Pilot Application of East Asia's Climate Resilient Cities Primer in Selected MENA Cities

WB and UNISDR joint exercise

Presented by Asmita Tiwari
Disaster Risk Management Specialist
World Bank

Outline:

- City-level linkages between DRM and CCA
- Pilot Application of City Primer in MENA
- Case Study of Sana’a (Yemen)
- Regionalizing the Primer

DRM to include Climate Change Adaptations

- While DRM includes earthquakes/volcanoes and CC also addresses gradual average changes in Climate, **DRM and CC adaptation greatly overlap and can strategically reinforce each other**.
- **Risk Management approach** as unifying framework to link DRM and CCA with the common aim to preserve development gains.
- **Disasters as a risk integral to development** rather than an interruption in development or an “act of God” (WB IEG report on Managing Climate Risk).
- Objective (**HFA 2005-2015**): promote the integration of risk reduction associated with existing climate variability and future climate change into strategies for reduction of disaster risk and adaptation to climate change.

Why to pilot the City Primer in MENA?

High level of Urbanization:

- In 2005, the 13 countries of the MENA region had 300m population, of which 170 urban.
- By 2030, population will reach 430m, of which **280m will be urban** (UN projections)
- Rural population projected increase: 8.5%, urban population projected increase: 67.5 % !!
- Two megacities > 10m: Cairo and Tehran, one city between 5 and 10m: Baghdad; the 3 cities combined account for 25% of the urban population of the region. 25% of the urban population concentrated in cities between 1m and 5m, and 50% in cities under 1m.
- High vulnerability to natural disasters and to the impacts of climate change: the regional water stress is compounded by cyclical catastrophes and deteriorating environment, exhacerbated by

Why to pilot the City Primer in MENA?

High vulnerability to natural disasters and to the impacts of climate change in urban areas:

- **Development in hazard prone areas due to increased growth pressure**: with fewer resources, poor people settle where land is cheap while still easily accessible to work places. These areas are often flood plains or steep hillsides, which are vulnerable to flooding, landslides, rockslides and damages from earthquakes.
- **Lack of proper/resiliant infrastructure increases the vulnerability to hazards**: local governments faced with high demand for infrastructure, which is costly and time consuming to be implemented. Are
- **Inefficient urban planning and land-use control and/or weak enforcement capacity**
- **Expected high impact of sea level rise in coastal cities**: MENA will be the second developing region most affected by sea level rise. Between 6 and 25 million people could be exposed to coastal flooding in North Africa under a temperature increase ranging between 1º and 3º Celsius. For example, with a possible 0.5 meter sea level rise, about 3.8 million people would be affected in the Nile Delta (UNEP data), and the cities of Alexandria, Rosetta, Damietta and Port Said would be very severely impacted.

The Primer

- Developed by EAP
- A guide for local governments to better understand
  - Concepts and consequences of climate change
  - How climate change contribute to urban vulnerabilities
  - What is being done in East Asia and the World

Objectives of the Primer

- To understand the issues and impact of climate change at the city level
- To engage in a participatory approach to establish vulnerabilities to potential climate change impacts
- To learn about the **why** and the **how** through illustrative examples from other cities
- To build resilience to future disasters into planning and design through **no-regrets** endeavors
- To engage in partnerships and shared learning with other cities facing similar problems

Pilot Application in MENA

- Five Cities:
  - Alexandria, Egypt
  - Amman, Jordan
  - Damascus, Syria
  - Tripoli (Al Fayha Union), Lebanon
  - Sana’a, Yemen

Methodology

- Early discussions
- Visiting Cities
- Filling out the matrices
- Discussion with officials
- Personal observations

Characteristics

	Alexandria	Amman	Damascus	Al-Fayha (Tripoli)	Sana'a
Location	Coastal, river	Mountain	Mountain, river	Coastal, river	Mountain
Population	4 million	2 million	4 million	500,000	2 million
Density	2,000/sq km	3,000/sq km	7,000/sq km	11,000/sq km	13,600/sq km
Growth rate	2-10%	2-10%	2-10%	2-10%	9-10%
Potential hazards	Earth quake, Tsunami, Flood, Drought	Earth quake, Wind storm, Landslide, Drought	Earth quake, Flood, Land slide	Storm surge, Flood, Earthquake	Flood, Land slide

