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First Master Plan for Dhaka City: An Environmental Exploration

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Dhaka is one of the fastest growing megacities in the world. By 2025 the city, with about 20 million people, is predicted to be demographically larger than Beijing, Mexico City or Shanghai. Such remarkable urban dynamics have informed contemporary and future concerns in the current literature. However, in this literature there is a lack of historical understanding of Dhaka's urban experiences. The disconnect between Dhaka's past, present and future urban issues is even more remarkable in terms of the lack of engagement with its environmental past. This article is an attempt to examine the nature of environmental considerations in the evolving urban planning.

For such an exercise, the first master plan of 1960 is crucial for a number of reasons. Although Dhaka existed on different sites and in varying shapes since the ancient period, the first clear and large scale planning for the city emerges in the form of this master plan. The plan was mooted at the juncture of colonial and postcolonial influences but became the foundation of many future plans and aspirations for the city landscape. The plan also raised the question of how environment was placed in the context of space-making in modern times. The paper aims to explore this master plan as a yardstick to understand Dhaka's evolving planning regimes and its environmental implications.

1. Dhaka before the First Master Plan

The Dhaka city has flourished, declined and re-surfaced at least four times in the past 2,500 years, namely at the sites of Wari-Bateshwar, Vikrampur, Sonargaon and the present location where it emerged in the early 17th century. The perpetuity of Dhaka as an urban centre, albeit under different names and at adjacent locations, was informed

by its proximity to inland rivers and the Bay of Bengal. Therefore, each of the specific locations of Dhaka has been within about 50 miles radius. The debates around Dhaka's antiquity miss the broader ecological significance of the heart of the Delta in which various phases of Dhaka appeared.

Within this geographically informed range of locations, Wari-Bateshwar, just 45 miles off present day Dhaka, was perhaps the earliest. The urban site catered to trade of the Indian Ocean, the money-based economy of which is evidenced by the 300 BCE and older silver punched coins with Buddhist imprints (Hoque 2006). Although Ptolemy's knowledge about this region has recently been doubted, there are reasons to believe that without being a thriving trading region, coastal Bengal would not have drawn so much attention during Alexander's time.

Dhaka's second phase was located in Vikrampur. The origin of the term Vikram is traced back to Raja Vikramaditya, who was presumably alive in the first century BCE. The story goes that Vikramaditya visited different parts of India and finally selected for royal destination an island at the confluence of the Ganga and Brahmaputra (Taylor 1840: 63). James Taylor, a colonial civil servant posted in Dhaka, in his account *A Sketch of the Topography and Statistics of Dacca* notes that three of the ancestors of the Pala dynasty settled in different locations of the Dhaka district, namely, Savar, Kapasia in Bhawal, and Tullipabad (ibid.: 66). All these settlements were close to some water bodies or rivers. By the beginning of the 10th century, Vikrampur seems to have become the most important city in the Bengal Delta. The forests and the river system in the region made the city tuned to international trade as well as site for strategic retreat from northern invasions.

The story of the third phase of Dhaka, Sonargaon, as a capital in the pre-Mughal Muslim Sultanate period is better known and testified to by many physical structures. Without going further into the history of Sonargaon as a metropolis, it can be suggested that all three regions, Wari-Bateswar, Vikrampur and Sonargaon, were incarnations of one metropolis, shaped by the same ecological features and geo-strategic locations of the Bengal Delta. In fact there is proposition that Wari-Bateshwar may be the 'Souanagoura' of Ptolemy (Chakrabarty 2006: 8). And there is reasons to believe that later day Sonargaon might well resonate this name as an urban centre in this region.

