

Chapter 2

From a Town to a Megacity: 400 Years of Growth

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Abstract The continued expansion of Dhaka means that within the next 20 years, it will become one of the most populated megacities in the world. Considering the importance, to its development, of understanding the nature of its pattern of growth and evolution, we examined that growth over a period of 400 years. The dynamics of Dhaka's urbanisation along with its trajectory over this period are discussed in this chapter. The pace of urbanisation was found to be increasingly rapid after independence from Pakistan in 1971. This rapid pace has caused a number of multifaceted problems, including severe environmental degradation. Issues associated with the urban planning process in Dhaka have been reviewed along with the major plans developed over the past 65 years. The chapter concludes with a critical and comparative analysis of those plans.

Keywords Development plans • Dhaka • Growth • Urbanization

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2.1 Introduction

The speed of urbanisation is slower in the cities of developed world (UN 2011) than in the cities of the developing world where three million people were added to the global urban population each week during the last two decades (Moreno et al. 2008). This has already resulted in there being more urban dwellers than rural, a situation referred to as the *urban turn*¹ by some researchers (UNFPA 2007). These urban populations will continue to grow, and it is estimated that a further 20 % of the world's population will move to cities by 2050 (Butsch et al. 2009; World Bank 2009; Moreno et al. 2008; UN 2006, 2008). In coming years, Africa and Asia will have the largest urban agglomerations, with Africa projected to treble and Asia to double their present urban populations (UN 2012). Based on these projections, 70 % of the people of these two continents will be living in cities by 2030 (Kraas 2007; UN 2006). One phenomenon of this *urban turn* is the rise of a new category of human settlements – called megacities (Butsch et al. 2009).

Using the published literature, this chapter attempts to document the historical growth of Dhaka. It also critically discusses the dynamics of its urbanisation along with different trajectories of development. As the discussion proceeds, it highlights major development initiatives that have guided the growth of the city to its present form.

2.2 Trajectories of Development

Dhaka has grown from a small settlement confined by the rivers Buriganga and Dholai Khal. It has experienced many highs and lows throughout its history. This section briefly presents the five distinct phases of Dhaka's growth from a town to a megacity. The dominant features of these phases are described in the following sections.

2.2.1 Pre-Mughal Period (Before 1604)

It is not completely clear when and how a settlement was first formed at the site where the old core of Dhaka stands today, and its existence and development during pre-Mughal period is also subject to a great deal of debate. According to Chowdhury and Faruqui (2009) and Islam (1996), urban settlements have existed in the area where Dhaka is now back to seventh century CE. Some historians argue that it began as a trading post, serving the surrounding region by the rivers. This gave the site better locational advantages for development as a port or a trading town. Although Dhaka is now the capital city, there are three other locations adjacent to Dhaka which have

¹ In 2008, for the first time in human history, every second citizen lives in an urban settlement. Some researchers therefore labelled the crossing of the 50 % threshold in 2008 as the 'urban turn' (Butsch et al. 2009).



Plate 2.1 Dhalleshwari temple in 1904 (Photograph taken by Fritz Kapp in 1904, part of an album of 30 prints from the Curzon Collection; courtesy to British Library photo collections)

enjoyed the status of capital during different regimes. Bikrampur is known to be the oldest settlement, dating back to the Vedic period, early days of Aryan migration into India at around 1300–1500 BCE (Chowdhury and Faruqui 2009; Islam 1996). During the Muslim dynasties of the Sultanate of Bengal, first Bhawal to the north and then Sonargaon to the south became the capitals of Bengal (late thirteenth and early fourteenth centuries). The use of these locations as capital cities suggests that the then rulers never decided to make Dhaka the capital.

A possible suggestion stems from its propensity to annual flooding from the surrounding rivers (Chowdhury and Faruqui 2009; Islam 1996). Many believe that the name of Dhaka was derived from one of the Hindu temples for the Goddess Dhaleshwari (Plate 2.1) established by a prominent king of the Sen Dynasty, Ballal Sen, during the pre-Islamic period. Along with this, the existence of Dhaka as a small town at this time is proved by two mosque inscriptions and other ancient literature. But this evidence is not unequivocal as there remains other versions² (Chowdhury and Faruqui 2009; Islam 1996, 2007).

From the pages of *Baharistan-i-Ghaibi*,³ the name of various localities (e.g. Laksmibazar, Tantibazar, Shankharibazar, Kumartuli) denotes the prevalence of

² (1) The name might originate from Dak tree (*Butea frondosa*) which was believed to cover this area once; (2) it also could be the *dhak* or drum used when Islam Khan launched the city as capital; (3) the derivation could also be from a Prakrt dialect called Dhaka; (4) lastly, the name is also similar to 'Davaka' – a name found inscribed in pillar dated from Gupta Kingdom (Islam 2007).

³ Written by a famous traveller named Alauddin Isfahan alias Mirza Nathan. This is a trusted source that provides sufficient foundation to Bengal history during the Mughal regime (Islam 2007).

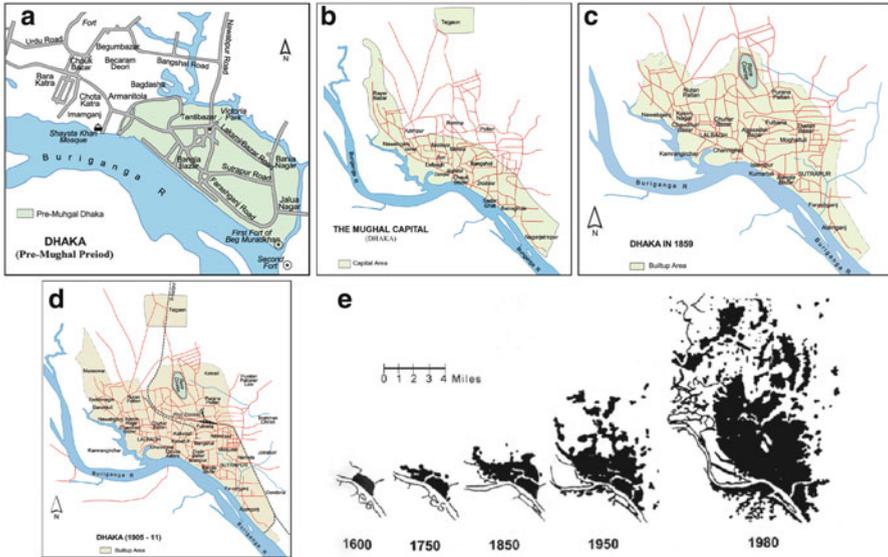


Fig. 2.1 Evolution of Dhaka: (a) Pre-Mughal period, (b) Mughal period, (c) British period, (d) capital of East Bengal and Assam (reconstructed by the authors), and (e) evolution of Dhaka at a glance, 1600–1980 (Adapted from Shankland Cox Partnership and Others 1981)

