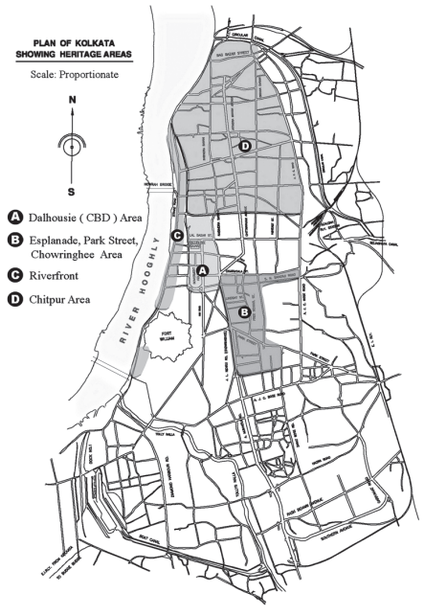

Fig. 1: Map of Kolkata showing heritage areas.
(Source: Bose 2008, 2010)

Fig. 2: Map of Chitpur area in north Kolkata.

Year	Area (sq km)	Population	Source
1698	7.531	-	Wilson, Early Annals I, p.286
1794	20.222	-	A.K. Ray, A Short History of Calcutta, p.58
1891	53.147	681,560	Census 1891
1901	83.151	847,796	Census 1901
1991	185	4,399,819	Census of India 1991
2001	185	4,580,544	Census of India 2001
2011	185	4,486,679	Provisional Population, Census of India, 2011

Tab. 1: Area and Population in Kolkata (Early growth and later municipal area).
(Source: Nair, 1990; Census of India, 2001; 2011)

(ca. 1806; demolished in 1996), Town Hall (ca. 1813), etc. (Ghosh 1996), to mention a few.

However, Bhattacharya wrote, "According to the Magistrate's Surveyors of 1819–20, there were a few "upper roomed houses" (8.3 per cent) and "lower roomed houses" (13.4 per cent); whereas straw huts constituted 54.2 per cent and tiled huts 24.1 per cent" (Bhattacharya 1990). Gradually, the city developed in a linear direction both in the British and native populated areas.

Historic buildings at chitpur

The wealthy native gentlemen and merchants with titles *Raja* (meaning king) and *Maharaja* (meaning superior king) built their palatial houses in the Chitpur area. Some of the most and mentionable persons and family members were Raj Bullabha, Nundkumar, Ram Charan, Gonga Gobvinda Sing, Radhakanta Deb, Darpanarain Tagore, Rajendra Lala Mitter, Banamali Sarkar, Madan Mohan Dutt, Govindaram Mitter, Nubkissen, Omichand, Ram Mohan Roy, Baisnab Charan Seth, Gouri Sen, Sobharam Basack, Sukhamay Ray, Ramdulal Dey, Jadulal Mallick, Kali Prosonno Sing, Prasanna Kumar Tagore, Jatindra Mohan Tagore, Manmatha Ghosh, Khelat Ghosh, Raja Dinendra Narain Roy, Nandalal Mullick (Fig. 3), Nilmoni Tagore, Dwarakanath Tagore, Rabindranath Tagore (Nobel Laureate in Literature in 1913) (Fig. 4), Rajendralal Mallik (Fig. 5), Shama Churn Law, etc. (Deb 1905; Lahiri Choudhury 1990).

These wealthy merchants had business transactions with the British and even lent money to the East India Company (British) (Deb 1905) to establish a business. Their business and social involvement with the British and their social and financial status had an influence on the development of their residential architecture in extravagant styles. People of this region also

Fig. 3: Clockhouse of Mullick on Chitpur Road.

contributed to the renaissance (development in all fields of art, literature, education, cultural forms, social revolution and reform, science and technology, commerce and small scale industries) of Bengal during the nineteenth and early twentieth centuries. To commemorate their contribution to the growth and development of the city, many of the roads of Chitpur region are named after them (Cotton 1909; KMC 1981).

Traditionally, architectural expressions before British influence were of two types, one according to Bengal's temple architecture and vernacular architecture, and the other with Islamic tradition (Lahiri Choudhury 1990) mastered by masons from Persian areas mainly. After the exposure to the European Neo-Classical style of architecture, wealthy people built their palaces in a mixed style where facades with porticos having Tuscan, Doric, Ionic or Corinthian columns, pediments or pilasters, articulated and ornamental parapets with figures and statues (like the buildings of Andrea Palladio), courtyards with colonnaded verandahs, etc., were the chief components of architecture (Figs. 6, 7, 8, 9).