We do not have a clear picture of the environmental circumstances that led to the decline and shifting of different locations of Dhaka. But one plausible reason is the vagaries of the river courses, which must be true at least for Wari-Bateshwar, Vikrampur or Sonargaon. By the time Mughal Dhaka was established, erosion related environmental problem ceased to a great extent, meaning that Dhaka was finally set on a secure physical base. The site for the city, although on the bank of a river, was slightly elevated above the plane (Nilsson 1973: 185). James Rennell (1781: 106), the first surveyor general of India, suggested that the fluvial ferocity of Dhaka's rivers was less than in places further north in the Delta. Therefore, dynamics of the fourth and the last phase of the history of Dhaka can be better appreciated if we take an ecological perspective. The new Mughal capital was neither precariously close to the mighty river Ganges, nor too far from the maritime routes. So far scholarly attention has been directed at the way Dhaka evolved from a military outpost of the invading Mughals. Nationalist historians have focused on the military aspects in order to highlight the regional resistance to the Mughals in the wake of the decline of the independent sultanate. It seems that in the re-establishment of Dhaka in the early 17th century, the Mughal imperial polity was informed more by the lure and prospect of using the city as an emporium for the Indian Ocean than by just expansionist military ambition of the empire. In that quest, the Mughals followed the policy of their predecessors in Wari-Bateshwar, Vikrampur or Sonargaon.

In the late 17th century Thomas Bowrey (1905: 143) refers to Dhaka as a "large spacious" metropolis, situated amidst low swampy ground with brakish water and the city stood beside a "fine large river" navigable for ships of 500 to 600 tons. Borey quotes Thevenot, who considered Dhaka as follows:

> [...] properly the capital City of Bengala, stretches upon near a League and a half in length along the river. The tide comes up as far as Dacca, so that the Galleys which are built there may easily Trade in Gulf of Bengala, the Dutch makes most use of it for their commerce [...]. (cit. in Bowrey 1905: 143)

The notes on 'very brackish' water and the arrival of tide as far as the city wall denotes that the Bay of Bengal was not very far from

the Mughal emporium of Dhaka. The decision to shift the capital from Dhaka to Murshidabad in 1716 by the Mughals did not affect Dhaka's commercial vibrancy until at least the late 18th century when Kolkata began to take the centre stage.

It was reported in a London-based magazine in March 1756 that Dhaka was a city on an island in the "[...] broadest and most eastern branch of the Ganges" and was described as follows:

> [It is the] largest city in Bengal, and manufactures the best and cheapest cotton and silk. The cheapness of provisions here is also incredible. In short, it is a populous and wealthy town, and resorted to by merchants from China, and diverse parts of India. (N.n. 1756: 123)

A conservative estimate suggests that the city's revenue in 1765, a few years after the British took over, was generated at 20 million Taka annually, just from the custom duties levied on the items exported through Dhaka. This earning was more than one-sixth of the total revenue earnings of Bengal and Bihar (N.n. 1765: 413).

After a spell of decline, which became quite evident by 1830, Dhaka showed signs of recovery by the 1870s and by the turn of the century became undisputedly second only to Kolkata in Bengal, although lagging behind the latter in many respects. Despite the fact that Dhaka lost its status as capital in the late Mughal period and that it was affected by famine and flood in the late 18th century, the British seemed to have appreciated the importance of the river Buriganga for a considerable part of their rule.[1] The East India officials moved into the Lalbagh Fort and built a residence nearby. An overall appreciation of the commercial need of the river contributed to the proper upkeep of the same. This also added aesthetic value to the city itself. Taylor describes it in the following words:

> The city stands upon the northern bank of the Boorigonga [Buriganga], about eight miles above its confluence with the Dullaserry [Dhaleswari]. The river, which is here deep and navigable, by large boats, expands in the season of inundation to a considerable breadth, and gives to Dacca with its minarates and spacious buildings, the appearance, like that of Venice in the west, of a city rising from the surface of the water. (Taylor 1840: 86)

The British administration's decision to make Dhaka the capital of the new province of Eastern Bengal and Assam in 1905 was a reflection of the city's continued geo-commercial significance.