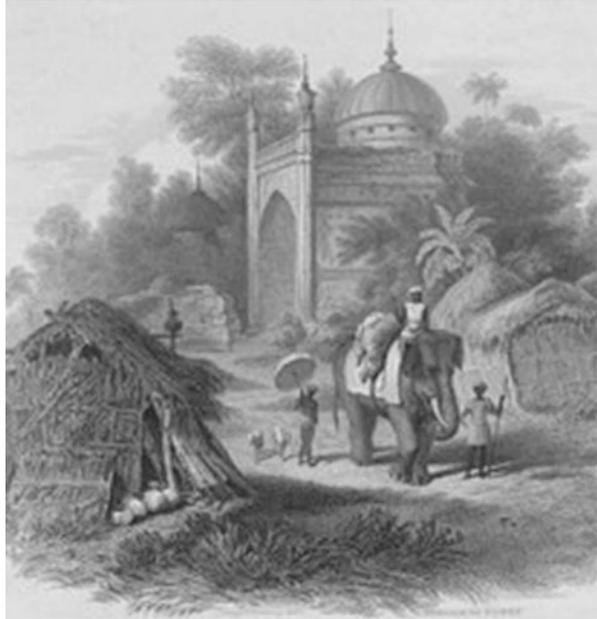
Hindu craftsmen in pre-Mughal Dhaka (Chowdhury and Faruqi 2009; Islam 1996). Little evidence about its size and population can be found before 1604. The sites close proximity to the then capital, Sonargaon, along with the major water transport networks of the Buriganga River and Dholai Khal, influenced its formation, with more growth occurring along the riverbanks. The area of Dhaka during this period has been estimated to be around 1 km², but the size of population is unknown (Islam 2007) (Fig. 2.1a).

2.2.2 Mughal Period (1602–1764)

When the Mughals invaded Bengal, they established their headquarters at Dhaka. The Mughal general, Man Singh, pitched his tent here, instead of in other capitals, due to its strategic locations in between rivers with two distinct purposes – to safeguard from enemies and to get easy access to surrounding regions (Hyder 1994). At first a *thana*⁴ (i.e. a fortified post) was formed where pre-Mughal Dhaka was believed to have existed (Karim 2009). The location gained further importance when the Chandnighat fort was built in 1610 CE by Islam Khan Chisti. At this time, Dhaka

⁴ *Thana* is a small administrative subdivision and is the lowest tier in police administration. It is also known as the third lowest tier in the hierarchy of local government. Currently, there are 522 *thanas* in Bangladesh of which 10 are located within the administrative confines of the Dhaka Metropolitan Statistical Area (BBS 2003).

Plate 2.2 On the way to Tongi (Sir Charles D'oye's (Collector of Dhaka in early eighteenth century) sketches; courtesy to British Library photo collections)



was called Jahangirnagar and held the status of provincial capital for a little over a century (Islam 1996). Commercial activities and the needs of administration and defence led to the growth of Dhaka. The diaries of foreign explorers as well as many present place names are of help in identifying the boundaries of Dhaka at that time (Karim 2009; Islam 1996). From documentary evidence and Mughal sculptures in the 'old city', Mughal Dhaka seems to have included the present 'old Dhaka'. Commercial areas developed around the fort and along the river to the west, while residential areas mainly spread out in a northerly direction (up towards Tongi, Plate 2.2), and up to the fringes of Ramna near the Mir Jumla gate. Two roads leading to the north and to the east determined the city's growth at that time. During the administration of the subahdar Ibrahim Khan (1616–1620), its role as a trading centre extended to Southeast Asia, and it started to attract European traders (e.g. the Dutch, the Portuguese, the French and the British). It is argued that a greater amount of development took place during the regime of Shaista Khan (1662–1679), when the city grew to an area of ca.96 mile² with about one million inhabitants (Karim 2009; Islam 1996). Records of the British East India Company mention that the boundary of Dhaka during this period was as follows: 'Buriganga to the south, Tongi to the north, Jafarabad-Mirpur to the west and Postogola to the east' (Islam 2007) (Fig. 2.1b).

The Chauk, close to the fort and Buriganga River, was the central business district (CBD). Cotton industries and other specialised industries (potters, weavers, shell cutters, jute painters etc.) flourished and clustered in between the Chauk and Bangla Bazar, another commercial centre which had existed before the Mughals

(Islam 1996). Tejgaon began its development as an industrial estate in the Mughal period as Dutch, English, Portuguese and French companies started to locate their factories in that area. Thus, during the Mughal regime, the growth of Dhaka was primarily driven by the Mughal's need for residences and administrative establishments. Professionals such as artisans and craftsmen and traders, including Europeans, added to this demand (Karim 2009). This expansion continued uninterrupted until the early eighteenth century when the capital was moved to the west Bengal town of Murshidabad and consequently Dhaka's short-lived glory began to fade (Chowdhury and Faruqui 2009; Islam 1996, 2007).

2.2.3 British Period (1764–1947)

Dhaka continued to suffer from a lack of political and commercial importance when the British East India Company took over political power of the region in 1757 and moved the capital of Bengal to Calcutta. This shift of power, and investment, led to a stalling of Dhaka's growth. The decline of the handcrafted cotton trade due to the promotion of cottons from the automated British industry added to the decline (Chowdhury and Faruqui 2009). By 1840, Dhaka had declined so much that 42 km² of its urban space had been vacated and 0.7 million of its inhabitants had left their homes (Ahsan 2009). The city was famously described by Bishop Heber in 1824 as '... merely the wreck of its ancient grandeur' (Islam 1996, 2007) (Plate 2.3a–c).

