



2013

Background Paper prepared for the Global Assessment Report on
Disaster Risk Reduction 2013

**Private sector investment decisions in building and construction: increasing,
managing and transferring risks: The case of Dhaka.**

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Geneva, Switzerland, 2013

Introduction

Dhaka, the capital city of Bangladesh, is one of the fastest growing megacities in Asia. Centralized administrative and institutional arrangements have drawn all major financial, social, and cultural activities of the country in Dhaka. Everyday people migrate to this city for better livelihood opportunities, for anticipation of better life with access to education and health-care facilities along with better living conditions. As a consequence, the population of Dhaka Statistical Metropolitan Area covering 1,353 sq. km has increased from 6.8 million in 1991 to 14 million in 2010 (Rabbani et al., 2011). Nevertheless Dhaka is also a city of extreme inequality; more than one third of the city's population are poor, employed in informal economic activities, living in challenging environments of informal settlements.

In another scenario, Dhaka is considered to be one of the most vulnerable cities from natural disasters. The city is naturally prone to fluvial flooding for its geographical location in a delta, surrounded by rivers and water-bodies. In addition the city drainage system is inadequate to cope with any intense rainfalls incidences that are becoming common phenomena in recent years, thus increasing the risks of pluvial flooding. Intense rainfalls usually follow extreme weather conditions from severe heat with temperature nearing 40 deg C during summer. Extreme heat coupled with repeated electricity load shedding, acute water crisis, shortage of gas supply, infestations of mosquitoes and the resultant near epidemic of diseases like diarrhoea impact on people's well-being (Staff Correspondent, 2010). Furthermore, Dhaka is located in an earth-quake prone area that may cause wide-spread disasters in a populous city.

Development trend and private sector investment decisions in building and construction

"Like it or not, development of the built environment in Dhaka city are absolutely driven by the private sector"- commented a renowned young Architect from Dhaka.

High population growth rate and associated demand for development in the absence of major public sector investments in building and construction has encouraged the private sector to invest extensively in the city. In Dhaka most of these investments are made through speculative development as well as development for productive purposes. Private real-estate developers dominated the housing market to meet growing demands in market-based economy since the public sector changed their position from providers to facilitator. Moreover, country's economic development necessitated investments in industries and infrastructure close to the administrative centre and communication routes. The private investors invested in factories, production plants, office buildings and commercial premises in and around the city. The total volume of real-estate, renting and business service sector increased every year with the overall GDP growth.

Construction activities have been a dynamic source of growth in Bangladesh since the early 1990s. Not only had the value added of construction grown faster than overall GDP, the quality of construction activities in urban areas also increased over time. Furthermore, the construction industry has been a significant source of job creation for skilled and semi-skilled labour, 2.4 million people were employed in 2010 (BBS 2010). The Ministry of Finance (2011) reported that in Fiscal Year 2010-11 both private and public investment increased. Gross investment accelerated to 24.73 percent of GDP from 24.41 percent in the previous fiscal year; of which private investment accounted for 19.46 percent of GDP, up from 19.40 percent in the previous fiscal year. Contributions of investments in housing and construction services in country's GDP over the last three decades are shown in Table 1. The sector is expected to remain a source of higher growth and employment in the medium term of the sixth five year plan between 2011-15 (Planning Commission, 2011).

Table 1 GDP Contribution of Services Sector and Others between Fiscal year 1981 to 2010 (FY81-FY10)

	FY81	FY91	FY01	FY10
Share of GDP percentage in Services	47.4	47.9	50.0	52.9
Of which: Housing Services	8.1	8.6	8.7	6.8
Others (Construction, Public utilities, Mining)	7.2	8.3	10.4	10.6
Of which: Construction	6.0	5.9	8.0	8.4
Growth Rate (percentage of annual average over the decade)				
Services (annual average)	4.0	3.7	5.8	7.3
Of which: Housing Services	3.0	3.2	3.4	3.7
Others (Construction, Public utilities, Mining)(annual average)	6.5	5.4	7.2	7.2
Of which: Construction	6.5	5.4	8.3	6.0