Broadly speaking, during the pre-plan phases, Dhaka's environmental dynamics were dominated by two issues: first to save the city or relocate its premises in the context of river bank erosion; second, whatever dislocations were driven by the river bank erosion, there was an invariable urge to retain the city's existence as an emporium connected to the Bay of Bengal. The Mughals found a solution of saving the city from river bank erosion, and with the consolidation of British power, the ecological advantage of the site of Mughal Dhaka continued to be appreciated. But as Dhaka revived as a populous city in the late 19th century, the British felt the need to introduce some sort of planning.

Such a plan came in the 1910s with Sir Patrick Geddes. The plan was necessitated by the reality beyond the questions of river bank erosion and it being a site for an emporium. As mentioned earlier, in 1905 Dhaka had become the capital of a new province of Eastern Bengal and Assam and was destined to compete with Kolkata as a provincial capital. Although, with the dissolution of the province in 1912, Dhaka lost the opportunity of becoming a major capital city of India, the already initiated development activities led to the need for a detailed plan for the city. Part of the space making and greening process was done, especially in the spacious Ramna Park, by experts from the Kew Gardens (Chowdhury 2006). Another dynamics for planning was connected to the general decline of water bodies in what is today's Bangladesh (Iqbal 2010). Besides, as the railway began to expand, the water system fast declined as a commercial nerve line. With the focus away from Buriganga, the internal smaller streams and canals that worked as tributaries of the Buriganga and other surrounding rivers also declined. Nilsson notes:

> The great change came in the 1880s with the railway which was drawn along what at that time were the outskirts of the city. In this way the city turned its face towards land, and the river and canals began to lose their economic importance and social status. (Nilsson 1973: 191)

It is in this overall built-environmental and ecological context that

Geddes' plan could be evaluated. Geddes was particularly keen on preserving Dhaka's natural canal network, which he estimated to be about 25 miles in length. He argued that Dhaka's commercial and industrial decline was linked to the decline of its internal water bodies. He also suggested that the canals could be a site for horticultural development, water parks and public amenities. In terms of the river Buriganga he felt that the very heart of all open spaces of Dhaka was its river fronts. Geddes hoped that the "veritable labyrinth of wood and water" would make the old Dhaka not only the city's breathing space but one of the most interesting and picturesque of those water and tank-parks which are the glory of India. To him it was not a question of great expenses, but "[…] merely of that appreciative and constructive collaboration in which the painter's eye goes with the planter's hand" (Geddes 1917: 20, 25).

The planned development of Dhaka in the wake of Geddes' report was remarkable. The first houses in Ramna were set in 'real wilderness'. The Race Course – now Suhrawardy Park, the most visible green belt in the city – was built. The government buildings were constructed south of it and a spacious garden suburb with white bungalows for civil servants was laid out north of it. In fact, the planning of Dhaka in the early 20th century preceded that of Delhi. As Nilsson puts it: "The new Dacca was a general rehearsal for the expansion of Delhi that was undertaken a few years later" (Nilsson 1973: 191). Yet it might well be assumed that much of the wetlands disappeared during the construction of the late British Dhaka. The expansion of Dhaka away from the river Buriganga in the early 20th century began the first environmentally insensitive developments of the city. Patrick Geddes' emphasis on the smaller water-spaces such as canals were left unheeded. With this the opportunity was missed to integrate the built-environment of modern Dhaka with small water-spaces, which would be preserved and used, and would work as integral part of the drainage and of urban life. Nevertheless the development of spaces that followed the report of Geddes still remains the most picturesque part of the city.

2. The First Master Plan for Dhaka

The state-building process in postcolonial South Asia came with various thoughts on city planning. Within five years of the establishment of Pakistan, the Town Improvement Act 1953 was passed. Under this Act the Dacca Improvement Trust (DIT) was formed in 1956 with the objective of improving urban conditions of Dhaka city. Within these institutional developments in East Pakistan, the British Secretary of State for Commonwealth Relations instructed the London-based architects and town-planning consultants, Minoprio and Spencely and P.W. Macfarlane, to prepare the first Master Plan (FMP) – under the Technical Cooperation Scheme of the Colombo Plan – for the area covered by the DIT. The FMP was however described by the report as a planning principle rather than a detailed and inflexible scheme.