However, much of the ornamentation or orders did not follow true European orders or details, but those of Hindu architecture from north India such as Rajasthan, variations of Egyptian architectural motifs or Islamic traditional architectural elements, or completely native Bengali styles and ornamentation with images of gods and goddesses, etc. For example, a temple at the end of the courtyard is never a European phenomenon. Because of such a unique mixture of architectural elements from different styles, these buildings were termed as "indigenous" (meaning native) and also "Bengal Baroque" by art historians, critics and common people (Ghosh 1996). Regarding the uniquely mixed style of architecture, Moorhouse wrote, "But if you confront each building separately head-on, you often find yourself goggling at a perfect rhapsody of architecture. There will be a doorway set between Doric columns with "AD 1879" carved into the pediment above. On either side of this, where there ought to be windows, there will be rooms open to the street instead, with trade going on inside; and pilasters will spring away above, to a wrought iron balcony on the first floor, which will be partly enclosed by Early English arcading and which will also be provided with wooden shutters that neither the early nor the late English ever needed in their climate. Above this will come another storey, whose window openings have been carved in a faintly Mogul style; and to top it all off there will be a stone balustrade with Gothic ogees piercing it so that, from the other side of the street, you can even see the hoofs of the large stone horse that is galloping across the roof – or the hem of Aphrodite's dress as she gracefully bends to pour the contents of her urn on to the pavement far below" (Moorhouse

Fig. 4: House of Rabindranath Tagore, now Rabindra Bharati University.

Fig. 5: Marble Palace of Rajendralal Mallik.

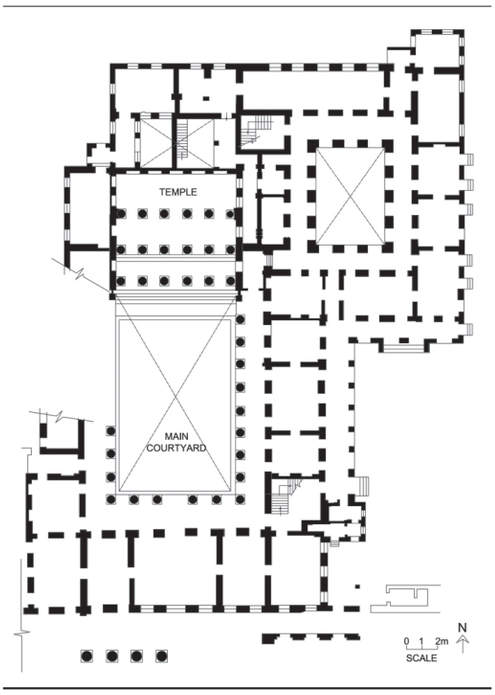

Fig. 6: Ground floor plan of Bose House at Bagbazar.

Fig. 7: Detail of façade column capital at Bose House.

Fig. 8: Main courtyard of Bose House at Bagbazar.

Fig. 9: Architectural character of a building.

Fig. 10: Statue of Queen Victoria on a parapet.

1971). He further wrote, "There is a small thesis to be written by somebody on Calcutta's rooftop monuments alone; not only horses and Aphrodites, but lions rampant, hawks stooping, and naked young ladies reclining rather brazenly as well" (Moorhouse 1971).

Historically, the Chitpur Road, thriving with traditional craft-oriented commercial activities and connecting the northern part to the southern part of Kolkata, flourished as the most important backbone since the early growth of the city. The urban pattern developed at Chitpur over the centuries is very organic with its narrow and irregular street layout, very large palatial and contrasting small buildings, and courtyards, either isolated in a large plot or attached on two sides and abutting on the road. Urban design elements of this area include intimate views and vistas, landmarks, street façades, symmetrical and non-symmetrical forms, decorative ornamentation, articulated parapets (Fig. 10), symbolic elements, surprise elements, old street furniture, and some curvilinear street patterns producing serial vision (Bose 2010). Apart from economic value, the traditional craft-oriented industries – making clay images of various gods and goddesses at Kumartuli (Fig. 11) for worship during Hindu religious festivals (Bose 2009, 2010), and various small-scale industries and commercial activities along Chitpur Road have also been uniquely related to the socio-cultural life of Kolkata since the growth of the old city.

Fig. 11: Image-making Industry at Kumartuli.

The nearby riverfront *ghats* (a structure with steps leading to the water) (Fig. 12) provide for bathing, and the recreational, social and religious activities of the society (Bose 2008).

The design of residential palaces and even small buildings of Chitpur followed a typical type of construction with a load-bearing structural system. Generally, a building has a central courtyard surrounded by rooms with a running verandah and balcony in the form of circulation corridor facing the courtyard. The entrance to the building is connected to the main courtyard, and at the end of the main courtyard of any large building, there is a large single-storey decorative temple called *Nat-Mandir* or *Thakur Dalan* (Lahiri Choudhury 1990) (Fig. 8). The courtyard acts as a community space during religious rituals and social festivals, and at other times an introverted open space for the inhabitants and visitors and provides natural light and ventilation to the surrounding rooms. Palatial buildings have more than one courtyard, for example, the Bose House at Bagbazar (Fig. 6) has five courtyards and one palace at Pathuriaghata originally had seven courtyards. Apart from the main courtyard, other courtyards were designated especially for in-house women, servants and so on based on the hierarchy and the spatial possibility within the architectural plan. Up to the later part of nineteenth century, women were not allowed to come in front of men other than their husbands or immediate family members unless covered by veil or behind a curtain for privacy and obscurity (Patri 1985). Most of the buildings have a large and decorative *Naach Ghar* (a dance room or levée room) (Lahiri Choudhury 1990) with Mogul influence on the first floor.