However, the British rulers (particularly, the then collector, Charles Dawes) did not totally neglect this declining city and took some timely initiatives to reinvigorate its glorious past. The launch of the municipal committee in 1840 and the establishment of Dhaka College (Plate 2.4) in 1841 brought back life in different places, and the city started to modernise with metaled roads and sophisticated urban amenities like a piped water supply and street lights. In 1825, a racecourse was built in Ramna (later renamed to Suhrawardy Uddyan) and a large building complex and gardens were constructed adjoining Ramna (the present Shahbagh area) (Islam 1996, 2007).

Once the British Crown took over India from the East India Company, Dhaka started to see some substantial changes. Electricity was connected in 1878, and more roads were created and existing ones expanded. Drainage networks and the first planned residential area, Wari, were established. The construction of railway lines in 1885–1886 along the Narayanganj-Dhaka-Mymensingh route boosted the city's growth to the south and west side. In 1905 the city, once again, became the provincial capital of east Bengal and Assam and saw a 21 % increase in population in between 1901 and 1911 (Karim 2009; Islam 1996). However, the growth of Dhaka faced a huge setback when the proposed partition of Bengal, announced in 1905, was cancelled in 1911 – forcing Dhaka to become merely a town and the entire project of building a new capital was scrapped. During British Rule the history of urban development in Dhaka was a matter of both setbacks and a progress. Lack of financial resources remained the most important constraint to

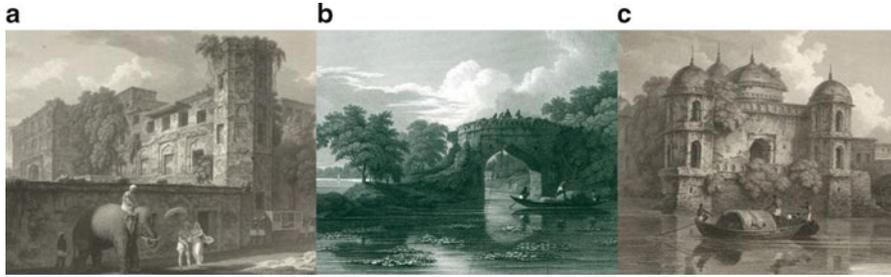


Plate 2.3 Mughal ruins in the 1830s: (a) Bara Katra, (b) Tantibazar bridge, and (c) Saat Gumbad Masjid (Charles D'Oyle)



Plate 2.4 Dhaka College in 1904 (Photograph taken by Fritz Kapp in 1904, part of an album of 30 prints from the Curzon Collection; courtesy to British Library photo collections)

municipal urban development. Nevertheless, by the end of 1914, the government was contemplating a renewal programme for old Dhaka. The most noteworthy event of this time occurred in 1917, when the famous British town planner Sir Patrick Geddes visited Dhaka and recommended a detailed master plan for the city, which finally materialised over the next few decades. Dhaka saw some further growth during the Second World War due to its strategic location, and at that time the British built two airports and several hospitals. In the same period, the functional centre of the city around the fort (converted to a jail by the British) had gradually shifted to Victoria Park and the Ramna area which was the location

of premier educational institutes such as Dhaka University and Ahsanullah Engineering School (later renamed to Bangladesh University of Engineering and Technology). Areas around Ramna were developed using garden city planning ideas with substantial provision of green spaces. Northward city expansion had been further facilitated with greater accessibility via roads and major thoroughfares from Ramna to Purana Paltan, Shantinagar and Segunbagicha (Fig. 2.1c) (Hyder 1994; Karim 2009; Islam 1996).

2.2.4 Pakistani Period (1947–1971)

When India and Pakistan were granted independence from Britain in 1947, the area previously known as East Bengal became East Pakistan, and Dhaka was declared the capital of this province. A new period of unprecedented growth began because the city had to accommodate people engaged in the new administration, business establishments and large number of people who had migrated from areas now in India. More commercial firms opened premises in Motijheel. The commercial area development around Ramna that experienced growth in the British period extended to the Motijheel area and was designated as the CBD in 1954 (Chowdhury and Faruqi 2009; Islam 1996, 2007). Dhanmondi, an area once covered predominantly by paddy fields, was planned as a residential area. Mirpur road, forming an axis to it, opened up Mohammadpur and Mirpur as additional residential areas in the 1960s to house Muslim migrants from India. The Tejgaon industrial belt, once used by foreign traders, remained officially designated as an industrial area for the newly structured city. An airport was also built at Tejgaon (currently known as the old airport). The Dacca Improvement Trust (DIT) was established in 1956 for planning and management of Dhaka and in 1959 prepared a master plan for an area of 320 mile². Under the Town Improvement Act of 1953, DIT undertook many city development projects, constructing roads, shopping malls, staff quarters, flats and developing industrial estates, commercial areas etc. Many planned residential areas were also part of this new master plan – notably the Gulshan Model Town, Banani in north-east and Uttara to the further north. The flood-free higher elevation areas along the Dhaka-Tongi axis were given priority as the sites for these model towns. In 1961, Dhaka City covered an area of 12 km² (Ahsan 2009) and had a population of less than one million (Chowdhury and Faruqi 2009; Ahsan 2009; Islam 1996, 2007) (Fig. 2.1d).

2.2.5 Bangladesh Period (Since 1971)

When East Pakistan became independent from Pakistan and was renamed as Bangladesh in 1971, Dhaka became the capital of the new country. This historical change in the status of the city also brought significant changes to the physical and