The DIT was projected to be 290 square miles in extent. At the time of planning the city population was about one million, including those in the suburb of Narayanganj and surrounding areas. The consultants were aware of the tendencies in the postcolonial countries of overcrowding and experiencing unplanned growth of capital cities. The FMP report warned about the trend of concentration of national administration, industry and population in the capital city and mentioned the British practice of urban development beyond London. It recommended that both the Central and East Pakistan Provincial government should adopt "[…] a policy of steering industrial enterprises and government institutions to other towns in East Pakistan rather than to Dacca, except for those whose presence in Dacca is essential on administrative or economic grounds" (Dacca Improvement Trust 1960).

A second issue involved the question of water-spaces. The city was surrounded by a number of rivers and waterways including Buriganga, Dhaleswari, Turag, Balu and Shitalakhya rivers and Tungi Khal (canal). The city itself was crisscrossed by numerous natural canals. The FMP envisioned much wider appreciation of wetlands or flood plains in the development of housing estates within the DIT areas. It suggested a comprehensive plan in which "[…] continuous channels should be excavated along the natural lines of drainage and linked up, wherever possible, with existing khals" (ibid.).

Another environmentally relevant issue discussed in the FMP related to open spaces. The plan identified severe scarcity of open

space within the planning area. In the old settings of the city adjacent the Buriganga river, there were only 0.06 acre of open space per 1,000 people. In the newer areas, slightly north of the city, things were better around the Dhaka University campus, including playing fields, a golf course and so on. But on the average for both the old and new town, there were only half an acre per 1,000 people. This compared oddly with other planned cities. For example, although London could not not achieve it, most towns in England were able to achieve a ratio of ten acres per 1,000 people, whereas Karachi and Singapore aimed at four and two and a half acres per 1,000 people respectively. Without being overly ambitious like in the UK, the FMP recommended three to four acres per 1,000 people in Dhaka, including two acres for public parks and two acres for common neighbourhood areas, especially for playing grounds. But for the newly acquired areas of Mirpur, Fayedabad (currently known as Uttara) and Tongi, the proposal was a full four acres per 1,000 people. The total open space recommended under the FMP was 1,338 acres.

To secure open spaces there were a number of recommendations and assumptions, including the removal of the Central Jail (83 acres) to the northern periphery of the city in Tongi and the removal of the airport in Tejgaon (500 acres) to the north of the cantonment areas near Uttara. Some open spaces included the coexistence of waterways. For example, there were suggestions for a continuous waterway and walk from Ramna Green to southwest in Motijheel. The Buckland Bund was expected to be 23-acre continuous 1-mile amenities park along the waterfront of the Buriganga. The projected allocation of open space in the FMP is shown in the map (Fig. 1) and following tables.[2]