The buildings are basically two stories (Fig. 13). A third storey was added later to some buildings. Bricks available for construction were of many types, common rectangular (250×125×75 mm), thin and large rectangular, chamfered/decorative edge rectangular, quarter-circular and semi-circular with varying diameters, and beautiful decorations resulted from corbelling and good craftsmanship. Lime, sand and brick dust along with some other pozzolanic materials were used as mortar (Ghosh 1996). The buildings have a stepped brick foundation or arched foundation in their substructure and thick walls (minimum 550 mm wide) in the superstructure. The buildings featured thick brick walls for the rooms, thick decorative columns for the verandah, arched openings for doors, windows and entrances, generous room height, wooden beams and rafters and later iron joists and tees (since ca. 1875), floors in terracotta tiles and lime concrete often with marble as a top finish, lime terracing on top of the roof, and decorative parapets.

Circular columns were of Tuscan, Doric, Ionic, Corinthian or mixed type of indigenous character and followed the order, e.g., by having a Doric capital on the ground floor, then an Ionic capital on the first floor. Twin columns, decora-

Fig. 12: Riverfront Ghat for public activities.

Fig. 13: Public urinal in front of heritage building.

tive columns (with a cluster of eight small circular columns surrounding a square section), and later, cast iron columns were also used. Usually, the height of the first floor rooms is higher than those of the ground floor. Terracotta balusters and cast iron design work were used in the railings. Staircases were made of wood or stone. Fairies are one of the most used sculptural elements at the parapet, while lions were a feature on the wall posts at the entrance gates. The building generally has a raised plinth over a low-height basement (part of an arched foundation) to pass air through it to retard rising dampness at the superstructure. The architecturally grand and stylistic buildings stand out as graceful landmarks, form beautiful vistas, impart the sense of place, and give identity to the city (Bose 2008, 2010).

Heritage declaration

Though the Kolkata Municipal Corporation claims that it was established in 1727 (1726 by other opinions) by Royal Charter and Directive of King George I, (KMC 2005; Bose 2008), Nair wrote that there was no civic or municipal authority in Kolkata at that time (Nair 1990). Actually, the Third Charter issued by King George III in 1793 considered for the first time health, security, comfort and convenience of the inhabitants of Kolkata (Bose 2008). Nair wrote, "The demand for municipal services grew after 1773, when Calcutta was elevated as the capital of British India. But statutory civic services began only in 1794, when municipal administration was shifted from the Collector to the Justices of the Peace for the Town of Calcutta" (Nair 1990). Deb wrote, "By Act IV of the Bengal Council for the year 1876, the Justices handed over their administrative functions to a Corporation consisting of seventy-two commissioners, of whom two-thirds were elected and the remaining third appointed by Government" (Cotton 1909). Nair wrote, "The first elected Mayor assumed office in 1924" (Nair 1990). The Kolkata Municipal Corporation (KMC) of the present day consists of 141 wards comprising an area of 185 sq km and having a population of nearly five million; its population density as per Census 2001 was 24,760 per sq km (Census 2001). In 1984, 41 wards (101–141), mostly from the fringe areas, were added to the city proper (with 1–100 wards in 104 sq km) because of population increments and rapid urbanization (Kundu, Nag 1996; KMC 2012). The KMC is an autonomous body partially supported financially by the state government and governed by 141 councilors elected from those wards every five years. It has various divisions which have responsibility for providing water supply; taking care of drainage and sewerage; solid waste management; maintenance of roads and street lights; granting permission for the display of advertisements and hoardings; functioning of primary schools and health care units; granting permission for the erection of new buildings and the demolition of old dilapidated buildings; identification, declaration and restoration of heritage buildings and precincts; maintenance of parks and gardens; collection of municipal tax for property (building) and licenses for business; etc. (KMC 2012). However, in case the political party that governs the state and the political party that governs the municipal corporation, both empowered through the general election, are different, then a conflict and mode of non-cooperation arises to some extent.

