Toward Great Dhaka
Main messages of the report

• Despite enormous efforts, infrastructure and services lag behind population and traffic.

• East Dhaka, with over 100 km² next to the city core, provides an opportunity comparable to that of Pudong for Shanghai.

• However, on current trends East Dhaka could soon become as messy as West Dhaka.

• Three strategic interventions in East Dhaka could put Greater Dhaka on a different development trajectory.
DYNAMIC BUT MESSY
Dhaka, disproportionally important

1% of the country’s territory is occupied by Greater Dhaka

10% of the country’s population lives in Greater Dhaka

36% of the country’s urban population lives in Greater Dhaka

20% of the country’s GDP can be attributed to Greater Dhaka

31% of the country’s formal manufacturing jobs is in Greater Dhaka

44% of the country’s formal employment is in Greater Dhaka

80% of the export-oriented garment factories is located in Greater Dhaka

28,800 persons per km² is the population density of Dhaka CCs

Strategically located

Dhaka is at the intersection of emerging transport corridors

Source: Mapping and visualizations based on UN (2016) and Google Maps.
Successful on many accounts

Nighttime light intensity reveals remarkable economic dynamism

Source: Calculations and visualization based on NOAA (2017).
Attracting migrants from the rest of the country

Slums are poorer than the rest of Dhaka, but less poor than rural areas

Three critical challenges: *flooding*

During the 2004 floods:

- 18 percent of the western part of the Dhaka CCs and 94 percent of the city’s eastern part were inundated.
- Nearly five million people were directly affected.

During the 2009 floods:

- The inundated area amounting to about three-quarters of the area affected in 2004.


Source: *Prothom Alo, SYFUL ISLAMD RONY.*
Three critical challenges: congestion

Congestion is a result of insufficient transportation infrastructure: comparing Dhaka and Delhi

Source: Calculations and visualization based on BBS (2011); Li et al. (2015); ORGI (2011); OSM (2014).
Three critical challenges: *messiness*

Dhaka appears at the bottom of global livability rankings

139th out of 140 cities in livability

Source: EIU 2015

Note: The ranking on livability incorporates rankings on four subcomponents, including infrastructure, health, education and stability. 100 = most livable.
FRAGMENTED RESPONSIBILITIES
Many players, little coordination

Source: Based on Talukdar 2006; Rahman 2017; World Bank 2017a, b c, d.

Note: CC – City Corporation; Dhaka WASA – Dhaka Water and Sewerage Authority; RAJUK – Rajdhani Unnayan Katripakkha (Capital Development Authority); PWD – Public Works Department; NHA – National Housing Authority; BWDB – Bangladesh Water Development Board; WAPRO – Water Resources Planning Organization; DTCA – Dhaka Transport Coordination Authority; RHD – Roads and Highways Department; BRTA – Bangladesh Road Transport Authority; BRTC - Bangladesh Road Transport Corporation; BBA – Bangladesh Bridge Authority; LGED:– Local Government Engineering Division. Municipalities are also called pourashavas. Union councils are also called union parishads.
A partial implementation of plans

Existing roads were upgraded, but few new roads were built and mass transport was not started

a. Planned for 2005-2025

b. Implemented by 2016

Share of length implemented

Ongoing: 100% of 92 km
Upgrading: 64% of 338 km
New roads: 38% of 782 km
BRT: 0%

Source: Calculations and visualization based on DTCA and JICA 2015.
A stellar exception

Hatirjheel before and now

Source: SWO-West of Bangladesh Army.
EAST AND WEST
Dhaka’s western part: prone to flooding, congested and messy

Urban retrofitting in the West has been costly and ineffective

Dhaka’s eastern part: still mainly rural.

Dhaka’s western part is dense, but its eastern part is still mainly rural.

Source: Visualization based on land classification background work carried out for this report (GISAT 2017).
Rapid sand filling in East Dhaka

Flood-prone areas are rapidly being filled with sand

Source: Visualization based on land classification background work carried out for this report, Urban land use update and mapping for Greater Dhaka Region (GISAT 2017). Photo credit: Infratech Construction Company Ltd.
Powerful interest groups moving in

Privately-developed land already covers one quarter of East Dhaka

Source: Visualization based on land classification background work for this report, *Urban land use update and mapping for Greater Dhaka Region* (GISAT 2017) and private developers’ websites.