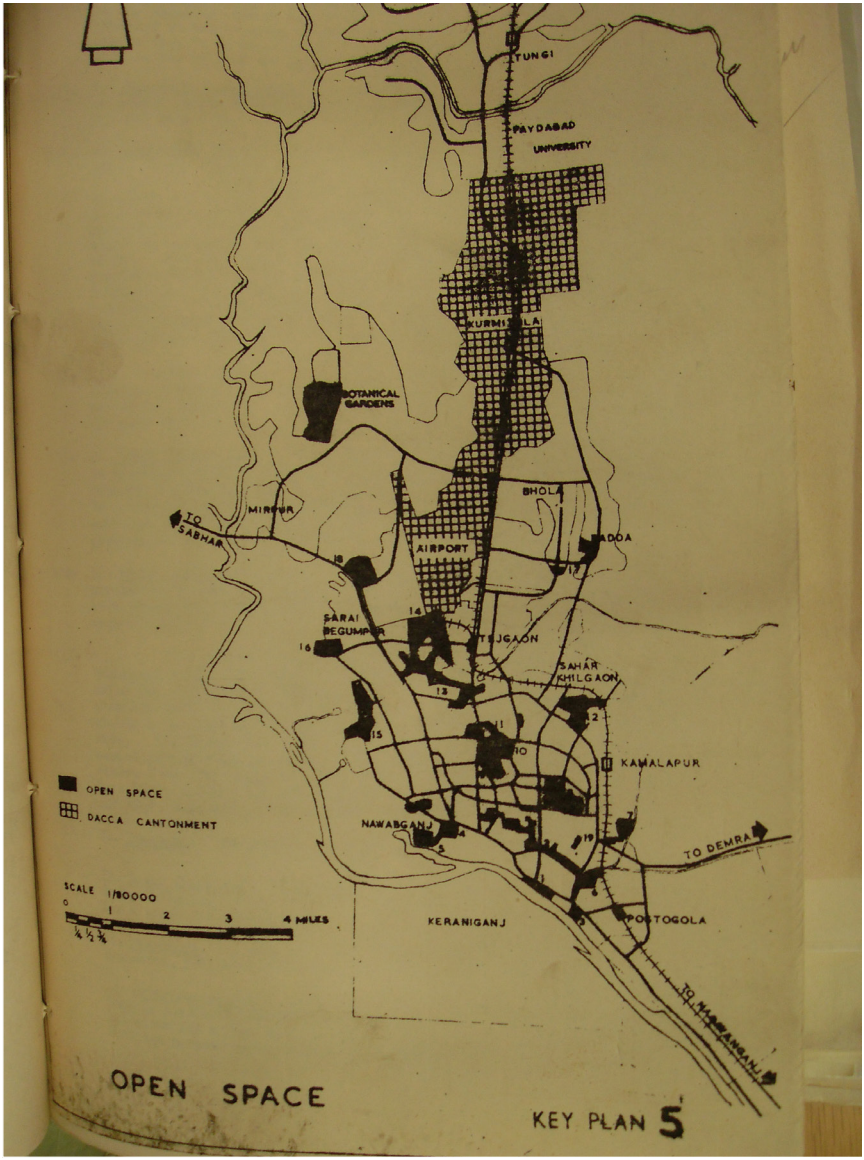

Fig. 1: Open space in the Dhaka Master Plan 1960.
Source: Dacca Improvement Trust 1960

	Name of Areas	**Area in Acres**
1	Dhanmondi	172
2	Government House and Palton Maidan (stadium)	123
3	Experimental Farm	121
4	Ramna Racecourse	102
5	Tannery area (Hazaribagh)	91
6	Dholai Khal	83
7	Ramna Green	72
8	Sahar Khilgaon	72
9	Nawabganj (reclamation)	68
10	Sewage Disposal Works (Kazirbag)	60
11	Bhola and Badda	56
12	Zoo	50
13	Satgambuj	40
14	Gandaria	39
15	Buckland Bund	23
16	Lalbagh Fort	23
17	Shahbagh	22
18	Mill Barracks	16
19	Botanical gardens (Balda)	3
	Total	1,238

Table 1: Open spaces.
Source: Dacca Improvement Trust 1960: Appendix I

Areas not shown in Fig. 1	
Armenitola	3
Bara Katra and Choa Katra	3
French Road	1
Azimpur (Ladies Park)	5
Victoria Park (Bahadur Shah p)	3
Nawabganj	27
Miscellaneous small areas	58
Total	100

Table 2: Open spaces (Areas not shown in Table 1)
Source: Dacca Improvement Trust 1960: Appendix I

Land Use	**Percentage of Total Area**	**Acreage**
Housing & ancillary	20.1	5,848
Industry	3.4	906
Central business	0.9	246
Commerce	1.3	330
Warehouse and storage	1.5	388

Provincial govt. centre	0.4	100
Government areas	1.7	456
Educational & health institutions (incl. hospitals)	3.6	942
Main roads	3.1	790
Railways & railway land	1.6	439
Steamer station & bus Stations	0.1	26
Open space	5.1	1,338
Cemeteries	0.4	113
Cantonments (in part only)	3.7	971
Major reclamation (in part only)	14.4	3,766
Water areas (rivers & Lands liable for floods)	38.7	9,389
Total	100	26,058

