

## IN-BETWEEN CHAPTER

### CLIMATE DISASTER RISK MANAGEMENT IN ARAB COUNTRIES

#### CLIMATE DISASTERS ARE INCREASING IN FREQUENCY

Worldwide climate related disasters are taking an increasing toll. From 1981–2010, more than 5.5 billion people were affected and 1.4 million killed by climate disasters (EM-DAT 2010).<sup>58</sup> The number affected has grown from 2.2 billion in the first half of that period (1981–1995) to almost 3.3 billion in the second half (1996–2010). In the MENA Region the number of climate disasters reported doubled from 110 to 250 over those same periods. The number of people affected rose from 30 million to 62 million, but the number killed fell from 156,000 to 7,600.<sup>59</sup> These are consistent with global trends; i.e. the number of climate related disasters and number of people affected are increasing faster than might be explained by better reporting and population growth.

**Figure 8.1 Flooding in the Hadramout Province, Yemen (October 2008)**



*Source:* Taken by the Damage Loss Needs Assessment Team.

As described in Chapter 2, both recent observations and modeling show that climate change is leading to greater intensity and sometimes frequency of many weather phenomena, such as storms, floods, and droughts. Climate change is likely to increase both rapid onset disasters (e.g. storms or flooding) and slow onset disasters such as drought and the creeping damages from sea-level rise (more coastal flooding and salinization).<sup>60</sup> Climate change also has secondary impacts on disasters like dust storms, landslides, rockslides caused by heavy rain, and forest fires during droughts.

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<sup>58</sup> EM-DAT, based on natural disasters: Drought, Extreme Temperature, Flood, Storm, Wildfire (EM-DAT 2010).

<sup>59</sup> These estimates include the 1998–2000 drought in Iran that is reported to have affected 37 million people and the 1983–84 droughts in Sudan that killed 150,000 people. Comparisons of disaster data are always difficult due to differences in reporting criteria and in the stochastic nature of disasters themselves. This is particularly true for reported costs of damage.

<sup>60</sup> While climate change may increase the frequency of an event, only rarely can an event be ascribed to climate change. Scientific analysis can be used to establish statistically significant trends that may be consistent with expected trends based on climate change and other socio-economic factors.

Within the Arab region, the interplay of natural hazards, together with the impacts of climate change, water scarcity, and food insecurity has emerged as a serious challenge for policy and planning for all states. Over the past 30 years, climate disasters affected 90 million people in the Arab region with a reported cost of US\$22 billion, although this is clearly an underestimate as the costs of damages are reported for only 24 percent of disasters and rarely capture the loss and suffering that follow the loss of lives and livelihoods (EM-DAT 2010).