Characteristics

	Alexandria	Amman	Damascus	Al-Fayha (Tripoli)	Sana'a
DRM department	No	No	Yes	No	No
Environment dept	Yes	Yes	Yes	No	No
Response system	No	No	Yes	No	No
Master plan	Yes	Yes	Yes	Yes	Yes
Compliance	High	High	Medium	Medium	Low

Findings

Hot Spot Characteristics	Sana'a	Al Fayha (Tripoli)	Alexandria	Damascus	Amman
Moderate to high level of one or more **natural hazard**	Yes	Yes	Yes	Yes	Yes
Medium or high **observed vulnerability** in past disasters	Yes	Yes	Yes	NA	No
Moderate to high **sectoral vulnerability** of climate change	Yes	Yes	Yes	Yes	Yes
Absence of **urban development plan** or growth plan	No	No	No	No	No
Poor **compliance** with urban development plan or growth plan	Yes	No	No	No	No
Poor **quality of building stock**	Yes	No	No	No	No
High **population density**	Yes	Yes	No	Yes	No
Medium to large **population** or high **decadal growth rate** or high population **density** in case of low population	Yes	Yes	Yes	Yes	Yes
Medium or high **slum density** or large proportion of informal population	Yes	No	Yes	Yes	No
Lack of comprehensive **disaster response system**	Yes	Yes	Yes	**No**	Yes
Either or both **economic and/or political significance** in regional or national context	Yes	Yes	Yes	Yes	Yes
Hot Spot	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Findings

Amman has high compliance to building codes and master plan, good quality building stock & low population density