Table 3: Areas of land use shown on 1:3964 Dacca city plan
Source: Dacca Improvement Trust 1960: Appendix II

The tables show that a third of the total area under the FMP was made up of water- and open spaces, of which 1,338 acres were open space and 9,389 acres were water-space. In other words, of the total land for the DIT plan zone, 38.7 percent was allocated to river and flood plains, while 5.1 percent was allocated to open space. The FMP team had to work on the assumptions that the river Buriganga retained its importance as a transport artery for the economic life of the city. This clearly reflected the reality of a city landscape in the heart of a deltaic plainland. This in a way also shared commitment to Patrick Geddes' emphasis on water bodies as seen in the late colonial planning for Dhaka.

Yet there are aspects of spatial politics with regard to the FMP that need critical appreciation. The cantonment, situated on higher ground, about six miles from the then city centre, was retained and even expected to expand. The headquarters of the paramilitary force of East Pakistan Rifles (now Bangladesh Border Guards) was also set to remain in its existing location around the city. The retention of this security apparatus blocked spatially comprehensive master plans for the city. Such a privileging of military and security requirements at the expense of civilian needs and aspirations clearly reflected the British colonial formulations of the city-space in which security establishment was central.

Another issue with far-reaching environmental implications was reflected in the fact that the main rivers of the city were left peripheral, forming the city's borders, meaning the rivers of Dhaka did not form its fluvial part. Without the river being placed within the everyday life of the city, these water-spaces lost the popular attachment and government maintenance. The exclusion of the river from the city space in effect pushed the smaller water-space inside the city into further negligence. The attitude towards city canals was informed by industrial and transport needs, not environmental considerations, bringing with it implications for free-flowing water-space. The two canals, Grand Khal and Behanali Khal connected Dhaka with the Balu river, which in turn was connected to the Lakya river, while the latter canal also connected the industrial estate of Tejgaon. The Demra Khal was supposed to be the most useful waterway, connecting Dhaka to Lakhya river, cutting out the 26 miles detour via Narayanganj. But when it came to the 'ancient' Dholai Khal that encircled the old part of Dhaka before joining the Buriganga river, the FMP envisioned three options: full upkeep and maintenance through dredging; partial upkeep; and complete

reclamation. The recommendation was for maintaining only the eastern part of the canals, filling up the rest, which would form partly an inner ring road and partly an open space for amenities. Such policy not only encouraged the illegal encroachment of already shrunken canal sites, but it also understated the ecological importance of connected and flowing water bodies. Urban water transport was seen as a cause of extra expenditure of connected and flowing water bodies whereas road and expansion of railways were seen as much modern options. They considered that the Dholai Khal had 'outlived its usefulness'. In the urban conception of vehicular modernity, water-space was pushed as far as possible from the city life. Water was nothing more than a trade route and since road and railway were expanding, water routes became dispensable. Such ideas had serious implications for the future urban planning of Dhaka, as we shall see.

The FMP did not take into consideration the low-land areas and focused on the relatively high land for housing in the following twenty years. For the wetland areas, the suggestion was for bonding the areas against flooding and pumping out surface water rather than following on the Dutch practices of flood control. As Dhaka saw the growth of industrial suburbs, especially at Tejgaon, the city core by the river was "allowed to fall into a state of decay" (Nilsson 1973: 189).

The significance of the First Master Plan of 1959 cannot be overstated. Despite its limitations and reflection on the colonial practices of giving preference to security as opposed to civil needs, the plan attached critical importance to retaining water bodies, albeit inadequately conceptualised. Thus, the hope of a greater ecological engagement and improvement existed. In the next section we will look into the aftermath of this master plan. An exploration into these issues has clear implications for current environmental conditions and city management.