In 1959, the World Health Organization (WHO) recommended the preparation of a master plan for the improvement of the water supply and sewerage and drainage for the entire Calcutta Metropolitan District (CMD, now KMD) and the creation of a single authority to carry out the plan. The Calcutta Metropolitan Planning Organization (CMPO) was set up by the Government of West Bengal in April 1961 and with the Ford Foundation's assistance and advice, produced the Basic Development Plan (1966–1986) in 1967 for the CMD (Ghosh 1996). It was a pragmatic plan for the development of Kolkata that had three underlying objectives: – (1) to arrest the deterioration of the civic infrastructure, (2) to use the existing capacity better to deliver urban services, and (3) to make provisions for massive new growth. It proposed a large number of projects in traffic and transportation, water supply, sewerage and drainage, slum improvement programs, etc., but it contained no prescription for the conservation of heritage buildings and precincts (CMPO 1966). In 1970, Calcutta Metropolitan Development Authority (CMDA, now KMDA) was formed as the exclusive agency for planning and project execution in CMD. However, the KMDA also does not include the scope for architectural and urban conservation in Kolkata (KMDA 2010–2011).

In India, Lord Curzon (Governor General of India from 1899–1905) formulated the first policy for conservation. Preservation of ancient monuments and remains was made statutory with the enactment of The Ancient Monuments Preservation Act in 1904, which had provisions for the acquisition of archaeological monuments or remains and their protection and pres-

ervation by the Archaeological Survey of India, founded in 1861 (Menon 1989). In respect of privately owned and/or publicly owned historical monuments declared "protected" by the government for their maintenance, The Ancient Monuments and Archaeological Sites and Remains Act of 1958 provided for exercising effective control over the monuments in India. But, unless declared "protected" by the government, there is no control on heritage buildings owned by private sector (Bose 2008). In general, old buildings in Kolkata owned by central and state governments, were repaired periodically by the respective Public Works Departments.

The awareness and need for architectural conservation was voiced first in Kolkata in the 1970s by a couple of professors: Prof. Santosh Kumar Ghsoh (then Chief Architect of State Government and Planner) and Prof. Nisith Ranjan Ray (historian and Curator of the Victoria Memorial Museum in Kolkata). Prof. Ray formed the Society for Preservation, Calcutta in 1980 with an objective of raising public awareness for the conservation of historic buildings of Kolkata (Law, Chakraborty 2010). However, a gross conservation movement in the city started in 1990 during the city's tercentenary celebration by the state government. An international conference organized by the West Bengal Chapter of the Indian Institute of Architects held in Kolkata in 1990 was addressed to conservation as well as other issues of cities. The author was a participant and presenter of a paper at that conference (IIA-WB Chapter 1990). The Centre for Built Environment (henceforth CBE, a non-profit society in Kolkata) took up a joint research project with French collaboration (IPRAUS of Paris) for the identification and documentation of historic buildings in the Chitpur area from 1992–93 in which the author worked for three years. CBE organized the International Conference on Architectural and Urban Conservation in 1994 in Kolkata and published the Proceedings Volume in 1996. Some private architects and organizations, such as the Kolkata Chapter of the Indian National Trust for Arts and Cultural Heritage (INTACH), etc., were also putting efforts into raising awareness for heritage buildings. From 1996–1998, the Government of West Bengal prepared the Calcutta Environmental Management Strategy Action Plan (CEMSAP) with technical assistance from the British Overseas Development Administration. CEMSAP included recommendations for action on architectural and urban conservation in its proposal for environmental management planning of Kolkata (CEMSAP 1996). The Town Hall (built in 1813 and owned by the KMC) was prescribed for demolition by government in 1980 (Davies 1985; Gupta 1998) but was restored from 1996–1998 by a public–private partnership (Bose 2008, 2012) made up of the Government of West Bengal and the Kolkata Municipal Corporation in partnership with a private organization through "A Homage Trust".

The KMC Act of 1980 (passed by the West Bengal Legislature under West Bengal Act LIX of 1980) did not mention anything about the conservation of heritage properties in Kolkata. The revised KMC Building Rules of 1990 again did not specifically mention conservation of heritage properties. The first declaration of a list of heritage buildings in Kolkata by the State Government was published in 1996 (CMDA 1996) and through the *Building Permit Manual* published by the KMC in 1998 (KMC 1998), which included only seventy-two such buildings. This raised immediate criticism from the owners of traditionally acknowledged heritage buildings in the city and the learned people of the society. In 1999, the Kolkata Municipal Corporation prepared a primary list of heritage buildings, formed the Heritage Conservation Committee to make recommendations for the declaration of heritage status for buildings and to monitor conservation actions taken for the heritage buildings of Kolkata, and to initiate the work of surveying and documenting primarily listed buildings for an inventory (Karforma 1999–2007).

The author was hired by the KMC to do this research between 1999 and 2004 and surveyed and documented about seventy of the most important heritage buildings finally making reports that contributed to the preparation of the inventory of cultural properties in the city for the first time. However, in the latter part of 1990s and early 2000s, the KMC introduced the amended Building Rule 425(A-P), which addressed the preservation and conservation of heritage buildings. Later, the KMC defined the grade of heritage buildings, provided a list of such buildings in Kolkata, and through the power of Building Rule 401 prevented the demolition of any declared or listed heritage building in the city through its publication in February 2009 (KMC 2009). The published list of graded historic buildings of Kolkata includes a total of nine hundred and twenty-three buildings (KMC 2009). Many buildings of Chitpur are properly identified as historic buildings. The KMC has published a list of conservation architects who are eligible to deal with the conservation and restoration of listed historic buildings in the city (KMC 2012).