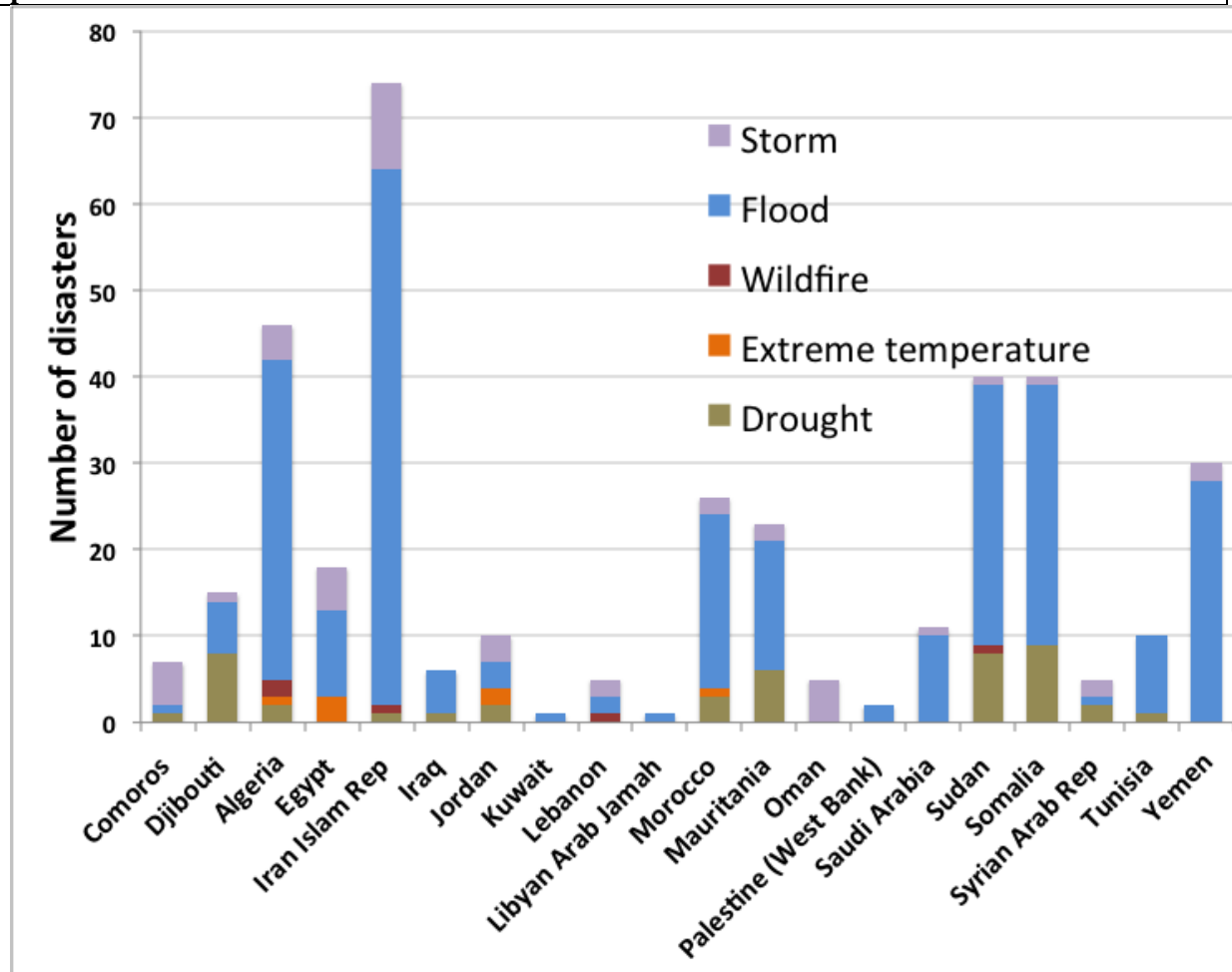
This section outlines the main climate related hazards, risks, and vulnerabilities in the Arab region, the political commitment to disaster risk management (DRM) (national and regional initiatives), key gaps and constraints, and concludes with a set of recommendations for better mainstreaming of DRM in national policies.

## **THE HAZARD RISK PROFILE OF THE ARAB STATES IS CHANGING**

Floods dominate the number of reported disasters across the Arab region although droughts affect more people. Floods are also increasing in frequency—from 40 in the 1980s to 140 in the 2000s (Figure 2). The region's high rate of urbanization, particularly in coastal areas, often exacerbates the effects of the frequent floods, droughts, and landslides. Global climate change is expected to result in a 2–3°C temperature increase and greater intensity in rainfall events over the next 15–20 years, leading to increased intensity and frequency of both droughts and floods and exposing up to 25 million urban dwellers to flooding (IPCC 2007; Abu Swaireh 2009). These same climate changes could lead to a 30–50 percent drop in water availability exacerbating existing severe water scarcity (World Bank 2007). This could lead to increased internal and external migrations which will be compounded by sea-level rise.

Many of the countries in North Africa and the Gulf have a bulk of their population, physical assets, government and administrative centers close to coasts, which exposes a large portion of the population and major strategic and economic assets to the full range of hydro-meteorological hazards. The 2011 Global Assessment Report on Disaster Risk Reduction finds that although global flood mortality risk has decreased globally since 2000, in regions like MENA it is still increasing, indicating that growing exposure continues to outpace reductions in vulnerability (United Nations 2011). The percentage of gross domestic product (GDP) exposed to floods has tripled in the three decades from 1970–1979 to 2000–2009 (United Nations 2011, 32).

**Figure 8.2 The number of reported climate related disasters by type and location over the period 1981 to 2010**



Source: EM-DAT.