Damascus has Disaster Risk Management Department

Findings

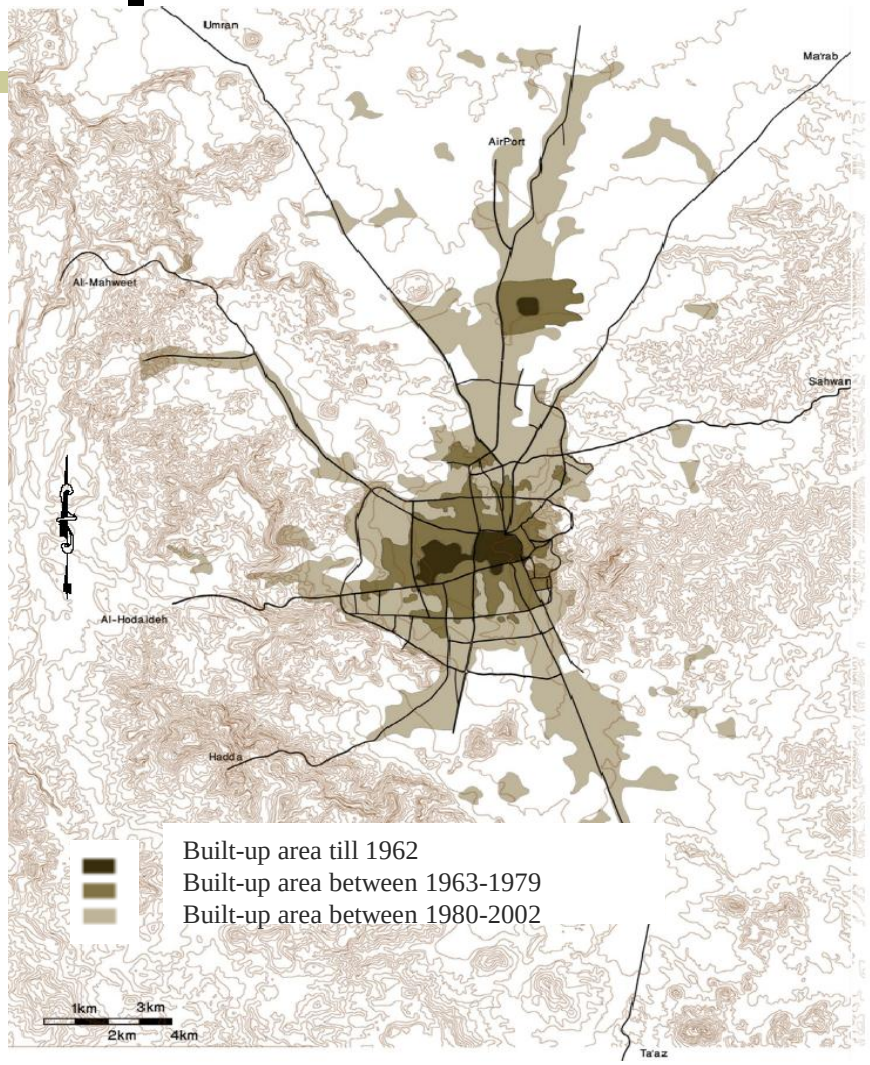
Al-Fayeha union, Lebanon

Alexandria, Egypt

- Disaster Risk Management has not been mainstreamed in city management
- No clear understanding of Climate Change risks

Rapid Risk Assessment: Sana'a

Sana'a



Historical Evolution

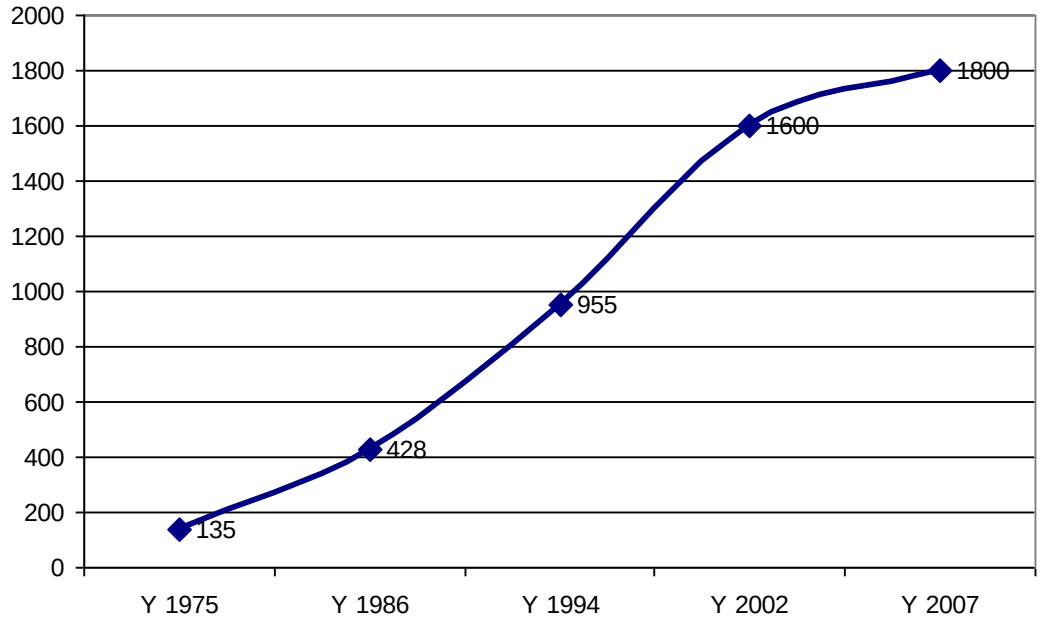
City Description

- Capital city
- Surrounded by Mountains on E and W sides
- High Population : 2 Million
- City Area 129.75 Sq Km
- High Population Density: 13,600/ Sq Km

Sana'a

City Description

- Medium(?) growth rate (9-10%)
- Very High Floating Population (30-45%)
- High growth rates of urban squatters and informal settlements



