

Climate change in Iraq

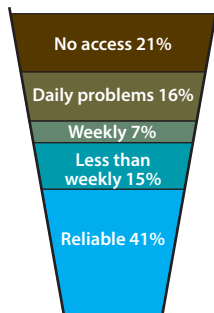
June 2012

Considered one of the Arab region's most vulnerable countries to climate change, Iraq faces a unique set of environmental challenges. The impacts of changing weather patterns have already made themselves felt in recent years, with a higher frequency and intensity of extreme weather events and rising environmental degradation throughout the country. As demographic growth puts further strain on natural resources that are themselves ever more scarce, the Government's capacity to devise and implement the necessary adaptation and mitigation policies is undermined by a daunting context of post-conflict reconstruction.

Water Scarcity

Outside the mountainous regions of the north and northeast, a majority of Iraq experiences either dry or semi-dry climate characterized by less than 150 mm of rain per year and high evaporation rates.¹ Current estimates of water available for Iraq are 2,400 m³ per person

Access to safe drinking water sources



Source: UNICEF/COSIT/KRSO/MOH Multiple Indicator Cluster Survey 2006

per year, meaning that with the exception of Turkey, Iraqis have more water available to them than their neighbours.² And yet, levels of surface water in Iraq's reservoirs, lakes and rivers are diminished to critical levels, and minimal management of aquifers and their recharge has impacted the level and quality of groundwater supplies.

Iraq relies on precipitation falling outside its borders for more than half of its water. This high dependency rate makes it vulnerable to climate change and storage projects in Turkey, Syria and Iran.³ Discharge rates in the Tigris and Euphrates Rivers, Iraq's primary sources of surface water, have already fallen to less than a third of normal capacity and are expected to drop further in coming years.

Desertification

As much as 31% of Iraq's surface is desert.⁴ Years of inappropriate farming practices and mismanagement of water resources have exacerbated the effects of an already dry climate and contributed to increasing rates of desertification. Declining fertility, high soil salinity, erosion and the extension of sand dunes are pervasive problems.⁵ The Government of Iraq reports that 28% of the country's land is arable,⁶ of which an average of 100 000 donum⁷ is lost each year to degradation.⁸ Meanwhile 39% of the country's surface is estimated to have been affected by desertification, with an additional 54% under threat.⁹ As a result of declining soil moisture and lack of vegetative cover, recent years have witnessed an increase in the frequency of vast dust and sand storms, often originating in the western parts of Iraq.

Climate Variability

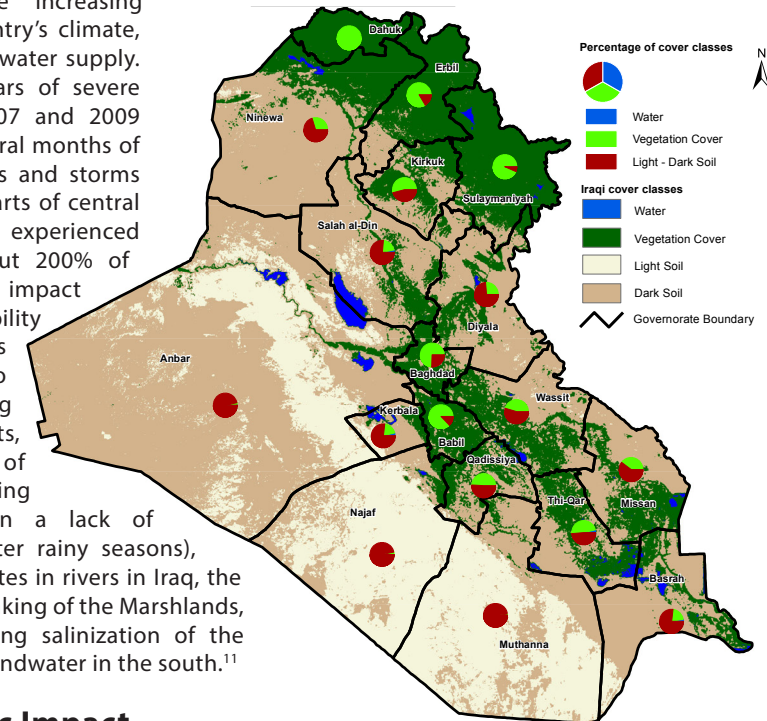
One of Iraq's main challenges is adapting to the increasing variability of the country's climate, especially in terms of water supply. For instance, two years of severe drought between 2007 and 2009 were followed by several months of sudden heavy rainfalls and storms during which some parts of central and southern Iraq experienced rainfall amounts about 200% of normal values.¹⁰ The impact of increased variability in weather patterns includes inability to store water during "flash" rainfall events, abandonment of agricultural land during drought (resulting in a lack of preparedness for better rainy seasons), declining discharge rates in rivers in Iraq, the alarming trend of shrinking of the Marshlands, soil loss and increasing salinization of the Shatt al-Arab and groundwater in the south.¹¹