Note: Classification based on 0.5 and 5-meter resolution satellite imagery.
Risks from business as usual

• *Uneven service delivery*: rapid densification with little infrastructure.

• *Increased disaster risk*: building on sand-filled land is more vulnerable to earthquakes.

• *Irreversible environmental loss*: canals and wetlands being filled up.

• *Land value capture*: unfair appropriation of the gains from urbanization.
URBAN DEVELOPMENT SCENARIOS
Multiple proposals to improve Greater Dhaka

• Retrofitting West Dhaka:
  – Water front rehabilitation.
  – Hazaribagh tannery regeneration.

• Densifying farther out:
  – Gazipur CC, Tongi town.
  – Narayanganj CC.
  – Savar municipality.
  – Tarabo municipality.
A unique opportunity

East Dhaka is close to the most valuable land in Bangladesh

Source: Based on Li and others (2016) and Google Maps.
The example of Pudong, Shanghai

Pudong (Shanghai) before and after development

Source: REUTERS/Stringer (top) Carlos Barria (bottom)
Adapting to weaker institutions

Hard infrastructure is easier; soft reforms are harder

Hard
- Embankment
- Transport
- Service delivery

Soft

How challenging?

Easy

Hard

Urban development scenarios

Four development scenarios for Dhaka: From “business as usual” to a “strategic approach”

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MODELING CITY GROWTH
Calibrating a spatial general equilibrium model to Dhaka

Population (skill endowment)

Housing (formal/informal)

Employment (sectors)

Flooding

Congestion

Messiness

West Dhaka: 124 Unions/Wards

East Dhaka: 12 Unions/Wards

Rest of Greater Dhaka: 130 Unions/Wards

Source: Visualization based on BBS (2011) and Bird and Venables (2017).
Constructing the four scenarios: “Business as usual”

- Current economic trends continue unabated.

- This scenario still involves changes relative to the current situation:
  - The population of Greater Dhaka reaches 24.6 million in 2035.
  - The share of skilled households is projected to be 40 percent.
  - Total factor productivity grows by 1 percent a year in all sectors.
Constructing the four scenarios: “Embankment”

a. Sand-filling, current trend
b. Eastern embankment

Source: Calculations and visualization based on Zaman (2014) and BWDB (2017).
Constructing the four scenarios: “Embankment + Transport”

a. Partial implementation of RSTP

b. Accelerated implementation of RSTP in East Dhaka

Share of length
- Ongoing 96%
- Upgrading 60%
- New roads 30%
- BRT 57%
- MRT 32%

Share of length
- Ongoing 96%
- Upgrading 70%
- New roads 47%
- BRT 100%
- MRT 56%

Source: Calculations and visualization based on DTCA and JICA (2015).
Constructing the four scenarios: “Strategic approach”

• Jobs:
  – One union of East Dhaka becomes as productive for tradable services as the “best” union in Dhaka;
  – Production costs in that cell are reduced by an additional 20 percent.

• Amenities:
  – The livability scores for modern housing in unions in East Dhaka is as high as the top 20 percent of unions in the Dhaka CCs.

• Environment:
  – Wetlands in East Dhaka are fully preserved.
DHAKA IN 2035
Productive new jobs

Source: Calculations and visualization based on Bird and Venable (2017).
Note: Percentages refer to the employment share.
Greater economic output

Source: Calculations and visualization based on Bird and Venable (2017).
Higher income levels

Source: Calculations and visualization based on Bird and Venable (2017) and Brooking Global Metromonitor 2014.
IMPLEMENTING THE VISION
Costs and benefits

Investments are affordable and economic returns are very high

Source: Calculations and visualization based on Bird and Venable (2017).
The fiscal implications

High economic gains from the proposed interventions will translate into larger fiscal revenue

Source: Calculations and visualization based on Bird and Venable (2017).
Risks and mitigation: Earthquakes

Vulnerability to earthquakes increases with East Dhaka’s population

Source: Calculations and visualization based on Bird and Venable (2017).
Risks and mitigation: Congestion and pollution

In Dhaka, mass rapid transit (MRT) would remain underdeveloped compared with that in other big cities.
Risks and mitigation: Surplus grabbing

There may be many fewer property titles than households in East Dhaka

Full report available at:
https://openknowledge.worldbank.org/handle/10986/29925