socio-economic character of the city. Unprecedented population growth took place during the first decade after independence. This increase in population has led to an expansion of the city's urban footprint. There is no holistic approach to accommodate marginalised groups. The old 1959 Master Plan was used to guide and control growth long after its intended lifeline, and the proposed 1981 Dhaka Metropolitan Area Integrated Urban Development Plan (DMAIUDP) was never implemented. This meant that planners and those responsible for guiding growth or curbing development were inadequately equipped to manage its development. Natural topography in and around the city plays a large part in determining land value around planned residential and commercial areas, and private developers play a significant role in directing its development. Consequently, the old city's core areas had long been consolidated but yet continued to become denser (with a population density of 29,857/km²) along with established residential areas in and around Dhanmondi, Gulshan, Banani, Baridhara and Uttara. The large number of people moving from rural areas in search of jobs in the city ended up in informal settlements (slums) which grew around these areas and reached the astonishing population density of 220,246 persons/km² (Angeles et al. 2009). By 2005 the number of slums was estimated as being 4,966 (Islam et al. 2009). The geographical dispersion of these slum populations is wide, and is caused by the wide occupation of public land by slums of different sizes, that are also in close proximity to areas with higher concentrations of formal jobs (that consequently create more informal employment opportunities) (Nahiduzzaman 2012; Islam et al. 2006, 2009; World Bank 2007). Under the sustained pressure of rural-urban migration, urban expansion has encroached on wetlands and productive farmlands in the fringe and peri-urban areas, even though these areas are subject to monsoonal flooding (Dewan 2013; Dewan et al. 2012; Dewan and Yamaguchi 2009a, b; 2008; Dewan et al. 2007; 2006; Tawhid 2004) (Fig. 2.1e: Dhaka in 1980).

2.3 Development Plans for Dhaka

Urban development planning in Bangladesh does not have a long history. The following sections provide a brief overview of the key planning initiatives that were used to guide Dhaka's urban planning and development pathways since the end of colonial rule.

2.3.1 *Dacca*⁵ Master Plan 1959

The Dacca Master Plan 1959, prepared by DIT, was the first formal plan for Dhaka City. It was prepared for a 20-year time span expiring in 1979. The British

⁵The previous name for Dhaka.

consultants Minoprio Spensely and P.W. Macfarlane completed the project with British technical assistance under the Colombo Plan agreement (Chawdhury 1997). By 1960, the master plan had been drawn up to cover an area of 320 mile² that included the then Dhaka City and its adjacent municipalities such as Tongi and Narayangaj. A short report was accompanied by a map of the Dhaka City area at the scale of 1:40,000. The plan assumed a target population of about one million with the following assumptions:

- (a) That the river Buriganga, as a major transport artery, will continue to play an important part in the economic life of Dacca.
- (b) That the central area of Dacca (the old town) will be maintained as the principal business and shopping centre, particularly for small-scale enterprises.
- (c) That the existing population will continue to increase at a rate of 1.75 % per annum.
- (d) Expansion will be mainly northward onto flood-free land and will take the form of relatively self-contained new or satellite towns, with a view to reducing pressures on the existing urban areas and lowering the density of the core areas.

2.3.2 Dhaka Metropolitan Area Integrated Urban Development Plan (DMAIUDP) 1981

The Dhaka Metropolitan Area Integrated Urban Development Project (DMAIUDP) was the first ever attempt to prepare a *strategic* plan in Bangladesh (i.e. to prepare urban development strategy for the Metropolitan Dhaka with a more comprehensive system of planning). The project was prepared by Shankland Cox Partnership jointly funded by the Government of Bangladesh (GoB), the Asian Development Bank (ADB) and the United Nations Development Programme (UNDP) in 1981. Under this plan, the urban land use and the footprint characteristics of the city were analysed for the first time (Fig. 2.1e). In addition, the consultants came up with two options for review and selection. They were:

- Option A: extensive land development immediately adjacent to the existing built-up areas by providing comprehensive flood protection
- Option B: adoption of combined peripheral/northern expansion strategy as the basis of recommendations for urban development for future growth

Unlike the 1959 planners, those involved in the DMAIUDP did not underestimate population growth and allowed for a population increase to 6.6 million by 2000 (RAJUK 1993). The main difference was that they included the migration factor, which was missing in the 1959 Master Plan. Based largely on the experience of the 1970s, the DMAIUDP planners estimated almost four million migrants for the 1980–2000 period – 60 % of the total projected growth. There were some similarities between the 1959 Master Plan and DMAIUDP. They both proposed expansion to higher flood-free land – mainly to the north. Both followed

strategies of dispersal to minimise pressure on older core areas. Both plans are highly directional, going against the natural trend for growth to be organic, and omnidirectional, and both were heavily dependent on public sector intervention for their implementation (RAJUK 1993).

The DMAIUDP plan, like many other project reports in Bangladesh, was not implemented. Possible reasons for this are that it was not a statutory plan and it was undertaken by the Planning Commission which was not empowered to execute a plan or policy. Therefore, the master plan (1959–1979) stayed in effect for almost double to its designed life, until the enforcement of new plan in 1995. However, many of the findings and deductions of the DMAIUDP study were accurate and were found useful in the preparation of the next development plan (1995–2015) and in the exploration of urban development issues during the last decades of the twenty-first century (Zaman and Lau 2000; RAJUK 1997).

2.3.3 Dhaka Metropolitan Development Plan 1995–2015

A new planning project was initiated in 1992 by the Government of Bangladesh (GoB) in collaboration with UNDP/UNCHS (HABITAT). The work was carried out by a consortium of international firms (Mott MacDonald Ltd. and Culpin Planning Ltd.) together with local consulting agencies (RAJUK 1997). The UN Centre for Human Settlements (UN-Habitat) acted as the executive agency for the overall project. The project was called ‘Preparation of Structure Plan, Master Plan, and Detailed Area Plan–Metropolitan Development and Plans Preparation and Management in Dhaka’, and its objectives were as follows:

- (a) The preparation of integrated development plans and prioritised sectoral plans
- (b) Increasing the capacities of RAJUK for making development plans at the metropolitan scale and implementing them with necessary regulatory functions

The project planning component was presented as a package of plan output which dealt urban development issues of Dhaka at a geographical hierarchy of three tiers: subregional, urban and suburban. The following three plans are advocated for dealing with the increasing physical expansion of Dhaka:

- (a) Structure Plan (1995–2015)
- (b) Urban Area Plan (1995–2005)
- (c) Detailed Area Plan (2010)

These plans, collectively termed as Dhaka Metropolitan Development Plan (DMDP), offer development strategies, plans and programmes for 20 years for the entire RAJUK development area, consisting 1,528 km². Dhaka City Corporation and five adjoining municipalities (Savar, Narayanganj, Kadam Rasul, Gazipur and Tongi) are included in the DMDP planning area (RAJUK 1997).