Source: Sixth Five Year Plan FY 2011- FY2015

However, these developments are not uniformly distributed all over the country, rather concentrated mostly in and around Dhaka. The socio-economic and political factors facilitated high rate of urbanization without any effective urban development plans for the city. To cope with the rapidly growing demands from different sectors the planning authorities also created extended metropolitan regions. As a consequence Dhaka became a city with multiple nuclei grown following major routes of transportation for economic reasons as well as following natural choices of flood-free lands. Nevertheless, the deficiency of flood-free land for the geographical location of the city encouraged many private land developers to fill out rivers, canals and water bodies for housing, industries that led to obstruction of the flow of water, reduction in flood plain areas, thus increased flood risks.

High demand of land for development also has resulted in high land price, high density development and land speculation. In addition, the unfettered freedom for land fragmentation by the land-owners in Dhaka has changed the city fabric over time. Due to socio-political and institutional arrangements more than 70 percent of the people living in the city do not own any land; among those who own, 10

percent own more than 60 percent of the city's private land (Islam 1999: 43). Therefore, this small group of city dwellers, who own lands in Dhaka, remains the key stakeholders in city development. New developments take place through land fragmentations by the owners without any concern for availability or capacity of the services. The real-estate developers negotiate with these land-owners for speculative developments.

Till the end of 2009 speculative development mostly in the form of apartment development flourished for several reasons. Due to robust and sustained macro economic growth for years, per capita income of many middle and high-income households increased. Also at the same time there was a decrease in bank interest rate. Usually in the past these households would have saved money in the bank. Decreased bank interest along with increased income of the group of working population who had access to financing system raised their affordability to invest as well as gave them access to credits from financial institutions. They were looking for assured investment opportunities, and investing in property development seemed more rewarding than any other available opportunities.

These households changed the socio-cultural pattern of family formations, living style and even construction trend in the city. Formation of more nuclear families demanded more housing, the number of first-time home buyers increased. Also the financial and legal arrangements of purchasing lands and the time consuming management of construction discouraged individual households to invest resources and time for individual house constructions like the past. Rather they opted for the complimentary service facilities that apartments offered such as power-generators, garbage disposal, central satellite TV connection, lift, roof top facilities and associated services that are well managed by the developers. In addition the modern living amenities increased rents in apartments in comparison to privately constructed flats. House rent in Dhaka increased by 250 percent between 1990 and 2007 (REHAB, 2012). All these factors motivated investing in real-estate development.

The resultant of all these factors was high demand for housing and land for development. REHAB, an umbrella association of real-estate companies estimated housing demand through their consumer responses. Although they have delivered around 9,000-10,000 units of housing and 5,000-6,000 plots for housing per year in the past; they projected that demand for houses in upcoming three years will be around 30,000 to 40,000; growing to around 95,000 to 130,000 in upcoming 10 years. In case of flats, estimated demand in upcoming three years will be around 75,000 to 100,000; while in upcoming 10 years demand will remain around 70,000 to 95,000 (REHAB, 2012). Against this scenario of high demand, the public sector will have very limited contributions- they do not invest in housing development and the number of serviced land they offer to various income groups are insignificant comparing to the demands. The private sector will be capitalizing on these opportunities.

Inflow of remittances in the country was another important factor that contributed in private sector investments in property development. Till the global recessions of

2008 the amount of remittances continued to grow; in 2007-08 Bangladeshis living outside the country sent back home USD 7914.78 million (BBS, 2010) as remittances. These contributions increased every year and kept the country's economy afloat even during global recession. However, the opportunities of investing these resources in diversified sector remained limited; on the other hand speculative property market offered high rate of return on investments. The real-estate companies considered the remittances as an easy means of project financing. Nevertheless, by the end of 2009 the effects of the global economic slowdown, stock market crash, non-availability of utility connections, and withdrawal of the single digit housing loan scheme by Bangladesh Bank as well as liquidity crisis in the commercial banks resulted in a gloomy business situation, and the industry took a 'U'-turn (Dewri, 2012).

