

Lebanon

Impact of Climate Change on Water Resources of Lebanon: The Way Forward

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1 Introduction

Global warming is expected to affect Lebanon heavily, in particular through increased flooding and creation of desert areas as the country is located near desert regions (El-Fadel, Jamali and Khorbotly 2002). The country is expected to witness a decrease in precipitation and an increase in surface temperature because of global warming (Sowers, Vengosh, and Weinthal 2011). According to Lebanon's Second National Communication (SNC):

By 2040 temperatures will increase by around 1 °C on the coast to 2 °C in the interior, and by 2090 they will be 3.5 °C to 5 °C higher than the present temperature averages. Rainfall is also projected to decrease by 10–20 % by 2040 and by 25–45 % by the 2090, compared to the present. Temperature and precipitation extremes will also intensify. Over the whole country, periods of drought will become 9 days longer by 2040 and 18 days longer by 2090 (Trærup & Stephan 2015, p. 438).

In this context, the interplay between water resources and climate change in Lebanon has been widely debated in recent decades where the main focus is on strengthening the adaptability of water management systems. Climate change poses serious problems when it comes to this adaptability as the global hydrological cycle will be affected by the increase in the temperature (Bou-Zeid and El-Fadel 2002).

2 Impact of Climate Change on Water Resources

According to some experts, Lebanon—a country considered to be part of the Fertile Crescent—may lose this fertility in the near future because of the deterioration of the water supply from the rivers (Goll 2017) despite the fact that it has a milder and wetter climate in comparison to other states in the region (Droogers et al., 2012). Lebanon is experiencing increasing water demands given the steady population growth. This reality has affected the economic development of the country forcing authorities to take measures to ensure more efficient water management practices

snowpack monitoring, and the use of treated wastewater in irrigation” (Trærup and Stephan [2015](#), p. 443).

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