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# MENA Knowledge and Learning

## Quick Notes Series



### NATURAL DISASTERS IN MENA: A REGIONAL OVERVIEW

Franck Bousquet, et al.<sup>1</sup>

**Introduction:** Disasters are increasing world wide with more devastating effects than ever before. 2011 saw the highest global economic losses ever due to natural disasters, estimated at US\$370 billion. This is up from 2010's US\$226 billion, itself three times the 2009 total. Disasters in 2010 also claimed significantly more lives, with nearly 304,000 killed—the highest number since 1976<sup>2</sup>. A cumulative 3.3 million people have died around the world from disasters in only 40 years (1970–2010). The absolute number of disasters around the world has almost doubled since the 1980s, but the average number of natural disasters in MENA has almost tripled over the same period<sup>3</sup>.

**Natural Disasters in MENA:** In MENA<sup>4</sup> the interplay of natural disasters, rapid urbanization, water scarcity, and climate change has emerged as a serious challenge for policy and planning. It has reconfigured risk landscapes by making the region's natural resource base fragile and extremely susceptible to a variety of internal and external factors.

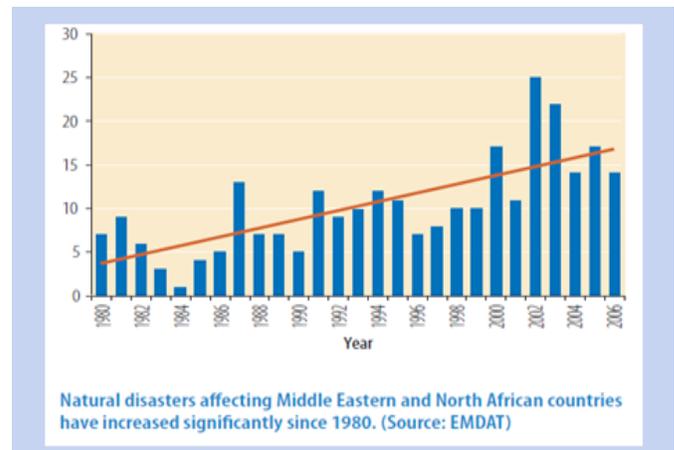
<sup>1</sup> The authors of the report are World Bank staff members and include Franck Bousquet, Sector Manager, Urban, Social and Disaster Risk Management, the Middle East and North Africa Region (MNSSU), The World Bank; Deepali Tewari, Andrea Zanon, Rakhi Bhavnani, Aditi Banerjee, Catherine Burtonboy, Osama Hamad, and Sahar Safaieare. The note is based on the larger report with the same title that will be released following a regional validation workshop taking place in Saudi Arabia in October 2013.

<sup>2</sup> Swiss Re, "Natural Catastrophes and Man-Made Disasters In 2010: A Year of Devastating and Costly Events," Sigma 1 (2011).

<sup>3</sup> EM-DAT, the OFDA/CRED International Disaster Database, [www.emdat.net](http://www.emdat.net), Université Catholique de Louvain, Brussels, Belgium.

<sup>4</sup> See World Bank Annual Report for details on countries defined by the World Bank as the Middle East and North Africa (MENA) region.

Figure 1 Disaster Trends in the MENA Region



Source: EMDAT

The 2011 Global Assessment Report on Disaster Risk Reduction finds that although global flood mortality risk has been decreasing since 2000, it is increasing in MENA<sup>5</sup>. The percentage of GDP exposed to floods, MENA's most recurring hazard, has tripled from 1970-1979 to 2000-2009<sup>6</sup>. Earthquakes are the second most prevalent disaster in the region. Although limited data exist on droughts, this also recurrently hits as well with severe economic losses. The 2008 floods in Yemen's Hadramout and Al-Mahara regions cost US\$1.6 billion, the equivalent of 6% of the country's GDP<sup>7</sup>. From 2008 to 2012, drought in Djibouti caused an annual economic contraction of approximately 3.9% of GDP<sup>8</sup>. Floods in Jeddah, 2009 to 2011 had catastrophic consequences with losses that

<sup>5</sup> United Nations, *2011 Global Assessment Report on Disaster Risk Reduction* (Geneva, Switzerland: Information Press, Oxford, UK, 2011), 28.