Sana'a

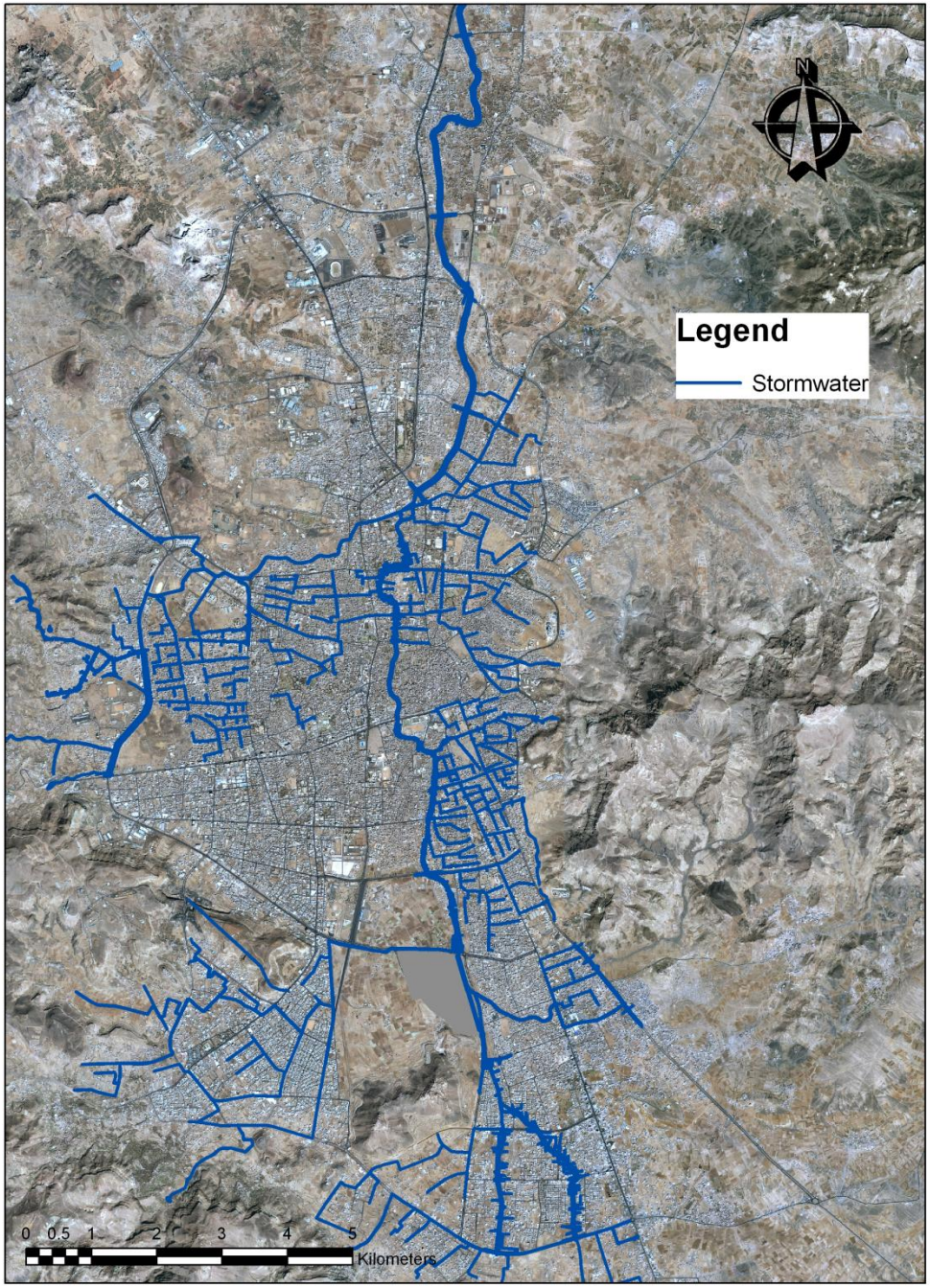
Governance Structure and City Management

- Elected Head of the Local Council
- No DRM or CC department
- No clear responsibilities for DRM and CC
- Saylah Project for flood management and rescue works