A proposal for the review of the master plan came from the original consultants in 1965, much earlier than its anticipated terminal year of 1979. It was understood that in Dhaka a number of development projects took place which were not envisioned in the original master plan. This included the decision by the Pakistani government to build a second capital in Dhaka, after Islamabad. In addition, a decision was taken to build a residential university near Joydebpur and a larger airport. These developments needed to be reflected in the new review. Another reason for the revision stipulated by the Pakistani authorities was that some provisions of the original plan were too expensive to

carry out. The revision period accompanied the loss of the interest in the matter by the British government within the framework of the Colombo Plan on the account of the "high cost of the scheme and its dubious benefit to our interest" (Sloane 1967). The British officials also felt that the British consultants should better engage in the planning of some municipal areas outside Dhaka, which had come to be monopolised by the American firms. It was in this context that the British officials suggested that Dhaka's physical planning should form an essential and integral factor in the National Development Programme (Munro 1968). This was an important proposition, but it was raised more from a conflict of transnational capitalist interests than from a nationally felt necessity.

Within these changing policy shifts emerged the project of the second capital as dubbed by the then Pakistani government, Ayub Nagar – later renamed as Sher-e-Bangla Nagar, which now forms an administrative area of the city – that included the construction of Louis Kahn's famous parliament building. Kahn had the particular aim of reflecting democratic aspirations in his architectural designs of the Parliament Building and its environs (Ksiazek 1993: 416-435). But in the body politic of Pakistan neither democracy nor ecology were fully put into practice. If the British recreated some forest landscapes, in the Pakistan period, some water-spaces were created around Sher-e-Bangla Nagar. These represented Eastern Bengal's picturesque forested and watery landscape, but were examples of modernist built-environmental representation of nature rather than of integration with it.

3. Dhaka after the FMP

When East Pakistan transformed itself into independent Bangladesh through a bloody war in 1971, there were high hopes about 'development' and human well-being. The war and independence of Bangladesh came about five years after the first review of the FMP, which meant that the limitations of the FMP were already known to the city planners. But it was not possible to address any of the recommendations made in the FMP and its review, because the next master plan for Dhaka was drawn up as late as about three and a half decades later. Why it took so long to come up with a master plan for the capital city of a new nation is a subject of considerable debate into which we will not enter here. What can be ascertained here, however, is that the absence of a new master

plan for more than three decades led to Dhaka developing into a chaotic city. The lack of adherence to any plans during this time meant that even after the next master plan of 1995, many problems accumulated over the years that could not be solved.

The nature of the chaos during this period can be discerned from the problems of institutional planning and developments of the FMP discussed above. In his diary, A.M. Munro, a Physical Planning Advisor to the Ministry of Overseas Development, writes that in his meeting with DIT officials in early 1968 he sensed the difficulty faced by the town planners and engineers in producing satisfactory schemes while working within an unsympathetic administrative structure. He gathered that the development policy of the DIT was based on the force of expediency and political factors, with planning considerations being largely ignored. In his meeting with the Chairman of the DIT and others, Munro gained the impression that there was dissension among the planners themselves and to gain his own ends the Chairman was "ever ready to take advantage of this" (Munro 1968: 5). Personal and vested interest within the DIT created a fertile ground for corruption at the expense of Dhaka's urban planning regime, with grave implications for the post-war phases. For example, I. C. Sloane, an official of the British High Commission in Rawalpindi, who was coordinating with a consulting firm, was told by the DIT Chairman, who was also the Secretary for Works, Power and Irrigation and Director of the Urban Development Directorate, that the main revision of the FMP should entail "cutting out a great deal of the area originally designated as green belt and making development recommendations instead" (Sloane 1967).

The capitalist interventions by the garments industrialists since the 1980s made the urban built-environmental chaos worse. DIT, which became RAJUK (Capital Development Authority) shifted from the term 'improvement' to 'development'. This perhaps signified a subtle shift from an idea of progressive improvement to a more quantifiable and manageable agenda of development. But without a comprehensive plan in place, the development of the city was associated with mostly haphazard housing projects and industrial units, which still occupy Dhaka's vital landscape, increasing the demand on water, energy and transport of the city.