Not in the same scale as property development, but some of these investments went in the development for productive purposes as well. The open market economy paved the path for upsurge in industrial and business activities, especially in some new economic sectors. The ready-made garment industries flourished to generate major foreign exchange revenue from their contribution of more than 70 percent of the country's net exports. The number of enterprises rose from 30 in 1980 to about 5150 in 2010-11 fiscal year (Bangladesh Garment Manufacturers and Exporters Association, n.d.). A significant number of these enterprises' factories, production plants and office buildings are based in and around Dhaka. Similarly, growth in services such as IT, Telecom and Pharmacy industries raised the demands for office and industrial spaces. Similarly a considerable rise in consumerism created demand for newer avenues for entertainment, leisure and shopping facilities. As a consequence, Dhaka experienced major private investments in buildings and construction industry.

Institutional arrangements for guiding private sector investments

However, the institutional arrangements guiding the private sector developments remain deficient to cope with the dynamic and growing demand. Any building and construction activities in Dhaka are principally guided by two sets of guidelines-regulatory frameworks for individual building and planning guidelines in city scale. Most of these guidelines are formulated, approved and monitored by the Rajdhani Unnoyon Kotripokkho (RAJUK) with supporting approvals from utility providing authorities. For certain types of developments clearances are needed from Dhaka City Corporation (DCC), Dhaka Transport Co-ordination Board, Civil Aviation Authority of Bangladesh, Fire Management Department and Department of Environment. These authorities work independently following their own regulations and approval criteria; and seldom coordinate among each others to guide developments.

Two specific regulatory frameworks are applicable in the city, Dhaka Mohanogor Imarot Bidhimala (Dhaka City Building Regulations) 2008 and Bangladesh National Building Code (BNBC) 1993. RAJUK follows regulations spelled out in the Dhaka Mohanogor Imarot Bidhimala for giving approval for any building. It addresses the issues of Floor area ratio (FAR), ground coverage, setbacks, road widths, access

and parking facilities according to site area for development; minimum room dimensions and community spaces according to building usage pattern; protective measures for constructing in environmentally vulnerable sites as well as requirements for light and ventilations, water sanitation and drainage facilities, waste disposal, , fire safety measures and universal access for acceptable living conditions (RAJUK, 2008).

The individual buildings and constructions following these regulatory frameworks are supposed to follow the Dhaka Metropolitan Development Plan (DMDP 1995-2015) in the city scale. DMDP had the objective of preparing 'integrated development plans and priority sectoral plans' for Dhaka; as well as installing sustainable capabilities in RAJUK, as the key authority for preparation and implementation of metropolitan plans; and upgrading its capacities and related training research and advisory institutions. The planning issues of DMDP covered three geographical levels: sub-regional, urban and sub-urban. It comprised of three components: a structure plan; an urban area plan; and detailed area plans (DMDP, 1997).

The structure plan consists of a written report and policy documentations identifying the 'order-of-magnitudes and direction of anticipated growth and defines a broad set of policies considered necessary to achieve that overall plan objectives'; while the Urban Area Plan (UAP) represented the legal basis for existing and future development to realise land uses in a specific location and the rules to apply to define specific activity. The Detailed Area Plans (DAP), eventually completed in 2010, was supposed to provide basic urban design good quality; provide programme for public sector action to implement plan; provide controls for private sector development; provide land re-adjustment pilot scheme for unplanned density growth areas; and provide clarity and security with regards to future development for inhabitants and investors.