### ARAB STATES ARE RESPONDING TO MITIGATE CLIMATE THREATS

It is not possible to prevent a hazard from occurring, but it is possible to mitigate its impact. Climate change adaptation (CCA) and disaster risk reduction (DRR) both serve this purpose. Though overlapping in objective, methods, and benefits, the terms intrinsically differ. CCA refers to the ability of a community or society to adapt to the changing climate by using its own resources while DRR refers to the reduction of risk by adopting mitigation measures to reduce the vulnerability of populations, thereby reducing the impact of a hazard.

Practitioners and scientists are recognizing the complementarity of CCA and DRR for sustainable development with areas of synergies and mutual benefit. However, within most national and local governments, the two communities of practice largely operate in isolation; this can be partly attributed to thematic investments by donors and partly to existing in-house silos within governments (CCA usually falls under the mandate of the Ministry of Environment and DRR under the Ministry of Interior, Civil Defense). At the community level, however, the two issues merge and comprehensive ‘on the ground’ solutions exist.

Due to the increasing number of climate-related disasters, the focus in the Arab region is moving from a reactive to a preventive DRM strategy. The concept of DRM is growing in a

region that has so far relied largely on central government agencies to mobilize relief activities. Over the past three years, an increasing number of Arab countries are seeking support for a coordinated approach toward DRM national mainstreaming. National and city level risk assessments have been completed or are underway in multiple countries in the region, including Yemen, Djibouti, Morocco, and Saudi Arabia. These risk assessments are being used to inform policymakers of the ideal mitigation investments based on country needs, available resources, and vulnerabilities.

A group of Arab states are making progress in systematically reporting disaster losses and recording local disaster impacts and losses. In 2010, Egypt, Jordan, Morocco, Syria, and Yemen also began a pioneering initiative to collect local disaster loss data in Arab countries, where there had been an absence of systematic information on disaster impacts; this had been a major obstacle to strengthening capacities for disaster risk reduction.

At the national level, governments are developing policy frameworks and institutional mechanisms to be better prepared for climate change and natural disasters. Since climate risks affect all ministries, it becomes imperative to create an inter-ministerial body under the Prime Minister's Office (PMO), to guide the ex-ante and ex-post risk interventions that are "top-down." In the same vein, Yemen, Morocco, and Egypt have created inter-ministerial committees (still in a nascent stage) under the PMO consisting of technical staff to advise on policy issues related to risk reduction. In spite of this being an observed global best practice, coordination and capacity issues often compound the task.

The governments of Morocco, Yemen, Djibouti, and Egypt are also investing in building scenarios and risk models to determine probabilistic assessments of impacts of future hazards (including those induced by climate change) on infrastructure and populations. This exercise will lead to the determination of priority investments in risk-prevention infrastructure like dams, dykes, flood-resistant housing, and water harvesting systems. Some Arab countries are also investing in the establishment of early-warning systems for fast onset disasters and financing awareness programs and community-based projects on adaptation and risk prevention at local levels.

Agriculture makes a substantial contribution to GDP in Egypt, Morocco, and Yemen (with a declining trend), and is the sector that uses the majority of available water sources. This is the rationale for a number of national strategies developed by the Ministries of Agriculture in Arab countries in an effort to develop drought mitigation capacity focused on agriculture, including early warning systems, climate information delivery to users, and insurance facilities. However, lack of implementation and misappropriation of water due to political interests at the local level restricts the benefits of such policies to the end users.

At the community level, some innovative strategies for risk reduction and adaptation exist. Many communities in Arab countries are familiar with water scarcity and use local knowledge to build resilience and reduce their vulnerability. In the dry, mountainous areas of Yemen, farmers use techniques to harvest water from the canyons, valleys, and slopes. In Egypt, during conditions of drought, farmers grow salt- and drought-resistant crops such as dates and olives.

### **Box 1 : Regional Disaster Risk Reduction Initiatives**

No country can tackle the challenges posed by these trans-boundary phenomena independently, and DRM has been taken up by the Arab states at a regional level. The League of Arab States (LAS) promotes the integration of Disaster Risk Reduction (DRR) in key regional policies on climate change, environment, and disaster management coordination mechanisms. It also supports the implementation of the Hyogo Framework for Action (HFA) at the regional and national levels.<sup>61</sup> LAS assigned its technical department for environment, housing and sustainable development and the Council for Arab Ministers Responsible for the Environment (CAMRE) to act as the focal point for DRR activities.

