

Assessment Exercise Worksheet: Discovery of a “Hot Spot”

1: Completing the City Typology and Risk Characterization Matrix

Table 3.1 - Typology and Risk Characterization Matrix:

A. City description	
1. City location.	
a. In a coastal area? (Y or N)	
b. On or near mountain area? (Y or N)	
c. On inland plain? (Y or N)	
d. On inland plateau? (Y or N)	
e. Near to or on a river(s)? (Y or N)	
f. Near earthquake fault lines? (Y or N)	
B. Size characteristics of city	
1. Resident population (VH, H, M, or L) VH = Greater than 10 million H = 2 million to 10 million M = 0.5 million to 2 million L = up to 0.5 million	
2. Population growth during last 10 years (H, M, or L) H = Greater than 10% M = Between 2% to 10% L = Less than 2%	
3. Floating population (VH, H, M, or L) VH = Greater than 30% of resident population H = Between 20%-30% of resident population M = Between 10%-20% of resident population L = Less than 10% of resident population	
4. Area in square kilometers (km ²)	
5. Maximum population density (day or night) (H, M, or L) H = Greater than 2,000 persons per km ² M = Between 1,000 to 2000 persons per km ² L = Less than 1,000 persons per km ²	
C. Governance structure as related to disaster risk management	
1. Appointed head of government (Y or N)	
a. Term of assignment (Years)	
2. Elected head of government (Y or N)	
a. Term of elected officials (Years)	
3. Local government office structure: does it have...	
a. Disaster risk management department? (Y or N)	
b. Environment, sustainability or climate change department? (Y or N)	
c. Are (a) and (b) in the same department? (Y or N)	
4. Other government office structure (state, national): does it have...	
a. Disaster risk management department? (Y or N)	
b. Environment, sustainability or climate change department? (Y or N)	
c. Are (a) and (b) the same department? (Y or N)	

D. City management on climate change and disaster risk management	
1. Responsibilities clearly specified? (Y or N)	
2. Responsibility for climate change management established? (Y or N)	
3. Responsibility for disaster risk management established? (Y or N)	
4. Authority to contract for services? (Y or N)	
E. Financial resources	
1. Total budget	
2. From local taxes and levies (% of total)	
3. From state and national government grants & devolutions (%)	
4. From domestic market – bonds & loans (%)	
5. From international market (%)	
6. From external or multi-lateral lending agencies (%)	
F. Built environment	
1. Does the city have urban growth Master Plans? (Y or N)	
2. Does the city have urban development plans and land-use plans? (Y or N)	
a. Population in authorized development (% of total)	
b. Population in informal colonies (% of total)	
c. Population density of informal colonies (H, M, or L)	
H = Population of informal colonies >20% of total	
M = Population of informal colonies <20% but >10% of total	
L = Population of informal colonies <10% of total	
d. Population in old tenements and historical development (% of total or H, M, or L using ratings in 2c)	
3. Does the city have building codes? (Y or N)	
a. What is level of compliance? (% compliant buildings)	
4. Observed vulnerability of buildings in past natural disasters (extent of disruption of building functionality)	
a. Informal buildings (H, M, or L)	
H = Greater than 15% of informal buildings highly vulnerable	
M = Between 5% and 15% of informal buildings highly vulnerable	
L = Less than 5% of informal buildings highly vulnerable	
b. Historic buildings (H, M, or L)	
c. New & formal developments (H, M, or L)	
H = Greater than 5% of new & formally developed buildings highly vulnerable	
M = Between 1% and 5% of new & formally developed buildings highly vulnerable	
L = Less than 1% of new & formally developed buildings highly vulnerable	
G. Political impact of disasters	
1. Is the city a national/provincial capital or where a large number of decision-makers live? (Y or N)	
2. Is impact of disaster in the city likely to influence political activity in areas far away from affected regions? (Y or N)	
H. Economic impact of disasters	
1. Is the city a major center of economic activity in regional or national context? (Y or N)	
2. Do the following sectors have major activity in the city?	
a. Industrial sector? (Y or N)	
b. Services sector? (Y or N)	
c. Financial sector? (Y or N)	
d. Tourism and hospitality sectors? (Y or N)	

I. Threat of natural hazards	
1. Earthquake? (Y or N)	
2. Wind storm? (Y or N)	
3. River flood? (Y or N)	
4. Flash rainwater flood or extreme precipitation? (Y or N)	
5. Tsunami? (Y or N)	
6. Drought? (Y or N)	
7. Volcano? (Y or N)	
8. Landslide? (Y or N)	
9. Storm surge? (Y or N)	
10. Extreme temperature? (Y or N)	
J. Disaster response system	
1. Does a disaster response system exist in the city? (Y or N)	
2. Is the response system comprehensive and equipped for all natural hazards specified? (Y or N)	
3. Is the disaster response system regularly practiced? (Y or N)	
4. Is the disaster response system regularly updated? (Y or N)	
K. Climate change impact	
1. Is the impact of climate change on the city known? (Y or N)	
2. Are the following sectors vulnerable to the consequences of climate change?	
a. Built environment? (Y or N)	
b. Cultural and religious heritage? (Y or N)	
c. Local business, industry and economy? (Y or N)	
d. Energy generation and distribution system? (Y or N)	
e. Health-care facilities? (Y or N)	
f. Land use? (Y or N)	
g. Transportation system ? (Y or N)	
h. Parks and recreation areas? (Y or N)	
k. Tourism? (Y or N)	
3. Is climate change assessment based on local studies instead of regional/global models? (Y or N)	
4. Does the city have a climate change strategy (maybe, as a component of national policy)? (Y or N)	
5. Does the city have climate change programs in place? (Y or N)	
6. If Yes, do the climate change programs consider:	
a. Mitigation? (Y or N)	
b. Adaptation? (Y or N)	
c. Resilience? (Y or N)	