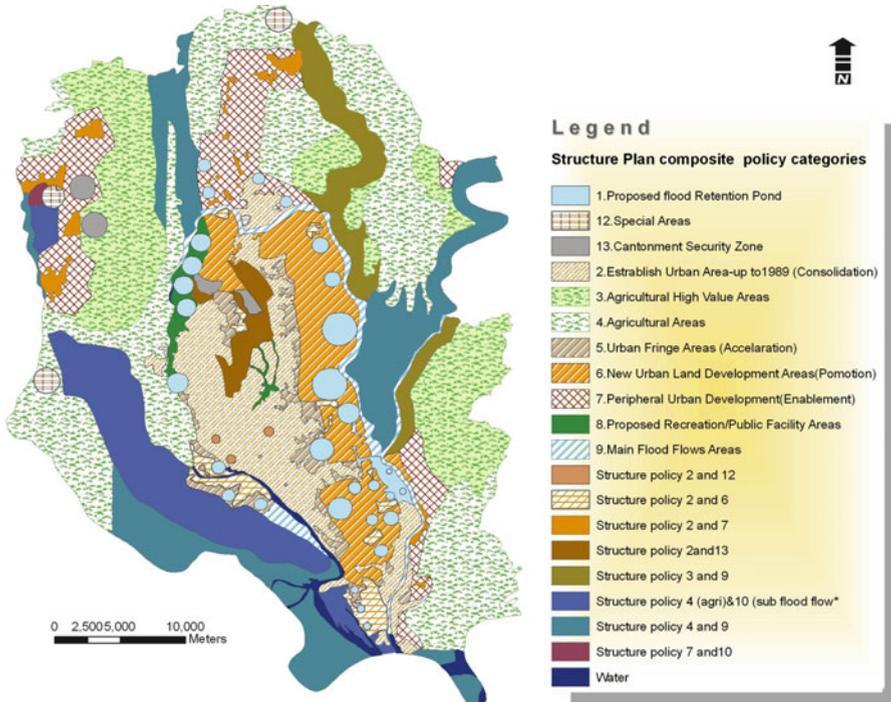


Fig. 2.2 DMDP Structure Plan 1995–2015 (Adapted from RAJUK 1997)

Dhaka Structure Plan (1995–2015)

The DMDP Structure Plan outlines the long-term development strategy for the period of 1995–2015 for the Dhaka Metropolitan Area allowing for a projected population of 15 million. The plan is contained in a report with the principle strategies shown on accompanying maps. A major summary plan embodied in the Structure Plan proposals is presented semi-diagrammatically at 1:50,000 scale. The plan defines a broad set of long-term spatial and sectoral policies for the entire development area under RAJUK’s control. These policies are shown by a series of indicative maps, showing the sequence of anticipated development timelines (e.g. future road extensions) (RAJUK 1997) (Fig. 2.2).

The Structure Plan also focussed attention on the protection of the already degraded natural environment and on the effect of further human interventions. Its spatial plans and policies offered protection to high-quality low-lying areas, agricultural land, *khals* (ephemeral water-bodies) and river networks by restricting developments in these areas. In order to integrate these into the urban landscape and assist in beautifying the city, circular waterways round the city and a number of retention ponds in and around the city were also proposed. Additional proposals have been made to expand the city’s open space ratio and to deter frequent water-logging and flooding (RAJUK 1997).

Urban Area Plan (1995–2005)

The Urban Area Plan (1995–2005) was proposed as a midterm development strategy for 10 years for the existing metropolitan area and areas that are to be brought under urban development over the next decade. The area covered by the plan was Dhaka City Corporation as well as Tongi-Gazipur and Savar-Dhamsona. The Urban Area Plan was a flexible interim development management document designed to eventually be superseded by the Detailed Area Plan (DAP) (RAJUK 1997).

According to RAJUK (1997), the full DMDP Urban Area Plan comprises an Explanatory Report which also describes the salient features for each of the 26 Spatial Planning Zones (SPZ), the resources map, depicting existing infrastructure locations, along with public and private sector development commitments. It also includes an interim Management Report, interim Planning Rules, a multi-sectoral Investment Programme and an Urban Area Plan, showing designated land-use management zones (RAJUK 1997).

The Detailed Area Plan (2010)

The Detailed Area Plan (DAP) provides detailed planning proposals for specific subareas in accordance with the broader policies and guidelines outlined in the Structure Plan and the Urban Area Plan, respectively. A DAP has been prepared for each of the 26 Strategic Planning Zones (SPZ). Each DAP provides a detailed analysis of the area and acts as a reference document, supported by detailed land-use maps and related information, for effective land management at *mauza* level (RAJUK 1997).

The DMDP, although following similar strategies to the previous plans, seems to have been able to avoid some of their shortcomings. It advocates the use of flood-free land in dealing with rising population growth and pressure. Different plans and strategies have been recommended for areas which are at different stages of urban growth. The strategies have been supplemented by a number of phased programmes and projects, especially the construction and extension of roads.

Unlike the plans in 1959 and 1981, it not only advocates growth in peripheral areas but also foresees growth in flood risk areas in the eastern fringes. This is facilitated by the construction of flood protection measures in areas with high demand for future urban development.

2.4 Assessment of the Success of the Plans

2.4.1 *The Dacca Master Plan 1959*

Although the Master Plan of 1959 advocated that the majority of the expansion take place in areas in the north and north eastern areas (where new planned residential areas were established at Gulshan and Banani), it also proposed large-scale wetland

reclamation on the southern fringe as well. The plan was, in fact, a zoning plan suggesting broader planning guidelines for the city. The planners assumed a modest 40 % population increase over the 20 years, but it would be unrealistic to expect any plan to predict some of the events that took place in those two decades, notably the effects of independence from Pakistan in 1971. Nevertheless, many of the plan's recommendations have been followed and many of its provisions still apply. Although it is half a century old, the plan still remains as the basis for development control within the area.

