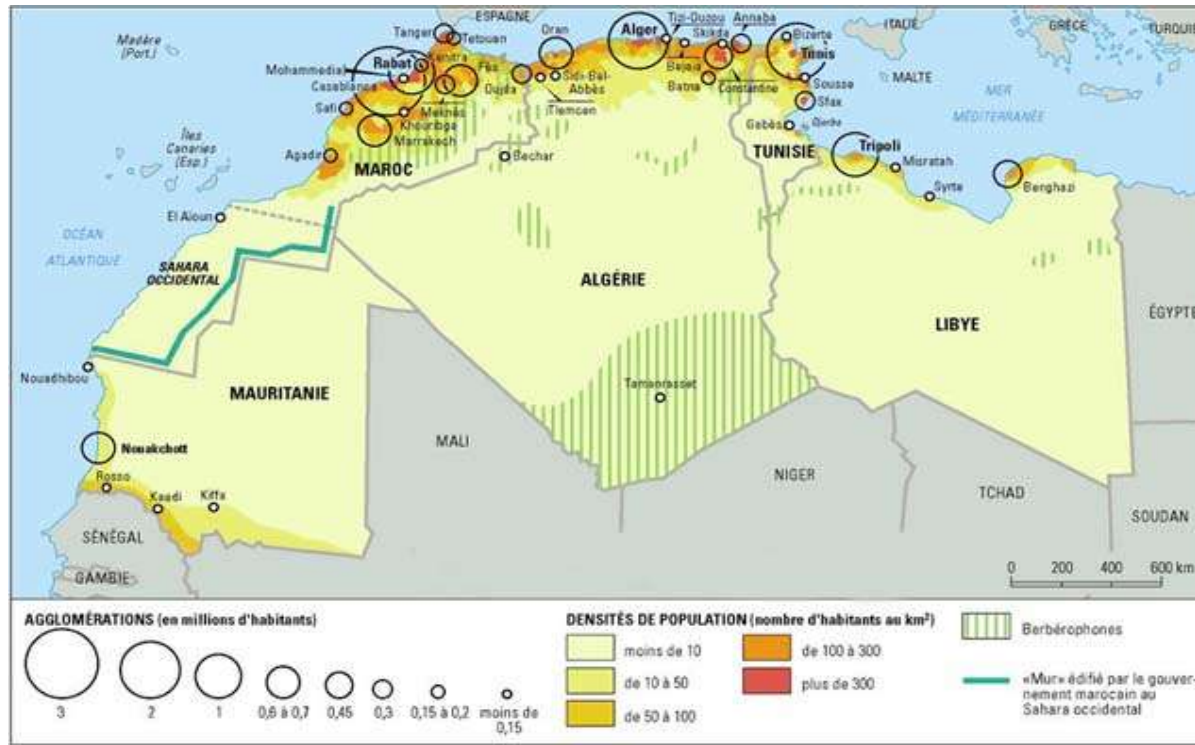


Vulnerability to climate change and natural disasters of Alexandria, Casablanca and Tunis



The World Bank and Academy for Science, Technology and Maritime Transport


World Bank MENA Region Strategic Priorities

- ▶ **DRM in National Growth Agenda supported through Technical Assistance and Risk Financing (i.e. Catastrophe Deferred Draw Down Option, Vulnerability Reduction Loans, Emergency Recovery Loans)**
 - Structural Risk Mitigation e.g. design & financing of the retrofitting of key infrastructure (dams, roads, schools etc).
 - Non Structural Risk Mitigation (land use planning; disaster preparedness; develop hazard mapping, risk assessment, institutional support);
- ▶ **DRM in Planning and Implementation in Urban Areas through Vulnerability Reduction Projects, Sub-National Loans, and Technical Assistance** support risk assessments, structural risk mitigation for key city infrastructure such as drains to reduce flooding, strengthening of roads etc., City DRM plans, early warning system, community preparedness, urban planning, building codes
- ▶ **Working with Communities usually through Vulnerability Reduction Projects and also Emergency Recovery Loans** for community risk assessments and disaster preparedness activities (evacuation plans, trainings in school etc)
- ▶ **Develop Regional Capacity and Awareness** – Regional Partnerships , trainings, development of regional DRM tools (eg. insurance pools, regional early warning systems)