Problems

Many factors contributed to the difficult and inappropriate management of urban development in recent history:

- The great famine of Bengal in 1943
- The strongest freedom movement in Bengal against British during the first half of twentieth century
- The partition of Bengal into two parts (east being Bangladesh, and west being West Bengal) at the time of India's independence in 1947 with great communal rioting and a huge population reflux from Bangladesh and vice-versa
- Urban squalor and decay
- Political turmoil
- The Naxalite (Communist Mao and Lenin-followers) movement
- Social unrest during 1970s
- The political supremacy and administrative power of the Communist Party in state governments from 1977–2011
- The subsequent slower economic recovery
- An outstanding debt of the state government to the central government and other funding agencies amounting to Indian Rupees two-lakh crore (Rs.2,00000,0000000; in India, one lakh means 1,00,000, and one crore means 1,00,00,000), or Euro 29393609829 (about Euro 29393.6 million as on March 30, 2012, conversion rate Euro 1 = Rupees 68.042; Source: http://www.x-rates.com/d/INR/table/html) in 2011 (Roy Chowdhury 2012)

Moorhouse sarcastically wrote, "The contemporary politics of Calcutta and West Bengal can scarcely be held responsible for conditions at the R. G. Kar Hospital, where patients lie on the floor because there are not enough beds, and where a casualty block whose foundation stone was laid in 1963 has still made no further progress towards completion by the end of the decade. They cannot be held responsible for a water supply which by 1965 was supplying no more than 28 filtered gallons per head of population each day, whereas in 1931 it had managed to produce 52.3 gallons for every person in the city" (Moorhouse 1971). KMC claimed in 2005 that its water treatment capacity was 350 million gallons per day (KMC 2005).

However, the Indian economy was opened to the global economy in 1991 by the central government and the effect of globalization by the middle of 1990s was that large investments in real estate development caused a boom in Kolkata. The market force that was gradually gaining momentum was based on the development of high-rise residential buildings, commercial buildings, shopping centers, multiplexes, etc., more than for any consideration of the restoration of cultural properties. Equally, the need for augmentation and development of matching infrastructures became urgently required. The maximum impact of the great upsurge of development since the 1990s in Kolkata has resulted in a categorical demolition and erosion of the historic and old ordinary buildings, settings and open spaces (Fig. 14). From April 2005 to March 2010, five successive financial years, the total number of building proposals sanctioned for construction in the municipal corporation area alone was 17,819 and the total area sanctioned was 9.46 million sq m (Banerjee 2010) (Table 2). Obviously, most new buildings were built by demolishing old low-rise ones.

In contrast, the conservation movement in Kolkata found its practical legal and administrative instrumental base in 1999. The state government restored only a few government-owned buildings, and some owners of private buildings restored their properties with their own funds. Thousands of others are still neglected with varying levels of dilapidated condition (Figs. 15, 16) and non-listed but good old buildings are being demolished. Meanwhile, by the dawn of the twenty-first century, the more pressing problems became those of environmental pollution, energy crisis, global warming and climate change, and the necessity for sustainable development was urgently felt, however, the

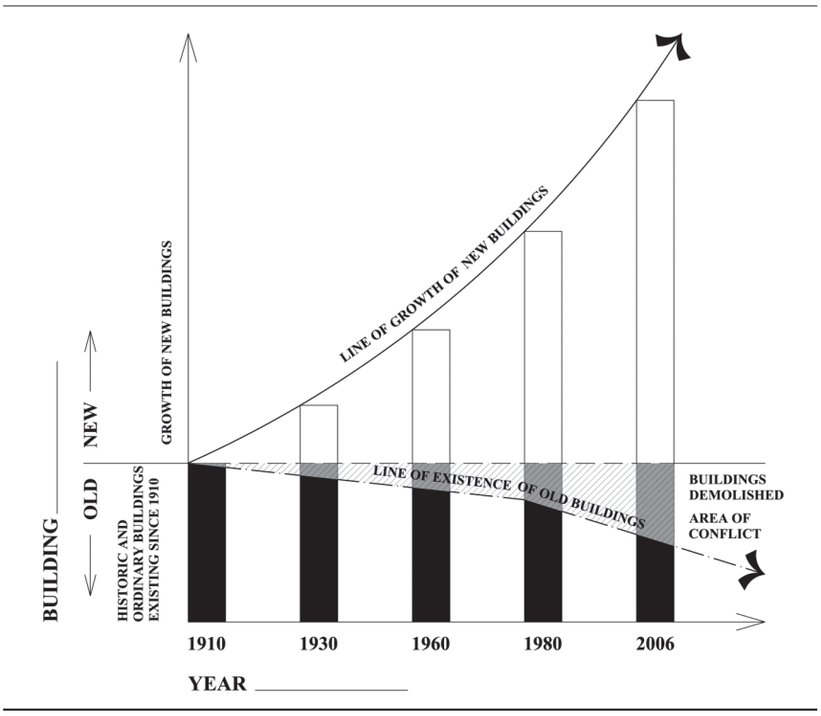

Fig. 14: Schematic graph showing the rate of demolition of old buildings, growth of new buildings and the area of conflict / under threat.
(Source: Bose 2008)