CAMRE adopted the Arab Ministerial Declaration on Climate Change in 2007 with a focus on adaptation programs (CAMRE 2007). The Arab Strategy for Disaster Risk Reduction (ASDRR) 2020 was developed jointly by LAS/CAMRE and United Nations International Strategy for Disaster Reduction (UNISDR) in cooperation with relevant regional and international organizations and was formally adopted in December 2010. The ASDRR 2020 is a ten-year strategy whose implementation aims to significantly reduce disaster losses in terms of lives, social, economic and environmental assets across the Arab Region by 2020. It has been endorsed by the second Arab Summit on Economic and Social Development and a Programme of Action (2012–2020) is currently being developed to implement the Strategy.

The Islamic Conference of Environment Ministers, through a Ministerial resolution, is in the process of preparing an executive work-plan to implement the Islamic Strategy for Disaster Reduction (as the Islamic region includes many Arab states) and is looking to implement it in cooperation with the Islamic Development Bank, the League of Arab States, and other financial institutions and donor agencies.

Additionally, international organizations and bi-lateral donors in the Arab region are increasingly getting involved in activities related to risk reduction (till 2006, the area of focus was mostly post disaster humanitarian aid, relief, and reconstruction). Some ongoing projects are related to early warning systems, education, and awareness building, and food security.

### **GAPS AND CONSTRAINTS IN ARAB DRM POLICIES REMAIN**

Though the Arab states are moving in the right direction in the effort to integrate DRM into their national and regional policies, some specific gaps and constraints can be identified (UNISDR & LAS 2009, 2011):

- Weak coordination among the government's relevant ministries and between different stakeholders at the national and local levels and low institutional capacity to manage a cross-cutting sector like DRM. This can be of particular importance when there is lack of coordination between institutions responsible for disaster preparedness and those responsible for hazard monitoring and early warning to communities
- Inconsistent methodologies for conducting risk assessments leading to a lack of comparability within sectors and countries with similar risks

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<sup>61</sup> Hyogo Framework for Action 2005-2015: *Building the Resilience of Nations and Communities to Disasters* was adopted by the 2<sup>nd</sup> World Conference of Disaster Reduction in Kobe 2005. The Framework states as its expected outcome: "The substantial reduction of disaster losses in lives and in the social, economic and environmental assets of communities and countries".

- No dedicated resources to implement DRM/DRR actions at various administrative levels; emergency plans may exist but there are no adequate resources for preparedness particularly at local levels
- Few accessible comprehensive disaster data and information systems; where information on disaster events and loss exist, there is a lack of adequate profiling of socio-economic vulnerabilities and risks to populations
- Absence of national strategies for integrating DRR in school curricula and public awareness activities
- Lack of clarity on inter-linkages of DRM and Climate Change Adaptation, leading to division of resources (financial and human) and duplication
- Recovery and reconstruction projects are standalone initiatives with time limits, resulting in DRR being absent from long-term rebuilding, regulation, and production and planning systems

### **RECOMMENDATIONS TO BUILD RESILIENCE IN ARAB COUNTRIES**

Based on the trends of climatic hazards in the Arab region, the existing institutional capacity, the ongoing engagements in DRM/DRR and the gaps identified above, some recommendations for policymakers at a national (or international) level can be suggested (UNISDR & LAS 2009, 2011):

- Strengthen commitment at the national level for comprehensive DRM/DRR across all sectors by adequate and dedicated financing and include sustainable DRR in national development plans and legal frameworks
- Develop national, local, and community capacities to identify, assess, and monitor disaster risks through multi-hazard risk assessments
- Build resilience through knowledge, advocacy, research, and training by making information on risk accessible to all stakeholders through educational material, curricula; public awareness, and advocacy campaigns
- Develop regional, national, and local early-warning systems and networks and effective dissemination mechanisms
- Identify institutional and administrative roles at all levels of government in the various stages of climatic events (before, during, and after) for timely information exchange, better coordination, and reduced overlapping initiatives with stretched resources

**ADDITIONS TO THE CHAPTER BEFORE THE DECISION MEETING IN FEBRUARY**  
(currently ongoing work):

- Drought emergency response in the Greater Horn of Africa, focusing on Djibouti, will be added following the October 2011 Post Disaster Needs Assessment (PDNA).

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