Despite having these regulatory frameworks and planning guidelines, the planning authorities in Dhaka experience limitation in practice for several reasons. Authorities paid little attention to build capacity of RAJUK to implement DMDP. As a consequence, although the structure plan was formulated in early 90's, it took almost two decades to prepare the detailed area plans (DAP). Moreover, the DAPs did not fully comprehend the dynamic growth rate and pattern and, according a planner (Neaz Rahman), they shifted from their original aim and have been designed following a land-use planning approach. In the mean time, private land-owners and real-estate developers already developed in the vulnerable areas marked to be left open for environmental protection of the city. The DAPs are still awaiting legal authorization; and are not expected to be resolved soon for the lack of political will and pressure from the real-estate developers.

Deficiency in institutional capacity not only affected the formulations of updated plans, they significantly affected applications and monitoring of guidelines as well. According a study the development control in Dhaka city is largely hampered for not exercising the existing planning rules properly, lack of regular supervision by officials concerned, inadequate building inspectors, absence of database

management system and lack of practice of new technology (UNB, 2012). These limitations are not only in RAJUK but in all other agencies that approve and monitor any development work in Dhaka. One of the senior executives of a real-estate company stated that since they follow a detailed process for taking approval from 12-13 multiple agencies for constructing a ten storied building, often these limitation make it a difficult and time consuming process. An architect added that some of these officials lack enough technical skills to evaluate a project for ensuring effective implementation of the guidelines.

The limitations on capacity in approval and monitoring buildings and constructions often create opportunities for corruptions and mis-conducts. Many complaints are raised against officials, while some private developers bribe the officials to get approvals and clearances. The 'established' corrupted system discourages the private investors to go through the regular process of taking approvals. An architect (Riyaad Anwar) described that when a large development is required to get clearance from Department of Environment (DoE), usually the criteria are quite general and easy to fulfil. However often it becomes economical to bribe the officials to get approvals rather than spending for energy efficiency or incorporating risk reducing measures in the buildings and constructions.

Similarly, although filling up any wetland or natural water bodies is a punishable offence under the Bangladesh Environment Preservation Act, 1995 (Amendment 2010) (Staff Correspondent, 2012a), in recent years many private land developers fill out the peripheral low-lying lands and water ways in order to create plots for housing development. When concerns for such activities are raised in the media or by environment protection groups, in many instances the High court or the DoE issue 'show cause notices' or impose fine for the offence (Editorial, 2012; Staff Correspondent, 2012b). However in many instances the offenders continue not to comply with the rules for lack of monitoring as well as pressure from vested interested groups. Poor monitoring and improper management of the natural resources and natural hazards combined with unequal development have degraded the overall environment of the city (Rabbani et al., 2011).

These mis-conducts are acute in developments in the peripheral areas where there are overlapping in institutional arrangements. There are several 'pourashava' (municipality) apart from Dhaka City Corporation within the DMDP area. All of them have their own planning departments along with some authorizing power. In theory they are suppose to follow the structural plan of DMDP; however there are limited co-ordination between all of these public authorities. Even the new DAPs have variations between their four administrative zones. Private investors take advantage of these overlapping authority and discrepancies when it comes to take approval for any development. They submit their development plan to the authorities from where they will get most benefit out.

Nevertheless, all of these limitations are influenced by the broader political economy of development. The private investors in real-estate and land development are influential groups who can influence governmental decisions for their financial contributions. Moreover, some of the influential land grabbers have

political power to defy the regulations and increase the risks for the city as a whole. Similarly the policy makers of RAJUK still foresee development control through land-use planning that are more of administrative in nature. Any strategic planning for incorporating dynamic development requires institutional capacity through engagements of adequate number of professionals like urban planners, architects and environmental planners, which the present authorities are unwilling to do. Such limitations in institutional arrangements failed to guide the private sector investors, thus have resulted in increased and transferred risks to the public sector and city-dwellers in general.