Year (April to March)	Total Floor Area Sanctioned for Construction (in sq m)	Total Number of Buildings Sanctioned	Number of Buildings Sanctioned above 5 floors up to 40 floors	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
Average/Year	1892145.231	3564	71	3514	50

Tab. 2: Rate of Construction of Buildings in Kolkata Municipal Corporation Area. (Source: S. Banerjee, Deputy Manager of Systems, Kolkata Municipal Corporation, 2010)

need for the great upsurge of development in the city could also not be denied. On one hand, the dire necessity for physical and infrastructure development in the city to respond to population increases, a generation of economic development (overdue since Independence) and the opportunity for a better built environment, and on the other, respect for cultural property, sympathetic care and conservation of dilapidated, decaying and utterly neglected heritage buildings, elements and precincts caused a conflict to arise in the city (Bose 2007). Generally, architects want more possibilities for development so that architectural practice flourishes. While market forces cannot be ignored, the question becomes how to promote conservation as part of development and how to find an environment-friendly application for the management of existing building stock.

Because of placement at valuable locations, the historic and old ordinary buildings are highly vulnerable to being replaced by modern buildings for huge economic profit. During the 1999–2004 survey and documentation of listed heritage buildings of Kolkata by the author for the KMC, he observed and recorded that many owners consider their heritage buildings to be liabilities rather than assets for various reasons (Bose 2008). Moreover, uncontrolled and incompatible additions to many historic buildings and their surroundings, as well as gradual development and encroachment of slums and squatter settlements in historic areas are great threats for the sustainability of the historic district and its environment. Added to this is the inadequacy of very old and worn out urban service systems with a definite need for upgrade. Many parts of historic areas have narrow roads and lanes, which are inadequate for modern vehicular traffic movement and service network upgrades. Hence, the modern aspiration of urban living in tune with globalization and the scale of amenity offered by the consumer industries is not fulfilled by living in such historic areas (Bose 2010). Many parts of the old city get water-logged during monsoon season resulting in damage to the old buildings and danger to the health conditions of the inhabitants (Bose 2008).

Large-scale real estate development in and around Kolkata with a huge rise in land prices has induced a tendency in owners of old buildings and land properties to negotiate with real estate developers for new architectural development and their respective economic profit and modern accommodation. Many people of the present generation (fifth to seventh from original owner/s) owning historic properties feel the loss of a sense of belonging to their inheritance just because they are dissatisfied by the absence of modern facilities in their properties. This feeling is aggravated even more because such buildings do not always suit the present nuclear family structure (broken away from the traditional joint-family structure) and the need for privacy by the present generation. In addition, many present owners lack the proper

Fig. 15: Courtyard of a dilapidated building.

Fig. 16: Parapet detail of dilapidated Dolls House.

economic means to restore and modify those properties architecturally to their required suitability. There are also multiple ownerships and tenancy in many old buildings, often with legal disputes amongst the owners and between the owners and the tenants and the litigation can continue over decades without being resolved. While there is a huge rise in municipal taxes presently, many owners receive the lowest rents – set decades ago with no increase in the amount and sometimes painfully through rent control on existing legal litigation with tenants. The state government or municipality does not provide support funds for the conservation and restoration of private heritage properties.

There is a common belief among people that conservation is problematic work and it costs more than modern construction, plus modern buildings provide desirable nuclear family space. Moreover, many of the old materials, techniques and traditionally skilled masons and laborers of old building construction are not available in the present market and society. Unless restored and maintained by the private owner/s, a heritage building does not enjoy municipal tax exemption or a partial waiver. Meanwhile, many buildings can not be restored by their owners, either from a lack of economic affordability, or even if they have their own funds, because of existing legal litigation with tenants or co-owners. During the early 2000s, attempts to generate revenue by the KMC by allowing large modern development at the heritage site, just sparing the historic building itself is only against conservation ethics as far as the authenticity and cultural setting of the site is concerned. There is a lack of motivation by the government and the plural society of Kolkata to include architectural and urban conservation in the management planning policy for development in the city. Political will for conservation is poor and more case-specific and publicity-oriented than holistic and appropriate to the proper need of the city (Bose 2008, 2010). However, the historic part has been losing authenticity of its traditional characteristics and physical setting fast enough. There are three universities and institutes in the state that impart education in architecture, urban design and town and regional planning. But none offers a Master's Degree (2 years) level course in architectural conservation, and the subject is just one elective (optional) course in one semester in the curriculum of Bachelor Degree's (5 years duration) (Websites of Jadavpur University, Bengal Engineering and Science University, and the Indian Institute of Technology – Kharagpur).

