19 Climate Change on the Arabian Peninsula – Regional Security, Sustainability Strategies, and Research Needs

Dennis Kumetat

19.1 Introduction

In recent years, most Western governments have integrated climate change into their national security agendas. These topics have also become of key interest on an international level, as can be seen in the envisaged new NATO general strategy and the 2007 climate change debate in the UN Security Council. In June 2009, the UN General Assembly passed a resolution asking the relevant organs of the United Nations to intensify their efforts in considering and addressing climate change, including its possible security implications, and requesting that the Secretary-General submit a comprehensive report to the next General Assembly on “the possible security implications of climate change.”

That being said, the Arab states and particularly those in the Gulf region are yet to spell out these policies for their citizens. In light of the fact that these countries are likely to witness strong direct and indirect impacts of climate change in the coming decades, it is even more urgent as Gulf governments have to prepare to deal with additional stress on their already fragile political systems.

19.2 Climate Change and the Gulf Region

The impacts of anthropogenic climate change in the Lower Gulf are already noticeable. As Riegl’s research on coral reefs in Abu Dhabi, Dubai, and Sharjah demonstrates, local marine ecosystems in the Arabian Gulf are substantially affected by climate change and must be placed amongst the “most stressed reef environments on earth” (Riegl 2003: 434). In a local climate of increasingly frequent temperature anomalies, unprecedented bleaching events and a heightened coral mortality rate could have been traced. In fact, some coral species have already begun to adapt themselves to a continuously warmer climate (Riegl 2003:).

This chapter will sketch the potential implications of climate change for the Gulf countries. This will be linked to the changing security dynamics of the region, and the case of Yemen will be examined before sustainability strategies that some Gulf States are currently implementing are discussed. Highlighting a number of related aspects, the chapter will thus have the character rather of a policy brief than an in-depth discussion of one single cause or impact of climate change in the Gulf. The chapter will conclude with a substantial section identifying fields for future research into climate change and its impacts on the Arabian Peninsula.

1 Cf. the 2008 UK National Security Strategy or France’s national security white paper (July 2008). The Obama administration has not issued a comprehensive national strategy as yet, but US publications such as the 2007 CNA report, at: <www.securityandclimate.cna.org> (15 October 2009) recommend the immediate integration of climate change into their national security strategy.

2 Cf. de Hoop Scheffer (2008).

3 UN SC S/PV.5663 and S/PV.5663 (Resumption), 17 April 2007.

4 UN GA RES/63/281, 11 June 2009.

5 In this chapter the Gulf is defined as consisting of the Gulf Cooperation Council (GCC) states (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates) as well as Yemen.

6 Apart from Kuwait, Oman, and Qatar, the other Gulf States (UAE, Saudi Arabia, Bahrain, and Yemen) have submitted at least one national communication to the UNFCCC. In these communications, the states assess climate change vulnerability and sketch adaptation measures. However, the security dimension remains largely unaddressed in these documents. All national communications can be retrieved from the following website: <http://unfccc.int/national_reports/non-annex_i_natcom/items/2979.php> (10 September 2010).
374 Dennis Kumetat

...This, in addition to a projected sea level rise for the Lower Gulf of between 0.09 and 0.88 metres by 2100, sets the argumentative framework for Riegł’s statement that “the Arabian Gulf perhaps provides us with some aspects which might be described as a ‘glimpse into the future’”. However, the author considers that these scenarios do not take into account potential climatic tipping points leading to major changes in ocean water chemistry or sea level rise.

Other authors (Launay 2006; Richer 2008) further discuss climate-related environmental risks for certain areas of the Gulf. Richer, for instance, predicts in her paper on environmental risks in Qatar major climate-change-related losses of regional flora and fauna. She states that “model predictions for temperature and humidity all show an increase for the Arabian Peninsula, the only question being how large a temperature increase” (Richer 2008).

Apart from potentially devastating effects on the non-human environment, it is justifiable to predict in line with the Intergovernmental Panel on Climate Change (IPCC 2007) and other key meteorological models (Met Office 2009) that climate change will place additional stress on the regional political and economic systems in three ways:

Initially, a decrease in precipitation in combination with a projected temperature rise of 1.8 °C by 2040 and 3.6 °C by 2070 (Met Office 2009) will render even wider areas of the Gulf States unfit for agriculture and uninhabitable for a non-nomad population. Richer’s observation of the phenomenon she calls “desertification in the desert” (Richer 2008: 8) will undoubtedly be witnessed. This will raise the stakes for existing water supplies in the region, accelerating the depletion of non-renewable saline aquifers. Most fossil water resources on the Arabian Peninsula are between 10,000 and 30,000 years old. With domestic water use in the Gulf currently about six times the natural renewal rate, here also the question seems to be when rather than if aquifers deplete (Brook/Al Houqani/Al Mugrin 2006). Already, their over-exploitation has resulted in an increase of salinity levels in groundwater from saltwater intrusion and made desert springs disappear on the Peninsula. Water tables have dropped sharply as demand from rapidly urbanizing and industrializing populations has outstripped supply from fossil water and local aquifers (Raouf 2009a). Currently, more than half of the water used originates from desalination or wastewater treatment. However, in the mid-term perspective, the growing freshwater demand of the region cannot be sustained by reliance on fossil water reserves, which is why both the relative and absolute amounts of desalinated water are going to rise. The 15 desalination plants that are currently operating in the GCC on the Arabian Gulf alone are already having adverse environmental effects such as releasing gases, hot brine, treatment chemicals, and other trace elements. Next to the production costs9 and carbon emissions of this energy-intensive industry, their impact on marine life might become a liability. Abderrahman and Husain (2006) demonstrate in their study the devastating effects of hot water release by a power plant and a desalination plant in Kuwait.

A second likely climate-change-related impact, rise in sea level, could threaten up to 15 km of coastline in Bahrain (Raouf 2008) and endanger the reclaimed islands and buildings in the coastal areas of the Lower Gulf, especially in the United Arab Emirates (UAE). This will put further stress on the already existing socio-economic and demographic fault lines. Increased and more dangerous river (wadi) flooding, a major problem in many parts of the world, is not of key concern to meteorologists. However, sudden, locally contained floods might still occur, particularly if the oceanic changes lead to more frequent and intensive storms in the coastal regions (Met Office 2009).

Thirdly, next to these endogenous stress factors, the geographical position of the Gulf needs to be taken into account. The densely populated, poorer,

---

8 It should be noted that the fossil water reservoirs in the Gulf are significantly smaller than in North Africa. Thus, mega-projects like Libya’s ‘Great Man-made River’ tapping the world’s largest fossil water reservoir in the Nubian sandstone aquifer system – a source that can supply Libya’s urban centres with water for between 100 and 1000 years – cannot be realized on the Peninsula. This is not to suggest that the realization of such a project would be particularly desirable. However, in the Gulf, it is not even possible from a resource perspective. For more information on Libya’s project, cf. at: <http://www.water-technology.net/projects/gmr> (1 October 2009).

9 By 2020, Saudi Arabia alone will have invested US$50bn in desalination projects, while an overall investment volume of US$200bn has been earmarked for water and energy infrastructure projects. Cf. The Saudi Gazette (1 May 2008).