Example of Activities in MENA

- ▶ **Emergency Recovery Loans to Iran after Bam Earthquake** supported reconstruction and also assisted in development of risk mitigation strategies.
- ▶ **Support for the National DRM Agenda in Yemen and Djibouti and Morocco** – (more on Yemen and Djibouti in upcoming presentations). The Bank will assist Morocco in providing an assessment of catastrophe risks.
- ▶ **Urban Risk Reduction** – support includes risk identification (working with Sana'a on hazard risk mapping and assessments, Casablanca, Tunis and Alexandria), risk reduction (integrating DRM into city planning in Sana'a, Tripoli, Casablanca, Tunis, Alexandria).
- ▶ **Community Based Disaster Risk Reduction (CBDRM)** – Develop a strategy note on CBDRM activities in the MNA region: country focus on Yemen, Djibouti, Morocco and Egypt to help in operationalizing future DRM projects from the community perspective; (b) Finalize a study on social dimensions of climate change, with specific emphasis on displacement.
- ▶ **Strengthening and promoting regional DRM partnerships** – (a) Facilitate exchange of knowledge and good practice through training with the World Bank Institute and the Arab Academy; (b) Enhance regional risk assessment capacity, accessibility to tools; (c) Analyze potential for strategic policy dialogue around DRM across the MNA region.

Main urban and climate issues

- ▶ MENA coastal cities home to over 60m, 100m by 2030, or 1 / 3 of all urban pop.
 - ▶ Coastal cities are among the largest and most productive urban agglomerations
 - ▶ MENA is second most affected region by SLR, high water stress already present
 - ▶ Increasing temperatures (2C), decreasing precipitation and runoff expected by 2030
- 

Alexandria, Casablanca & Tunis



- 2-year study to a) assess vulnerability to climate change and natural disasters; and b) prepare adaptation action plans, by December 2010
- Cities selected on the basis of:
 - Coastal cities facing threat of CC and Disasters
 - Interest of national/local government
 - Current engagement with the WB

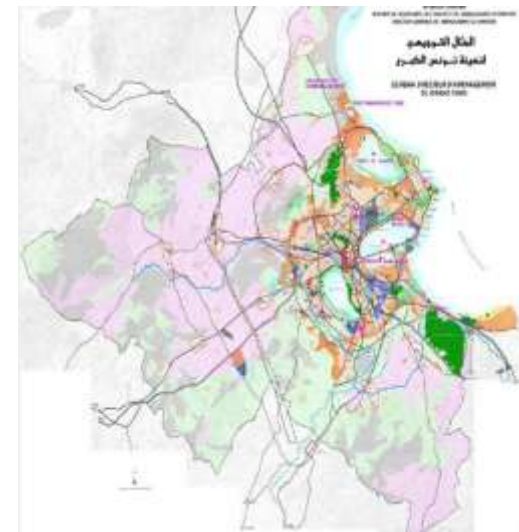
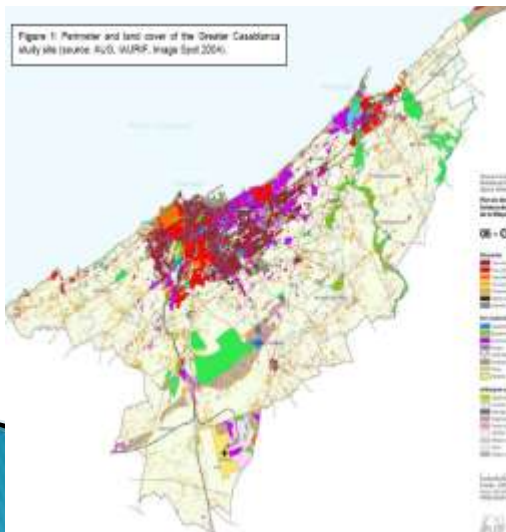
Threats Facing the Targeted Cities

- ▶ SLR, Coastal Erosion and Storm Surges
- ▶ Urban Flooding
- ▶ Water Scarcity
- ▶ Ambient Temperatures
- ▶ Tsunami Risk



Adaptation 1: Urban Planning

- ▶ All cities populations to expand by 2030:
 - * Tunis by 40%,
 - * Casablanca by 60%
 - * Alexandria by 70%
- ▶ Areas at high risk will be identified, avoided
- ▶ Adaptation actions to be proposed for other areas



Adaptation 2: Infrastructure



- ▶ Design of coastal marine defenses
- ▶ Harbor structures and logistics platforms
- ▶ Waste water treatment, power plants
- ▶ Drainage systems and pumping stations
- ▶ Built environment retrofitting

Adaptation 3: Preparedness

- ▶ Early warning systems
- ▶ Civil protection readines
- ▶ Emergency response and evacuation plans
- ▶ Public information and awareness
- ▶ Institutional coordination