One of the issues that continue to plague the city is the lack of open space, in terms of both water and land. Despite falling short of the high hopes for water spaces expressed in the report of Geddes, the FMP still

offered more in terms of the options for open and water spaces than the Dhaka Metropolitan Development Plan of 1995-2015. Currently there are only 0.082 acres of open spaces for every 1,000 Dhaka inhabitants. If the slum people and temporary day-to-day residents, who are not included in the statistics, are considered, then the ratio would be even more appalling (Bhuiyan 2009).

Some other flaws of the FMP – for example, its provision for 'ancillary' development in the housing zones, which led to violations of the residential character of the city – were never practically rectified. Both Geddes and the FMP envisioned that the central jail of Dhaka would be removed and be open for public use and recreations. But during the review of the FMP it was actually thought that the old Dhaka Central Jail areas could in fact be replaced by housing at Hong Kong density. In any case, the Central Jail remains in place to date.

In general, the decline and negligence of the city's water bodies have not only led to a shrinking of open and recreational spaces along with the loss of transport routes, but have also undermined the critical ecological balance needed for the basic well-being of the city's inhabitants. We can trace some data with which we can compare the changes that took place subsequently. For instance, according to Taylor's account, Dhaka's underground water level varied from 18-22 feet in the 1830s, "[...] according to the depth of the super-stratum of alluvial soil and to the height of the rivers" (Taylor 1840: 8). In the year 1836, noon time temperature in Dhaka was on average 78.6 °F (25.75 °C) (ibid.: 16). As Taylor observed, the abundant wind with moisture, sweeping over the surface of the large rivers and the swamps, mitigates the heat, "rendering the climate cool and pleasant during April to July" (ibid.: 14).

A further change is evident in the fact that as late as the mid-19th century the Dholai Khal connected the river Baloo with the river Buriganga, rendering a huge drainage capacity for the city (Lewis 1868) that was lost later. Compared to the present time, there are clear indications that the water level have gone down while the mean temperature has risen significantly. At present the water level is as low as 140-160 feet, while the current mean temperature appears to be at 89 °F (31.7 °C). It is no wonder that there exists a strong relationship between the decline or loss of rivers and wetlands in and around Dhaka and the city's rising temperature and decreasing level of its water table.

Conclusion

The First Master Plan of 1959 is an important episode in the modern history of Dhaka city. It reflects a transition between pre-colonial and colonial environmental issues and postcolonial comprehensive urban planning. As seen in this article, the FMP accommodated some of the environmental concerns, particularly relating to water-spaces, yet it fell short of putting them at the heart of built-environmental practices. Water-space as an ecological and aesthetic feature, beyond commerce and transport, was generally overlooked. Later phases of urban planning for Dhaka allowed the peripheral status of ecology to continue. Such lapses resulted not merely from failures in policy and management, but also more importantly from the evolving relationship between politics and capitalist interventions in the context of a postcolonial 'development' trajectory.

From its original formulation of 1959, the FMP was reviewed only once after five years. Since then there was a temporal gap of more than three decades until Dhaka saw a comprehensive master plan. During this period, the idea of national development was conflated with urban development. The national quest for the earning of foreign exchange through exports led to the establishment of scores of garments industry units, most of which emerged inside the city. Some of the factories were established on the filled-up canals, some were on the banks of canals and rivers leading to their serious pollution and encroachment. Other industrial establishments followed suit in the same fashion. These developments at the expense of Dhaka's environment were exasperated by the filling up of canals, rivers and wetlands for housing development by private companies. How environmental considerations could be situated in the development planning of the megacity of Dhaka remains an unresolved issue.

Endnotes

1 An early 19th century 21-feet long folios of the river Buriganga kept in the British library reflect a vibrant public, commercial and, administrative life around the river.
2 Scale of Dacca City Plan: 1:3960.

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