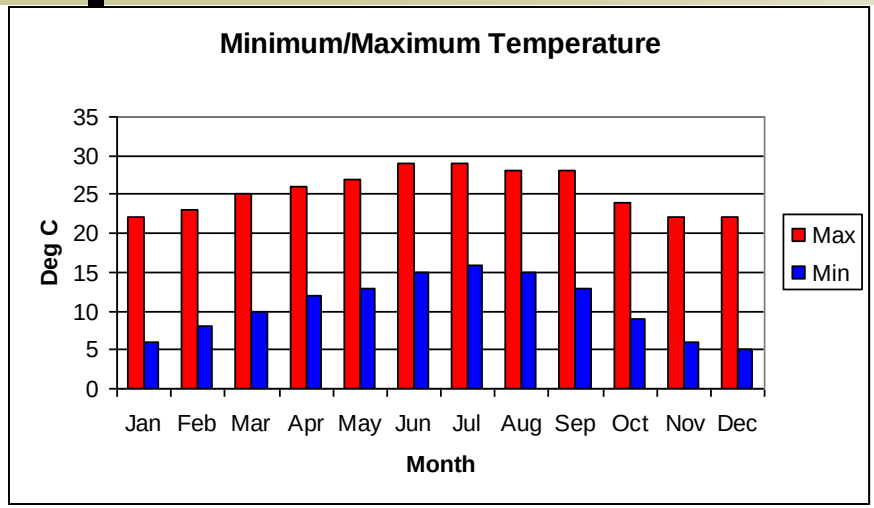
Sana'a

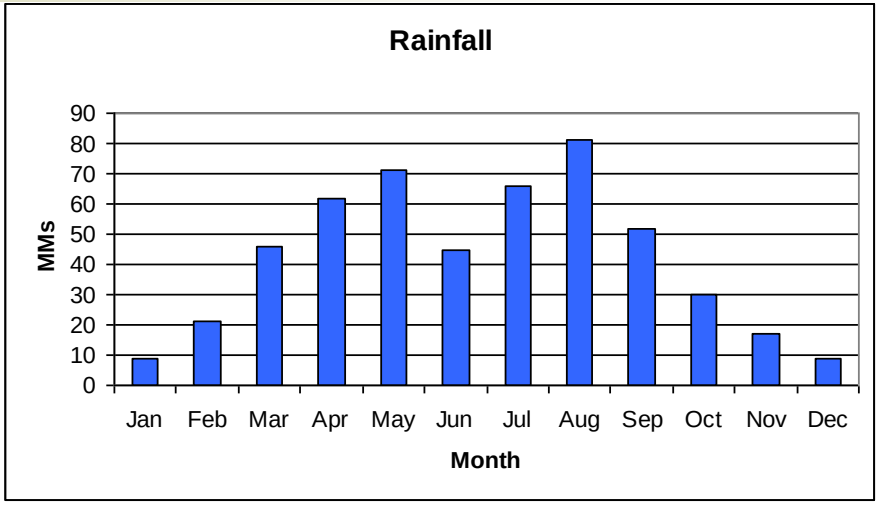
Saylah Project

- Major storm channel also serves as transportation route



Sana'a





National DRM Set up

- Ministry of Water and Environment and Ministry of Civil Defense

Recent Initiatives

- WB supported Sana'a Probabilistic Disaster Risk Assessment as a part of CDS
- WB/GFDRR National Probabilistic Risk Assessment
- WB National Climate Change Impact Assessment
- New Flood Emergency Recovery Loan under preparation

