

## Chapter 5

# Infectious Diseases and Climate Vulnerability in Morocco: Governance and Adaptation Options

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## ABSTRACT

*Climate change is expected to affect the distribution, prevalence and life cycle of several infectious diseases. This scenario is relevant to Morocco since the country is considered by many IPCC assessments reports as a climate change hotspot with a high vulnerability to many expected impacts. Given this existing vulnerability, this chapter aims to highlight relevant vector-borne diseases, the risks of their reemergence in many vulnerable regions and the pressing need to understand their dynamics within a context marked by knowledge gaps and limited scientific evidence; underline the problematic aspects of health adaptation to climate change and the current difficulties in terms of policy and governance to manage climate-health linkages; and finally undertake an assessment of Morocco's adaptive capacity from a health perspective and formulate recommendations for effective climate-health governance and policy.*

## INTRODUCTION

The current realization that human beings need to be concerned about the only 'life-support system' that the Earth and its environment provide stems perhaps in part from the fact that, until fairly recently, the evolution of humankind was largely dependent on the quality of the environment and the resources it provides in terms of water, food, and favorable health conditions. These are as vital as ever, despite

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current levels of technology and apparent resilience in the face of often degraded environments in many parts of the world. Today, the necessary conditions for maintaining human security – i.e. water quality and quantity, food security, and health – are under threat as a result of numerous human-induced factors; among these, climate change is certainly one of the more durable aspects of anthropogenic disruptions to natural resources (Beniston 2010). It is currently recognized that with the constant increase of the planet's temperature, there are, and will be, more frequent and severe floods, droughts, storms, and heat waves; these changes to Earth's biophysical system will exacerbate and extend the rates and ranges of many diseases and overall contribute to poor health among all populations (Friel et al. 2011).

Therefore, coupled with other environmental risks, climate change poses a serious threat to the progress made towards global health and development goals in recent decades. This challenge will make efforts to ensure the conditions in which people can be healthy more difficult in a myriad of ways (Wiley 2010). Moreover, not only does climate change carry a direct and indirect health warning, it is already contributing towards widening the gap in health inequalities between people living in the developing and developed world. In other words, climate change health impacts will – perversely, unjustly and inequitably – affect those in our society who are most disadvantaged and who arguably have contributed least to it – certainly in terms of their consumption of natural resources. Thus, and according to Friel et al. (2011), without a lessening of background rates of diseases, the multiplier effects of climate change on health outcomes will greatly exacerbate existing health inequities between and within countries, which poses a major additional challenge to international development.

For Wiley (2010), climate change acts primarily as an intensifier, and to some extent a redistributor of existing threats to health. More precisely, climate change is expected to directly affect many environmental determinants of health – mainly water, air, weather, oceans, and ecosystems (Portier et al. 2010) – which may exacerbate exposure to natural disasters and disease-carrying vectors, access to safe and potable drinking water, and food security. Similarly, Boxall et al. (2009) asserts that weather and climate factors are known to affect the transmission of water and vector-borne infectious diseases. Some linkages between climate and health are fairly obvious, such as the impact of weather-related natural disasters, whereas others are less obvious and may be neglected by policymakers, such as the indirect impacts of natural disasters, especially on mental health (Wiley 2010).

Addressing the health impacts of climate change is especially challenging because both the surrounding environment and the decisions that people make influence health. In real-life situations, a host of other factors come into play in determining vulnerability including biological susceptibility, socioeconomic status, cultural competence, and the built environment. In a world of myriad 'what if' scenarios surrounding climate change, it becomes very complicated to create wise health policies for the future because of the uncertainty of predicting environmental change and human decisions. The need for sound science on which to base such policies becomes more critical than ever (Portier et al. 2010).

Within a Moroccan perspective, the main health vulnerabilities to climate change include the following: risk of reactivation of certain diseases sensitive to climate change (such as malaria, bilharzia, typhoid, leishmaniasis, dengue and cholera); possibility of re-emergence of infectious diseases, vector-borne diseases as well as diseases and deaths related to extreme weather events, especially among the most vulnerable groups; increased water and food-borne diseases; increased incidence of respiratory infections and allergies due to air pollution and sudden weather events and rising temperatures which contribute to the increased volume of ozone at ground level and precipitate the start of the pollen season; natural disasters such as floods which cause damage (affecting agriculture, livestock and real estate), deaths and illnesses suffered by victims and their families; etc.

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