Environmental problems, energy crisis and old buildings

Meanwhile, for some time now air pollution levels have become quite alarming in many parts of the city. The Pollution Control Board of the Government of West Bengal observed in 2005 that 30% of the air pollution occurs from the construction of buildings and infrastructure in Kolkata, while 55% occurs from vehicles (WBPCB 2005–2008). The groundwater level in the city is receding alarmingly. In a report submitted to the Calcutta High Court by Scientists of the Central Groundwater Board recently, it was stated that groundwater (aquifer) levels in the city has been depleted by 7 m to 11 m (Reporter 2007). The quantity of extraction of groundwater everyday in Kolkata municipal area has been estimated to be around 868.9 million liters. The Government has not been able to increase the supply of filtered water from the river to meet the huge and ever-increasing demand for water from the excessive population and housing development in the city. There is also the frequent phenomenon of power failures in the city, mostly in summer, but also in other seasons, disrupting normal life and work. The Calcutta Electric Supply Corporation (CESC), which has provided electricity to Kolkata since the nineteenth century, confirms that the maximum demand (in megawatts) has risen from 774 MW in 1990–1991 to 1238 MW in 2000–2001 and 1359 MW in 2006–2007 (Samajpati 2007). Parks and open spaces are very inadequate for this size city. With respect to the global scenario, the concern for excessive exploitation of non-renewable energy, global warming, climatic change and environmental pollution has created new thinking about sustainability (WCED 1987; IPCC 2007). The common objectives to be attained in any development/construction work for sustainability are: resource efficiency, energy efficiency, optimum water consumption, waste prevention, pollution prevention, harmonization with the environment, recycling of materials and architectural reuse (Websites 2004–2007).

From the perspective of environmental sustainability and energy conservation, the historic and old buildings are to be seen from a new perspective of achieving sustainability through their management and not demolition. The great challenge in management of existing building stock is to project and define how old buildings can be conserved and intervened to prepare them as compatible urban structures to live and work in the present day's requirements, thus ensuring the continued presence and uti-

lization of existing urban mass towards sustainability (Bose 2008).

Architectural and urban conservation as the prospect

The historic built environment is the multiple layers of the chronological, multidisciplinary development of a community in a series of timeframes and is a large part of any city's capital resource. Apart from their socio-cultural and urban design values, historic buildings represent a lot of materials, engineering and artistic craftsmanship, as well as the investment of energy and finance. They generate works for the maintenance and utilization of the buildings themselves and enhance economic growth through usage and cultural tourism. Old ordinary buildings are also to be valued as useful existing mass, material and energy resources. Conservation, which continues the useful life of an existing building or fabric and adapts existing structures to new requirements as an alternative to demolition, is a sustainable development approach.

Technological advancements have created enormous possibilities to preserve, conserve, restore and convert old buildings with mitigation for problems of rising dampness, rainwater penetration, poor air ventilation, structural decay and inadequacy, service systems degradation and other physical factors (Bose 2008). Modern facilities can be skillfully inserted into existing buildings and fabric to give them adaptability (Schittich 2003), and yet in Kolkata such examples are seldom found. In 2008 and 2010, the author upgraded all service systems, along with structural restoration and strengthening, and the necessary modifications for bring spatial suitability to modern requirements for his 40-year-old ancestral home. The cost of restoration and modernization of the old fabric was much less than it would have been to build a new house of the same standard and facilities. It confirmed what Prof. Sir Bernard Feilden said in 1994 during his teaching at ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property in Rome, Italy) in the Architectural Conservation Course where the author was a participant, "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" (Feilden 1994).

Another extensive study reveals that for quality improvement for an old, existing building with a projected useful life of 40 years would cost about 48% of the cost of a new building of the same space area and volume (Lichfield 2009). The author advocates that for continuity of use of old buildings, physical interventions may partially disregard the code of conservation ethics, except for extremely important historical buildings, for achieving the desired result of physical strengthening and adaptability for modern use (Bose 2008).

Minimizing non-renewable resource consumption is a primary objective in sustainable design and construction. Conservation and conversion for adaptive reuse and integration into a new development or the new seamlessly into the old, have this basic objective to reduce resource demand while offering achievement of the goal in terms of the regeneration of usable space and environmental quality improvement, while retaining the patina of cultural development of a community with all its values. Hence, conservation and conversion of old buildings is to be understood as a tool of sustainable development (Bose 2005–2010).