Sana'a

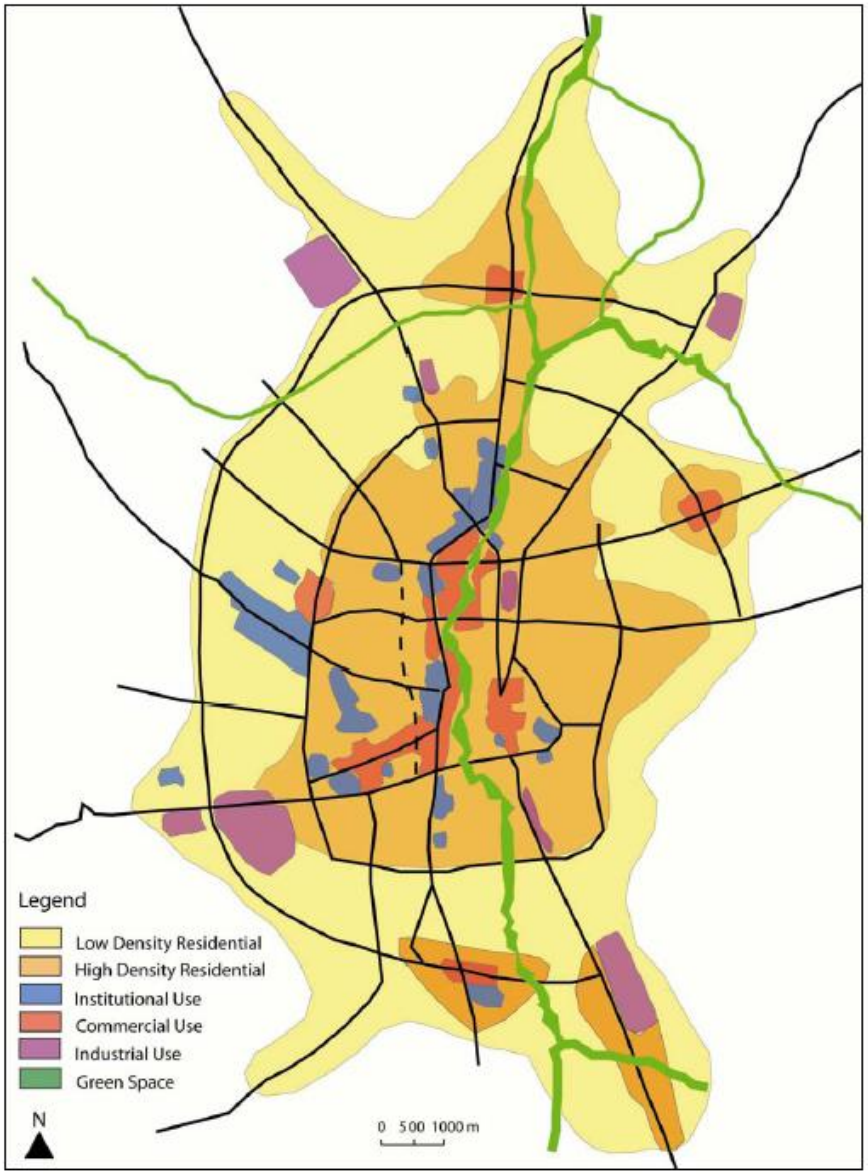
Financial Resources

- City Budget: $ 147.44 Million
- 30% from taxes and 70% from national/state grants
- USAID, WB, City Alliance support for specific projects/ studies
- No budget allocation to Disaster and Climate Change risk management