B: Additional Testing for a Hot Spot

Table 3.2 - Vulnerability assessment for different consequences of climate change in urban areas:

Attribute matrix	Climate Factor		
	Temperature rise	Precipitation change	Sea-level rise
Rate the level of vulnerability in each of the following areas.			
H = Very important consequences and priority for action			
M = Important and should be considered in city development plans			
L = Unimportant			
Built environment (H, M, or L)			
Cultural and religious heritage (H, M, or L)			
Local business, industry and economy (H, M, or L)			
Energy generation and distribution system (H, M, or L)			
Health-care facilities (H, M, or L)			
Land use (H, M, or L)			
Transportation system (H, M, or L)			
Parks and recreation areas (H, M, or L)			
Social equity system (H, M, or L)			
Water management (H, M, or L)			
Tourism (H, M, or L)			

Table 3.3 - Preparedness and response to different natural hazards in urban sectors:

Attribute matrix	Disaster preparedness and response			
	Industrial sector	Service sector	Financial sector	Tourism and hospitality sector
Define the level of preparedness for each event for each sector.				
H = high level of preparedness and readiness to respond to disaster and hazard				
M = somewhat high level and the basic/key informants are present (i.e., a basic disaster management system is in place, but may not be comprehensive or consider specific hazards)				
L = low (i.e., no disaster management system, no warning system, etc.)				
1. Earthquake (H, M, or L)				
2. Wind storm (H, M, or L)				
3. River flood (H, M, or L)				
4. Flash rainwater flood or extreme precipitation (H, M, or L)				
5. Tsunami (H, M, or L)				
6. Drought (H, M, or L)				
7. Volcano (H, M, or L)				
8. Landslide (H, M, or L)				
9. Storm surge (H, M, or L)				
10. Extreme temperature (H, M, or L)				

C: Is Your City a “Hot Spot”?

Table 3.4 - Recommended Indicators for Preparedness:

Priority for action	Recommended Indicators
1: Ensure that climate change impact and disaster risk management is a local priority with a strong institutional basis for implementation	<ul style="list-style-type: none"> (a) Institutional and legal frameworks for climate change impacts and/or disaster risk management exist with decentralized responsibilities and capacities at all levels. (b) Dedicated and adequate resources are available to implement climate change impacts and disaster risk management plans at all administrative levels. (c) Community participation and decentralization is ensured through the delegation of authority and resources to local levels.
2: Identify, assess and monitor disaster risks and enhance early warning	<ul style="list-style-type: none"> (a) Local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors. (b) Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities. (c) Early warning systems are in place for all major hazards, with outreach to communities.
3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels	<ul style="list-style-type: none"> (a) Relevant information on disasters is available and accessible at all levels, to all stakeholders (through networks, development of information sharing system, etc.). (b) School curricula, education material and relevant trainings include risk reduction and recovery concepts and practices. (c) Research methods and tools for multi-risk assessments and cost-benefit analysis at the city or regional level are developed and strengthened. (d) Public awareness strategy exists to stimulate a culture of disaster resilience, with outreach to urban and rural communities.
4: Reduce the underlying risk factors	<ul style="list-style-type: none"> (a) Disaster risk management is an integral objective of climate change-related policies and plans, including for land use, natural resources management and climate change adaptation. (b) Social development policies and plans are being implemented to reduce the vulnerability of populations most at risk. (c) Economic and productive sectoral policies and plans have been implemented to reduce the vulnerability of economic activities. (d) Planning and management of human settlements incorporate climate change impacts and disaster risk management elements, including enforcement of building codes. (e) Disaster risk management measures are integrated into post-disaster recovery and rehabilitation processes. (f) Procedures are in place to assess disaster risk impacts of all major development projects, especially infrastructure.
5: Strengthen disaster preparedness for effective response at all levels	<ul style="list-style-type: none"> (a) Strong policy, technical and institutional capabilities and mechanisms for disaster management, with a disaster risk reduction perspective are in place. (b) Disaster preparedness plans and contingency plans are in place at all administrative levels, and regular training drills and rehearsals are held to test and develop disaster response programs. (c) Financial reserves and contingency mechanisms are in place to enable effective response and recovery when required. (d) Procedures are in place to exchange relevant information during disasters and to undertake post-event reviews.