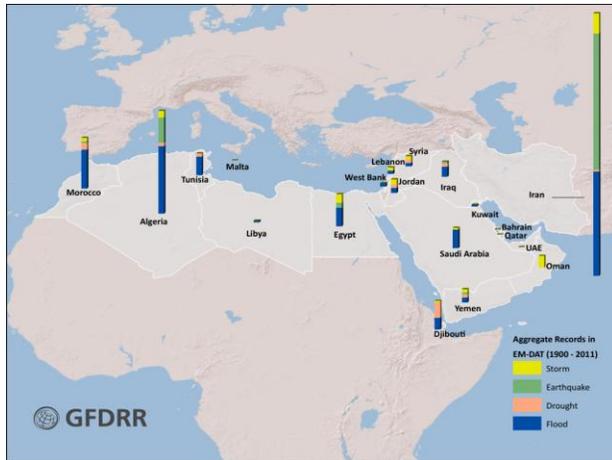
<sup>6</sup> Ibid, 32.

<sup>7</sup> World Bank, "Yemen Floods Post Disaster Needs Assessment," (Washington, DC, October 2008).

<sup>8</sup> Government of Djibouti, "Djibouti Post-Disaster Needs Assessment (PDNA)," (Djibouti-ville, 2012).

amounted to US\$800 Million. Reconstruction, for government facilities and compensation for victims was estimated at US\$1.36 billion<sup>9</sup>. In the 1980-2010 period 81% of disaster events in MNA were concentrated in just six countries – Algeria, Djibouti, Egypt, Iran, Morocco, and the Republic of Yemen (figure 3).

Figure 2 Regional Distribution of Disaster Events



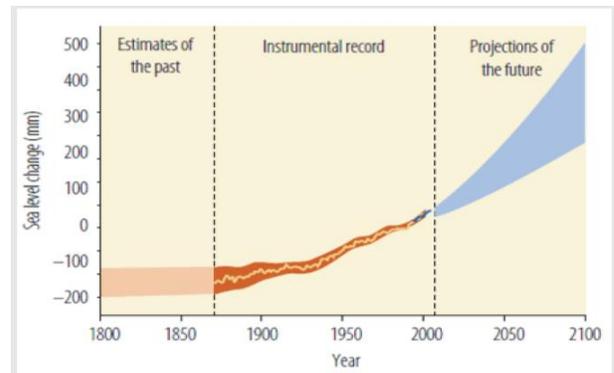
Source: EMDAT 2010

**Urbanization in MENA and Natural Disasters:** MENA’s rapid urbanization is increasing the exposure and vulnerability of people and economic assets to disasters. MENA’s urban population accounts for 62% of the total population and is to double in the next 30 years<sup>10</sup>. Additionally, 3% of the region’s surface area is home to 92% of total population<sup>11</sup>. Urban areas must deal with floods on a regular basis and with limited structural protection, inadequate citywide drainage systems, and weak nonstructural flood mitigation measures.

The impact of urbanization is especially felt in coastal areas, where the largest cities and economies are. Approximately 60 million people, 17% of the population, live in MENA’s coastal areas. Rapid growth of informal

settlements is resulting in greater exposure to floods. Continuing urban development will inevitably lead to new vulnerabilities. The future of the 100 million poor people who are the least resilient to disasters is of great concern<sup>12</sup>. According to the Inter-governmental Panel on Climate Change (IPCC)<sup>13</sup>, sea-level rises would cause millions to be displaced. In Egypt a 1 meter rise in sea level could put 12% of its agricultural land at risk. The same event would affect 3.2% of MENA’s population, compared to a global figure of 1.3%<sup>14</sup>. Projections by climatologists and the UN suggests that MENA will be the second most affected region by climate change<sup>15</sup>. By 2050, the region will likely face a 50% renewable water supply gap and water will be imported or desalinated, costing the driest MENA economies a 1% reduction in GDP<sup>16</sup>.

Figure 3 Sea-Level Rise Projections



Source: WRI.