The major assumptions (RAJUK 1993) that still hold good are:

- (a) The continuing importance of the Buriganga River for transport
- (b) The continuation of old Dhaka as a business core
- (c) The new railway alignment
- (d) The impossibility of substantial alleviation of annual flooding

Some of the major assumptions that have been proven invalid are:

- (a) Annual growth rate of 1.75 % pa
- (b) Non-extension of the cantonment (i.e. Headquarters of the Armed Forces)

There were a number of problems with the 1959 Master Plan. It is arguable that the main problem was that the plan did not foresee the rapid development that the core and surrounding area would experience. That is not surprising since the war of independence and its aftermath have fundamentally changed the sociopolitical-economic life of the city once Dhaka became the capital of an independent nation. Additionally, urban governance and management structures, in their infancy at that time, did not have the structure, manpower or vision to plan for the huge influx of people. The plan did not provide a suitable framework for inter-sectoral coordination of spatial planning, nor was it linked to the Annual Development Programme (ADP) or to the capital budgets of government development agencies. It also suffered from the generic deficiencies of the land-use-type 'master plan' approach which it principally adopted instead of a flexible development planning process. Apparently, it only identified 'where' general types of development are allowed but did not satisfactorily indicate 'what', 'how' or 'when' this development should take place and who should be responsible for it (Chowdhury 2003; RAJUK 1993).

While comparing the planned growth areas in the 1959 to the DMAIUDP 1981 Plan, there are certain geographical areas where urban expansion didn't occur (RAJUK 1993). The major reason for this is that the vast majority of the additional growth had been absorbed via densification in the core areas rather than by outward expansion. On the other hand, the designated areas for planned urban growth in the peripheral areas (i.e. the outer northerly and southerly areas such as Uttara, Tongi and Narayanganj) failed to attract significant growth.

From the DMDP Structure Plan report, it can be seen that the inner urban areas (i.e. areas categorised as urban in 1959) continued to absorb most of the growth within the Statistical Metropolitan Areas (SMA) in the 1990s and remain home to a large proportion of the total population (62 % in 1981; 61 % in 1991) (Ahsan 2009; RAJUK 1997). Over that period there was also a modest increase of the proportion

Table 2.1 Choice of travel mode in relation to distance to work place

Distance to work places (km)	Travel mode			Total
	On foot	By bus	On foot followed by bus	
0.5–2.6	35	–	–	35
2.6–5	34	1	–	35
5–10	–	12	8	20
10–12	–	2	8	10
Total	69	15	16	100

(Adapted from Nahiduzzaman 2012)

of the total population living in outer urban areas, mostly in the north and east, but there was a decline in Narayanganj and on the southern fringes. Population distribution and urban growth in Dhaka seems essentially centripetal in spite of plans and policies aimed at dispersal. This has largely to do with the spatial distribution of economic activity in Dhaka. According to BBS Labour Force Survey (1989), out of the ca. 2.2 million formal jobs that then existed in Dhaka metropolitan area, 42 % are located in the core areas and 90 % of people commuted less than 10 km to the core areas for economic activities (RAJUK 1993). Thus, there is an evidence of strong inertia imposed by the established urban structure with all types of work opportunities remained strongly centralised which has continued until recently, i.e. with majority of the jobs being within 5 km of the central core areas (Table 2.1) (Nahiduzzaman 2012). This explains why plans to disperse the population have only been partially successful and have largely affected the more mobile upper or middle income families only.

A recent study by Nahiduzzaman (2012), using the slum area of Jhilpar as a representative case, suggests that a majority (69 %) of informal jobs such as salesmen, shopkeepers, daily vendors (of vegetables, fish, clothes, recyclable products, etc.), day labourers, rickshaw pullers, CNG driven auto rickshaw drivers (popularly known as CNG driver), taxi cab drivers, house maids and beggars are located within 5 km distance from a slum, and that the primary mode of transport to get to these work locations is on foot (Table 2.1). Those who are employed in formal jobs such as garment industries, and private and public offices as clerks, office assistants responsible for refreshment, night guards, etc. do not commute more than 12 km. Thus, the study found that a typical journey time to work does not exceed 90 min although 30 % of work places are located at distances ranging from 5 to 12 km. As transport costs typically account for 4 % of urban poor's monthly income, travel to work on foot is the most preferred choice (i.e. 69 %) from their residences. This information suggests that the majority of the urban poor seek jobs within the walking distance in the inner city areas (Nahiduzzaman 2012) (Plate 2.5). This, therefore, increases the demand among the urban poor, and particularly newly arrived rural migrants, for accommodation in locations where low-skilled jobs are more easily found. A large proportion of the jobs are in the informal sector and usually located close to economic activities in the formal sector. This has led to the majority (85 %) of informal (slum) settlements being located in the inner part of the city, along the rail line or the flood protection embankment (Nahiduzzaman 2012; Hossain 2008; Syful 2007; World Bank 2007).



Plate 2.5 Slums located next to the railway line (Adapted from Yousuf 2009)

Thus, without a major dispersal of formal economic activities, basic urban amenities and/or policies to persuade new activities in peripheral locations, the movement of significant numbers of people away from existing built-up areas would remain a planner's dream.

Peripheral areas also have generally been less well provided with services and facilities compared to central Dhaka, which is another reason why they did not experience the urban growth, predicted by the 1959 Plan. Utility organisations (water, electricity, gas, sewerage) do not have long-term plans for these peripheral areas. This can be attributed to the lower population densities, which make the areas less attractive for short-term return on investment (ROI). The utilities, therefore, do not work coherently with development plans. This results in continuing poor access to utilities in peripheral areas, despite the potential for longer-term ROI (Zaman and Lau 2000; Islam 1999a, b) (Plate 2.6).

2.4.2 The Dhaka Metropolitan Development Plan 1995–2015

The DMDP was originally thought to have learned from previous failures; however, in reality it was not the case. On the other hand, the planning and management tasks for the DMDP Plan were more complex due to considerable changes in the social and political environment since 1959, and to the city having become more dynamic with very rapid change in both population and the urban footprint. Pressure on the natural environment had also increased. Even though the DMDP team formulated a series of plans at different spatio-temporal scales, growth has outpaced those plans. This is attributable to the fact that the plan-making process did not include any state-of-the-art planning, forecasting or decision support tools, and thus, the plans did not benefit from any proper synthesis of trends in socio-economic data, location analysis, separate or integrated land-use-transport modelling (Choudhury 2008). The DAP was not completed until 5 years after its planned start date and became controversial due to there being more breaches and deviations from the plan than adherence (Bari and Efrogmson 2009). Planned land-use changes have never been implemented, while much unplanned growth was not foreseen. It has been argued that these deviations from the plan served the vested interests of bureaucratic or

Plate 2.6 Pedestrian congestion in the inner city area of Gulistan (Adapted from Hasan 2013)



political entities, which once again highlights the severe planning and governance issues that are crippling the city's enormous potential (Bari and Efroymsen 2009).