Increased and transferred risks from unguided developments

Dhaka experienced three major flooding in 1988, 1998 and 2004 after the private sector started investing in speculative development and development for productive purposes in and around the city. The flooding were resultants of overflowing of surrounding rivers, runoff from excessive rainfall that could not flow into the surrounding rivers as the river stage was higher than the inside flow as well as failure to operate the regulators (sluice gates) and a lack of timely pumping of accumulated water (Alam & Rabbani, 2007). In 1998, 30 per cent of housing in the Dhaka metropolitan area sustained damage; while during 1988 flooding 85 percent area of the city was submerged under 0.3 to more than 4.5 metres flood water for several weeks (IFRC, 2010). Any such fluvial flooding in future will cause severe disaster in the city.

In recent years intense rainfall are creating pluvial flooding in the city as the drainage system are not capable to manage events like 290 mm rainfall in 6 hours in 2009 (Staff Correspondent, 2009). The city drainage systems were not designed to serve the dense development that resulted from rapid real-estate development. Very few developments consider water logging in an area for the increase of built environment and lack of natural runoff with an assumption that it is responsibility of the city-corporation to provide drainage for the city. Even some of these drainages often are clogged from construction materials reducing their efficiency. To date there is no definite guidance or monitoring on how the developers should take responsibility to reduce damage to roads, footpaths and drainage they use during any construction work. They take advantage of these facilities, but do not bear any responsibilities for their maintenance or reconstructions. Furthermore since they sell the property to a client or a client group, they tend not to take in consideration the long term effects the projects for the sake of their immediate benefit or quick economic return. Thus, the risks and costs of fluvial flooding are transferred either to the public authorities responsible for maintenance of infrastructure or the users.

Similarly, the encroachment of wet-land and low-lying areas for housing development around the city are increasing the risks of both fluvial and pluvial flooding in future. They block the natural water-flow and increase risks of water-clogging as well. Moreover, many of the factories and production plants drain their industrial waste into these wet-lands causing severe water pollutions (Staff Correspondent, 2012c). The natural habitats are destroyed as a consequence of development for production near the wetlands. Furthermore, during any major

flooding the polluted water penetrate with flood waters and cause various water-borne diseases. During 1998's flooding people who had to wade through flood waters complained about more skin diseases (Rashid, 2000). Many brick kilns have been established in these low-lying areas to use the top soils of the land during dry season. They are causing major air pollution for the city.

Again, the high density development of Dhaka is depended on ground water for water supply for the city. Dhaka Water Supply Authority lift 1,250 million litres water a day from underground; they supply 1,560 million litres a day against a required 2,000 million litres (Roy, 2012). As a consequence the ground water level has been lowering every year with increased demand and inadequate recharging from less runoff absorption. One study predicted that Dhaka is sinking over half an inch a year on average because of excessive extraction of groundwater and inadequate recharging of the vacuum it creates below the surface. The lowering water level also increases the risks of earthquake (ibid). However, these predictions could not be supported by any scientific data yet.

New developments

The increased risks from earthquake from some recent events have encouraged both the public authorities and private developers to take up risk reducing measures. Government formed a committee and allocated fund to start working on disaster preparedness for earthquake. Portion of the fund was used for capacity building of the fire fighter department, while most were used to buy machineries for post-disaster management. Similarly, the building code was modified and suggested some structural measures to increase resilience against earthquake which the real-estate developers are obliged to follow. In recent years since the clients are becoming conscious about these risk reducing measures, the real-estate developers advertise the measures they take to reduce risks of disasters to improve the projects acceptability.

One of the executives of a real-estate company during an interview expressed that although investments in other industries would have brought similar return, however, they chose to invest in housing from their concern of social responsibility. They are providing better living environment for the city dwellers although there are no incentives from the government. Recently some developers are working with architects and designers to incorporate environment friendly solutions like rain-water harvesting, managing run-offs etc. These design solutions make their projects more attractive while bringing in other qualitative returns. These measures help to secure a project's investments for both the developers and the end users.

Although numbers of such initiatives are very limited, however they are indicating towards the qualitative improvement of the building and construction industry. Private sectors investors are realizing the benefits of incorporating risk reduction measures. Nevertheless, more guidance from the public sector can work towards reducing and transferring risks.

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