**Demand for Comprehensive Disaster Risk Management (DRM):** MENA Governments have seen a progressive increase in demand for comprehensive DRM services. Increasing awareness of DRM issues has brought about

<sup>9</sup> Nail M. Momani and Ayman S. Fadil, *Journal of Social Sciences* 6, no. 3 (2010): 424–28.

<sup>10</sup> UN-HABITAT, *The State of Arab Cities 2012: Challenges of Urban Transition* (www.unhabitat.org, 2012).

<sup>11</sup> World Bank, *Poor Places, Thriving People: How the Middle East and North Africa Can Rise Above Spatial Disparities* (Washington, DC: World Bank, 2011).

<sup>12</sup> World Bank, “MNA Draft Climate Change Strategy” (Washington, DC, 2011)

<sup>13</sup> World Bank, “Adaptation to a Changing Climate in the Arab Countries” (Washington, DC, 2012).

<sup>14</sup> Mostafa K. Tolba and Najib W. Saab, *2009 Report of the Arab Forum for Environment and Development: Arab Environment Climate Change – Impact of Climate Change on Arab Countries* (Beirut, Lebanon: Technical Publications and Environment & Development, 2009), VIII.

<sup>15</sup> World Bank, “Adaptation to a Changing Climate.”

<sup>16</sup> Ibid.

progressive policy shifts, as seen through the creation of a number of DRM-specific institutions and investments in programs around the region, including early warning systems and national, and city level risk assessments. In 2010, for instance, the Islamic Conference of Environment Ministers adopted the Islamic Strategy for Disaster Risk Reduction and Management, which aims to establish comprehensive DRM structures and policies across Islamic countries.

Supported since 2007 by the Global Facility for Disaster Reduction and Recovery (GFDRR) country-level programs have been launched in Djibouti, Morocco, and Yemen to increase their resilience to disasters. These programs include activities to improve information availability on disaster risks, developing the policy environment for risk reduction, building capacities in risk reduction through training at the national and local levels, and creating state-led post-disaster recovery and reconstruction programs. In Algeria, Djibouti, Jordan, Lebanon, Morocco, Saudi Arabia and Yemen, donor-funded hazard risk assessments have been completed or are ongoing. Flood recovery projects have been launched in Djibouti and Yemen, and inter-ministerial steering committees on DRM have been established in Algeria, Djibouti, Morocco, and in Yemen.

While a certain level of momentum has been building around DRM in MENA, it has not yet been matched with the integrated approaches required to manage risks effectively. Given the region's growing exposure to natural hazards, risk reduction challenges are substantial. However, by systematically building awareness, institutional capacity at the regional, national and local levels can help minimize risks. This entails taking immediate steps, and taking them collaboratively. Good development planning, informed by risk analysis, will contribute significantly to the path of development while simultaneously benefitting people's lives and their livelihoods.

**Decentralization and the DRM Agenda:** Decentralization of the DRM agenda has progressed slowly, although some countries are making a progressive shift. Most activities in DRM continue to be addressed at the national

level. However, in Algeria, Egypt, Morocco and Yemen, a slow but progressive shift toward decentralization of DRM has begun. In Morocco, community-level DRM activities are being developed, including community maps, training on construction standards, and community early warning systems. This is particularly important because communities, need to be empowered to manage their own risk.

The 2012 *Sendai Report*<sup>17</sup> shows that an effective DRM strategy requires a decentralized approach and an appropriate division of resources (human and financial) in all tiers of government. At the local level, city managers are not only the ones with key roles to play, civil society organizations can also contribute significantly to building local resilience. Although MENA countries are still among the most centralized in the world, with some of the lowest total local government expenditures (ranging from 3% in Jordan to 18% in Egypt, compared to the world average of about 22 %), several countries in the region are progressively moving toward greater devolution of powers to lower tiers of government, as in Tunisia, Yemen, and Morocco<sup>18</sup>. This is an opportunity to strengthen cities, making them more resilient to natural hazards and strengthening their capacity to support the DRM agenda.