Over the years, different authorities have shared responsibility for the planning and development of Dhaka, including its administration, law and order and utilities and services. The present metropolitan governance of Dhaka involves three types of agencies – national, sectoral and local. A total of 22 ministries and 51 agencies are involved in the planning and development of Dhaka (Islam 2005; Siddiqui 2004; Islam 1999b). Even though RAJUK is the main agency for urban development control and planning, the administration of basic services to planning by DCC and other government agencies compounds the issue (Islam 1999a, b). The administrative capacity to manage the increasing size of the city, in terms of area and population, simply does not exist. Efforts to reform both RAJUK and Dhaka City Corporation (DCC) seem counterproductive. For example, a single window approach to provide building permits in 2007 by RAJUK did not work. It failed for a number of reasons such as the ingrained plurality in city planning and management, meaning that RAJUK has to share overlapping functions with other agencies, resulting in

non-cooperation from other organisations that want to exert undue authority. In addition, continuous pressure from powerful vested groups militates against the transparency and efficiency of such a service. Although investment in training, more resources and automation is required, the fundamental shift in the culture of city governance is the foremost requirement. The recent dissolution of DCC into Dhaka north and south (Cox 2012) (see Chap. 1) can only further complicate city management since it will produce more planning and implementation agencies within each jurisdiction. The city needs to focus on better system thinking that includes better governance mechanisms, institutional and policy innovation while considering the city as a complex system. Once such innovative thinking can be infused into city governance to *inform* (in terms of indicators and performance measures at different spatial scales that can influence location decisions, individual and policy measures) and to *engage* different actors and institutions with different values, beliefs and interest for collaborative consensus building through discussion, dialogue and deliberation, only then can *clumsy*⁶ or functional solutions beneficial *for all* (instead of *elegant* solutions beneficial *to a few* or detrimental to the system) can be achieved (Farooque 2011; Thompson 2008).

2.5 Concluding Remarks

Throughout its evolution from a town to a megacity, the growth and development of Dhaka always proceeded at an escalated pace, especially since the beginning of the British regime and after becoming a sovereign state capital in 1971. This primacy, coupled with the absence of an anti-urbanisation policy, has turned Dhaka into a megacity but without the support of necessary infrastructure facilities and urban amenities. Consequently, the city is facing a large number of problems and challenges that seem to exceed the capacity of the administrative authority to overcome them. Additional stresses are expected to be imposed by climate change, placing further pressure on the existing financial, technical, administrative and governing capacity of the various relevant city management authorities. This leads to an intriguing question: What kind of policies and actions would be required to make Dhaka resilient to both foreseeable and unforeseeable problems caused by urbanisation?

Rural-urban economic disparity is increasing, together with an increase in disparity between Dhaka and other major cities in Bangladesh. From the governance and planning perspective, there should be proper actor oriented regional and national policies and sustainable actions, involving relevant government agencies, development partners, and other stakeholders. These should embody the necessary

⁶The term *clumsy* is used by Thompson (2008) to describe a solution in which no single stakeholder gets all that they desire, but all stakeholders get some of what they desire.

rethinking of approaches while considering the city as a complex system and thus minimise such interurban and interregional differences. Arguably, while a deliberate attempt has been made to maintain Dhaka's status as being the primary city, there should be better policy and institutional innovation that can engage stakeholders and bring information and knowledge to effective city planning and management of Dhaka. The city also needs to learn and gain from research that is actively seeking for novel, tailored solutions, and evaluating current and past trends with similar international contexts and producing cutting-edge data that can assist in more effective and current decision and planning support. In this regard, plans with shorter periods can provide more room to accommodate change and cope better with rapidly changing structure of Dhaka Megacity.

References

- Ahsan RM (2009) Changing pattern of the commercial area of Dhaka city. In: Ahmed SU (ed) Dhaka: past present future, 2nd edn. The Asiatic Society of Bangladesh, Dhaka, pp 431–450
- Angeles G, Lance P, Barden-O'Fallon J, Islam N, Mahbub AQM, Nazem NI (2009) The 2005 census and mapping of slums in Bangladesh: design, selected results and application. *Int J Health Geogr* 8:32
- Bangladesh Bureau of Statistics (BBS) (2003) Population census 2001: national report (provisional). Bangladesh Bureau of Statistics, Ministry of Planning, Dhaka
- Bari M, Efrogmson D (2009) Detailed Area Plan (DAP) for Dhaka Metropolitan Development Plan (DMDP): a critical review. WBB Trust, Dhaka
- Butsch C, Etzold B, Sakdapolrak P (2009) The megacity resilience framework. Institute for Environment and Human Security, United Nations University, Bonn
- Chawdhury A (1997) Evolution of urban planning in Bangladesh. National Geographical Association, Dhaka
- Choudhury AKMK (2008) Land use planning in Bangladesh. A H Development Publishing House, Dhaka
- Chowdhury IU (2003) The role of RAJUK in planned urban development. In: Islam N (ed) World Habitat Day 2003: souvenir on water and sanitation for cities. Bangladesh Institute of Planners and Center for Urban Studies, Dhaka, pp 88–91
- Chowdhury A, Faruqui S (2009) Physical growth of Dhaka city. In: Ahmed SU (ed) Dhaka: past present future, 2nd edn. The Asiatic Society of Bangladesh, Dhaka, pp 56–76
- Cox W (2012) Evolving urban form: Dhaka, New geography. Available at: <http://www.newgeography.com/content/003004-evolving-urban-form-dhaka>. Accessed 23 Sept 2012
- Dewan AM (2013) Floods in a megacity: geospatial techniques in assessing hazards, risk and vulnerability. Springer, Dordrecht
- Dewan AM, Yamaguchi Y (2008) Effects of land cover changes on flooding: example from Greater Dhaka of Bangladesh. *Int J Geoinform* 4(1):11–20
- Dewan AM, Yamaguchi Y (2009a) Using remote sensing and GIS to detect and monitor land use and land cover change in Dhaka Metropolitan of Bangladesh during 1960–2005. *Environ Monit Assess* 150(1–4):237–249
- Dewan AM, Yamaguchi Y (2009b) Land use and land cover change in Greater Dhaka, Bangladesh: using remote sensing to promote sustainable urbanization. *Appl Geogr* 29(3):390–401
- Dewan AM, Yeboah KK, Nishigaki M (2006) Flood hazard delineation in Greater Dhaka, Bangladesh using integrated GIS and remote sensing approach. *Geocarto Int* 21(2):33–38