Recommendations

The historic core of Rome is a declared World Heritage City. Rome remains Eternal Rome because of the principles of urban conservation controlled through the master plan. Bringing the conservation of the historic center of Rome into an urban conservation purview was started in 1883 and was implemented through various master plans since then through to the Master Plan of 2000. Presently the Municipality of Rome (Commune di Roma) is entrusted with the responsibility of conservation and preservation of the heritage as well as cultural landscape in and around Rome. The Master Plan (Piano Regolatore) of Rome regulates controls and guides urban and architectural 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 center has been prescribed and should be strictly followed. Using this rule, the old and existing urban mass in the already beautifully composed spatial settings is maintained and restored. Internal conversion of some buildings is allowed only after critical scrutiny by the competent administrative authority.

To cope with the pressure from modern requirements, new planning ideas are being implemented in the surrounding region through

augmentation of the traffic routes and development of housing and other necessary functional entities (Jokilehto 2009; Porzio, Degni 2009). Prof. B. M. Feilden and Prof. J. Jokilehto suggested that management of historic urban areas should involve an analysis of urban morphology, property management with regular inspections and a maintenance strategy, modest rehabilitation schemes, and social input and consultation with occupants (Feilden, Jokilehto 1993). They also suggested that a conservation plan should define the proposed conservation policy and degree of treatment, and the norms and regulations for implementation (Feilden, Jokilehto 1993). However, the case of Chitpur in Kolkata is not the same as Rome or the historic sites of developed countries, especially in Europe. Here in Chitpur, one can see existence of two beautiful old buildings beside two very ugly buildings with poor structural conditions and with tin or tiled roofs perhaps, or besides two new buildings with bland architectural character not matching with the old in mass, form, height and ornamentation. There are assets as well as discordant elements (liabilities) existing simultaneously within a polluted built environment. Furthermore, there is every possibility that the historic building itself is in a decayed and neglected condition. However, functionally, the area is thriving, though too congested and chaotic. That also reflects the extreme survival capacity of human beings of various socio-economic conditions in a plural society in such a city. Thus, case-specific prescription is required for the Chitpur area emphasizing urban conservation within an overall framework of urban planning and regulations. For example, tourism that highlights a form of heritage walk and a visit to Kumartuli and riverfronts is to be planned, managed and promoted along with providing minimum basic facilities to tourists.

This planning approach should also be the same for historic parts of many other cities in India as per the author's opinion based on his education, professional and life experiences. However, the Central Public Works Department (CPWD) of the Government of India is meanwhile planning to demolish the original structure of the bungalows designed by Edwin Landseer Lutyens who planned New Delhi (capital city of India) in the Lutyens' Bungalow Zone (LBZ, a heritage zone) and construct at least four bungalows in the space of one "to use the floor area ratio more judiciously" (as per Urban Development Secretary Mr. Sudhir Krishna) (Sobhanak 2011). Meanwhile, after thirty-five years of being in administrative power and ruling the State, the Communist Party was ousted through democratic process by the opposition party in May 2011, headed by Ms. Mamata Banerjee who is now the Chief Minister of the new State Government. The Finance Minister Mr. Amit Mitra has asked for a grant from the Center to cover the interest and repayment obligations of the State for a period of three years (Roy Chowdhury 2012) as economic relief.

Under the broader conservation plan, the buildings and historic elements of Chitpur area are primarily, to be identified, preserved and restored, misappropriations corrected and discordant elements removed, and control over new development in this area is to be introduced to retain and enhance the traditional character of the "Place". Augmentation of infrastructure, such as a drainage system, water supply, traffic and transportation routes and systems, etc., is also to be done. Recommendations for urban conservation and planning for this area should include:

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/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
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

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: Appropriation of development

There is an urgent need for a sustainable development approach for Kolkata city that will encompass architectural and urban conservation, tuned with proper urban design and development within a holistic environmental planning. However, as the historic Chitpur area also contains many buildings built during the last century, it is not possible as well as desirable to preserve and present the place as a grand urban museum. In this case, "appropriate development" guided by the principles of "sustainable development" with urban design interventions as a solution to the specific problems of the historic district should be exercised. The management planning strategy should include volume conservation in the old historic area, removal of the discordant elements, restriction on height and character of new buildings proposed, zonal restriction on modern development with clear demarcation of core-buffer-transit areas for urban conservation and development, introduction of building bylaws suitable to the historic district, repair of roads in a new way without raising the road level, creation of pedestrian circulation routes, augmentation of drainage at the historic district to stop inundation during monsoon, etc.

Urban development should include urban expansion, infrastructure interventions, new tall buildings and mega-structures, as well as conservation and maintenance of historic buildings and precincts, intelligent management of existing building stock, conservation and upgrade of ecology and environment under appropriate urban planning and design within a broader framework of environmental planning and management towards sustainability. Urban development is to be sensitized to its capacity to cope with the environmental tolerance of the city. "Appropriate Development" should be the goal of any society and the answer to the question "what is appropriate" for any society has to be found out and formulated by the society itself (Bose 2008). A good coordination amongst various departments of the state government and the municipal authority, along with people's participation is very much required for the fulfillment of the common goals of the community in Kolkata.

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