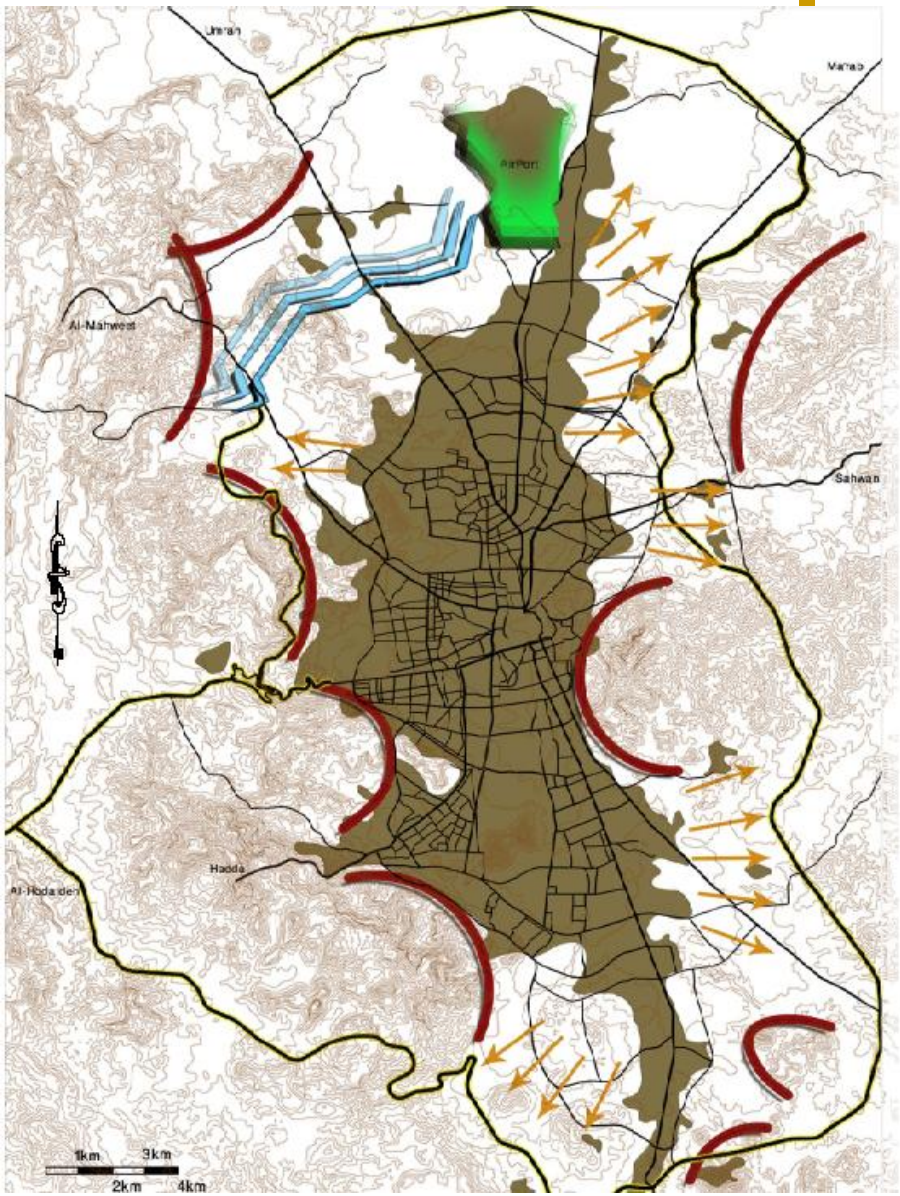
Sana’a

Built Environment

- Master Plan last done in 1978
- City Development Strategy (CDS) under preparation
- 20% population in informal colonies
- Fewer people live in old development
- Ineffective Building Codes
- High vulnerability (poor quality of construction) of old and new building stock



Sana'a Master Plan 1978



Constraints to Growth

Sana’a

- High Political and Economic Impacts
- Threats of Natural Hazards
  - Increased **Flood Hazard** due to modifications to existing land features and increased concentration of population and buildings in flood prone areas
  - Increased **Land Slide** Hazards due to development near sand and sedimentary rocks which produces unstable conditions
- Disaster Response System
  - Proposal for Early Warning System
  - No comprehensive Disaster Response System

Sana'a

Climate Change Vulnerability Assessment

- Impacts not known to the city
- No Climate Change strategy or programs
- Most vulnerable sectors are
  - Transportation system (High)
  - Tourism (High)
  - Water management (High)
  - Built Environment (Medium)
  - Cultural and Religious Buildings (Medium)
  - Local Business (Medium)
  - Energy generation and distribution system (Low)
  - Health Care (Low)
  - Land use (Low)
- Low or no disaster preparedness in any sectors

Sana’a

Findings

- City management is interested in knowing best practices and how is Sana’a doing in comparison to other cities in the region
- The Primer is useful for creating CC and DRM awareness
- Need to adopt new Master Plan with growth management strategies
- Need to update and enforce Building Codes
- Need to proactively develop, commit resources, and enforce DRM strategy
- Need to manage informal housing in the city

Overall Preliminary Findings

- All cities are growing very fast and vulnerable to natural hazards
- Primer useful in conducting quick assessment and advocating for CC and DRM
- First step of the process: what is next?
- Need detailed assessment
- All cities showed interest in knowing more about themselves and other cities

The Primer: Observations

- City Self-assessment more optimistic than reality
- Lack of reliable and updated data
- Overall understanding of disaster management, but lack of awareness on climate change issues/ strategies
- Lack of clarity on responsibilities
- Lack of financial resources
- Lack of technical capacity (human resources, technology)
- Need to decentralize the disaster management system

Regionalizing the Primer

- Need to translate the primer to Arabic
- Need to consider social issues (refugees, temporary migrants, etc.)
- The term “city” should include the contiguous metropolitan area
- Need to contact right experts for response
- Need to modify/calibrate the Primer ratings (H,M, & L) to be more relevant to the region
- Need to add a column of comments in the matrix to qualify some of the Yes/No answers
- Need to include a section on city’s DRM efforts

Next Steps

- Need to “regionalize” and translate the Primer in Arabic;
- Roll out the Rapid Assessment to all major cities in the region;
- Hold an initial workshop to link municipalities, discuss key issues and agree on common methodologies to carry out City-level risk assessments to develop data and monitor progress;
- Sana’a and Djibouti Ville Risk Assessments, together with three pilot coastal cities (Alexandria, Tunis and Casablanca) to provide regional models and best practices.

Thank You!