- Dewan AM, Islam MM, Kumamoto T, Nishigaki M (2007) Evaluating Flood hazard for land-use planning in Greater Dhaka of Bangladesh using remote sensing and GIS techniques. *Water Resour Manag* 21(9):1601–1612
- Dewan AM, Yamaguchi Y, Rahman MZ (2012) Dynamics of land use/cover changes and the analysis of landscape fragmentation in Dhaka Metropolitan, Bangladesh. *GeoJournal* 77(3):315–330
- Farooque M (2011) Dhaka megacity: from reactive government to anticipatory governance, BAPA-BEN urbanization conference, January 8, BIM, Dhaka
- Hasan M (2013) GFDL. <http://www.gnu.org/copyleft/fdl.html>, Retrieved from http://commons.wikimedia.org/wiki/File%3ADhaka_Crowd_in_Gulistan_Crossing.JPG on 1 Feb 2013
- Hossain S (2008) Rapid urban growth and poverty in Dhaka city. *Bangladesh e-J Sociol* 5(1):1–25
- Hyder Z (1994) Organic cities and the case of Patrick Geddes in Dhaka. Department of Architecture, Massachusetts Institute of Technology, Cambridge, MA
- Islam N (1996) Dhaka from city to megacity: perspectives on people, places, planning, and development issues. Urban Studies Programme, Dhaka
- Islam N (1999a) Urbanisation, migration and development in Bangladesh: recent trends and emerging issues, Centre for Policy Dialogue (CPD) and United Nations Population Fund (UNFPA), CPD-UNFPA publication series no 1, Dhaka, pp1–24
- Islam N (1999b) Dhaka city: some general concerns. Asian cities in the 21st century: contemporary approaches to municipal management, vol 3, Reforming Dhaka city management. Asian Development Bank (ADB), Manila, pp 71–82
- Islam N (2005) Dhaka now: contemporary urban development. The Bangladesh Geographical Society, Dhaka
- Islam S (2007) Banglapedia: national encyclopaedia of Bangladesh. In: Miah S, Ahmed W, Chowdhury AM, Rahman SMM, Siddiqui K, Kabir SMH (eds), Asiatic Society of Bangladesh, Dhaka
- Islam N, Angeles G, Mahbub A, Lance P, Nazem NI (2006) Slums of urban Bangladesh: mapping and census, 2005. Centre for Urban Studies, Dhaka
- Islam N, Mahbub AQM, Nazem NI (2009) Urban slums of Bangladesh. Center for Urban Studies, Dhaka
- Karim A (2009) Origin and development of Mughal Dhaka. In: Ahmed SU (ed) Past present future, 2nd edn. The Asiatic Society of Bangladesh, Dhaka, pp 34–55
- Kraas F (2007) Megacities and global change in East, Southeast and South Asia. *ASIEN* 103(4):9–22
- Moreno EL, Bazoglu N, Mboup G, Warah R (2008) State of the world's cities 2008/2009: harmonious cities. United Nations Human Settlements Programme (UN-Habitat), Nairobi
- Nahiduzzaman KM (2012) Housing the urban poor: an integrated governance perspective – a case study on Dhaka, Bangladesh. PhD dissertation, The Royal Institute of Technology, Stockholm
- Shankland Cox Partnership and Others (1981) Dhaka metropolitan area integrated urban development project, Planning Commission, Government of Bangladesh, Dhaka
- Rajdhani Unnayan Katnipakko (RAJUK) (1993) Strategic growth options – Dhaka 2016. UNDP, UN-HABITAT, RAJUK, Dhaka
- Rajdhani Unnayan Katnipakko (RAJUK) (1997) Dhaka Metropolitan Development Plan, 1995–2015, Vol I & II. RAJUK, Dhaka
- Siddiqui K (2004) Megacity governance in South Asia: a comparative study. The University Press Limited, Dhaka
- Syful M (2007) Physical density and urban sprawl: a case of Dhaka City. Department of Urban Planning and Environment, Royal Institute of Technology (KTH), Stockholm
- Tawhid KG (2004) Causes and effects of water logging in Dhaka city, Bangladesh. Department of Land and Water Resource Engineering, Royal Institute of Technology (KTH), Stockholm
- Thompson M (2008) Organising and disorganising: a dynamic and non-linear theory of institutional emergence and its implication. Triarchy Press, Devon

- United Nations (2012) World urbanization prospects: the 2011 revision-highlights. Department of Economic and Social Affairs, Population Division, New York
- United Nations (UN) (2006) World urbanization prospects: the 2005 revision. Department of Economic and Social Affairs, Population Division, New York
- United Nations (UN) (2008) World urbanization prospects: the 2007 revision. Department of Economic and Social Affairs, Population Division, New York
- United Nations (UN) (2011) Population distribution, urbanization, internal migration and development: an international perspective . Department of Economic and Social Affairs, Population Division, New York
- United Nations Population Fund (UNPFA) (2007) State of world population 2007: unleashing the potential of urban growth. In: Marshall A (eds), United Nations Population Fund, New York
- World Bank (2007) Dhaka: improving living conditions for the urban poor, Bangladesh development series no. 17. The World Bank Office, Dhaka
- World Bank (2009) World development report 2009: reshaping economic geography. The World Bank, Washington, DC
- Yousuf BA (2009) Mysteries Bangladesh. Available at: <http://asadbiniousuf.wordpress.com/2009/03/02/slums-situated-near-the-komlapur-rail-station/>. Accessed 24 Jan 2013
- Zaman QM, Lau SSY (2000) City expansion policy versus compact city demand: the case of Dhaka. In: Jenks M, Burgess R (eds) The compact cities: sustainable urban form for developing countries. Spon Press, London, pp 141–152



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