**Proposed Way Forward:** World Bank support to MENA countries encompasses capacity building on DRM at national and community levels, catalyzing an inter-ministerial dialogue within countries, and creating an enabling environment to support the development of national DRM strategies. The framework in Figure 4 proposes cost-effective steps governments and other can take to protect populations and economics assets. Collectively these steps contribute to comprehensive DRM. This framework was used recently in the Sendai Report. See below for immediate priorities under its five pillars:

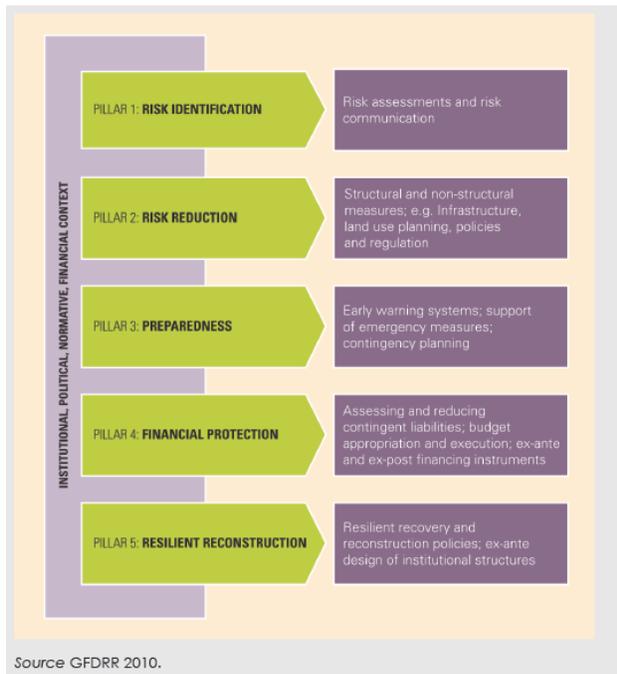
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<sup>17</sup> World Bank and GFDRR, *Sendai Report: Managing*

*Disaster Risks for a Resilient Future* (Washington, DC, 2012).

<sup>18</sup> UN-HABITAT, *The State of Arab Cities 2012: Challenges of Urban Transition* ([www.unhabitat.org](http://www.unhabitat.org), 2012).

Figure 4: A Disaster Risk management Framework



*Pillar I - Institutional Strengthening & Capacity Building - Priorities:* (i) support development of a regional “Center of Excellence” to build resilience to disasters; (ii) promote awareness, institutionalization, and ownership of DRM to line ministries; (iii) support development/use of tools for mainstreaming DRM into development planning; (iv) promote the development, application, enforcement, and monitoring of policies, standards, norms for DRM, land use, and natural resource management; (v) enhance synergies between land-use planning, CCA, and DRM and its institutionalization; (vi) strengthen regional/national institutions in risk assessment.

*Pillar II - Risk Identification - Hazard & Risk Assessment - Priorities:* (i) Set up dedicated systems and resources for the development of hazard and risk assessments and dissemination of risk information; (ii) Conduct risk assessments of critical urban areas.

*Pillar III - Risk Reduction - Structural and Nonstructural Mitigation Measures - Priorities:* (i) Promote the development of well-designed water management systems across the region; (ii) strengthen capacity development for the

implementation of disaster risk mitigation programs in the region; (iii) promote the development of cost-benefit analysis for structural mitigation investments for critical infrastructure; (iv) standardize disaster risk calculations in public investment; (v) support cost-effective flood protection measures.

*Pillar IV - Risk Financing and Transfer - Risk Financing - Priorities:* (i) Increase government financial response capacity on natural disasters while maintaining their fiscal balance; (ii) Promote inclusion of natural disaster risks within the broader financial risk management strategy; (iii) explore market-based catastrophe risk insurance solutions; remember lessons learned from international experience and promote regional cooperation on DRFI.

*Pillar V - Response, Recovery, and Reconstruction - Priorities:* (i) Develop a comprehensive review of the status of emergency response in MENA; (ii) Develop capacities at the regional level for rapid Post Disaster National Assessments (PDNAs) following emergencies; (iii) mainstream DRM into reconstruction through best practice case studies; (iv) continue building PDNA capacity and develop disaster damage assessment structure and methodology and recovery planning framework; (v) support capacity building for communities—the first responders in times of disaster.

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