Socio-Economic Impact

In the absence of immediate action, the potential implications of Iraq's current climate challenges are alarming. After having tripled to 30 million between 1970 and 2007, Iraqi population's continued growth will result in an increasing requirement for water and agricultural output. Access and quality of water for drinking and agriculture are already poor. The drinking water network is contaminated by wastewater from leaking sewage pipes and septic tanks.¹² 20% of households in Iraq rely on an unsafe source of drinking and a further

Mapping Vegetation Cover Percentage in Governorates of Iraq

(Image acquisition date - 23 April 2012)



16% report that they have daily problems with supply.¹³ The situation is much worse in rural areas, where only 43% have access to safe drinking water.¹⁴

Reductions in water supply are having a direct impact on Iraq's hydroelectric power plants, a sector which currently generates 20% of the country's electricity.¹⁵ Drought and water scarcity are also increasingly identified as leading factors behind internal displacement and unplanned urbanization.¹⁶ Unreliable

water supplies and declining soil fertility have a profound impact on agriculture, in employment and output. This sector, which already withdraws 92% of total freshwater for irrigation and food production,¹⁷ plays a vital role in Iraq's rural economy where it currently accounts for 36% of all jobs.¹⁸

During the drought between 2007-2009, almost 40% of cropland throughout Iraq experienced reduced crop coverage and livestock were decimated.¹⁹ The situation caused 20,000 rural inhabitants to move in search of more sustainable access to drinking water and livelihoods.²⁰ Similar occurrences in the future will further increase the pressure on the Government's infrastructure and provision of quality basic services.

Increasingly frequent dust and sand storms (especially severe in 2012) cause significant disruptions in transportation systems in Iraq and result in hundreds of Iraqis seeking medical help, suffering from choking, eye problems and increased incidence of asthma attacks.²¹

UN and Government Response

UNDP and UNEP jointly support the Ministry of Environment on the development of a National Environmental Strategy and Action Plan, the Iraq State of Environment and the development of the Iraq first National Communication to the UNFCCC COP. UNDP has been working to strengthen the capacity of the Ministry of Water Resources and supporting the development of a National Water Council. UNDP, UNIDO and UNEP have joint initiatives for development of mitigation approaches, Clean Development Mechanisms and renewable energy. UNDP is also assisting the Ministry of Water Resources (MoWR) in developing Local Water Committees to improve water governance at the sub-regional level, ensuring that the water supply and quality issues specific to each sub-region can be properly tackled by the full range of water users

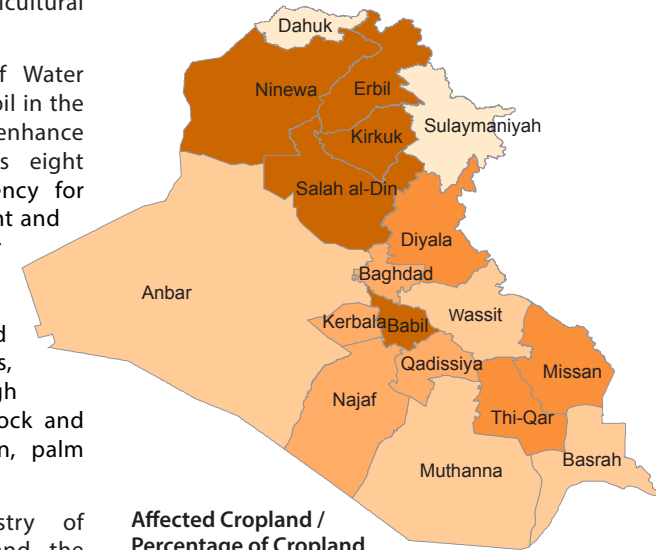
UNESCO is leading the UN Country Team and UNAMI's efforts to draw up an integrated strategy for supporting the restoration of the Marshlands. UNESCO has also launched

a scientific survey of Iraq's groundwater to improve government capacity to address water scarcity and improve agricultural planning.

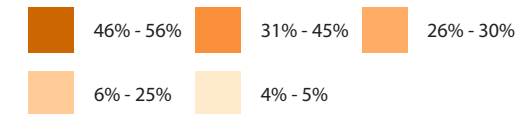
FAO is supporting the Ministry of Water Resources and the Governorate of Erbil in the rehabilitation of infrastructure to enhance water supply and drainage across eight governorates. As the lead UN agency for agriculture, food security, environment and natural resource management under the International Compact with Iraq (ICI) launched in 2007. FAO supported implementation of activities focused in irrigation and water supply systems, generation of employment through small-scale cottage industries, livestock and veterinary services, seed production, palm sector and fish farming.

WHO has supported the Ministry of Municipalities and Public Works and the Ministry of Environment in conducting sanitary inspection for about 1,600 drinking water resources at Suleimaniya, Thi-Qar and Anbar. WHO has provided technical and logistical support to the Ministry of Environment to implement environmental awareness and education campaigns. Hygiene awareness campaigns were implemented in six governorates.

Drought and Impact on Agriculture (2007 - 2009)

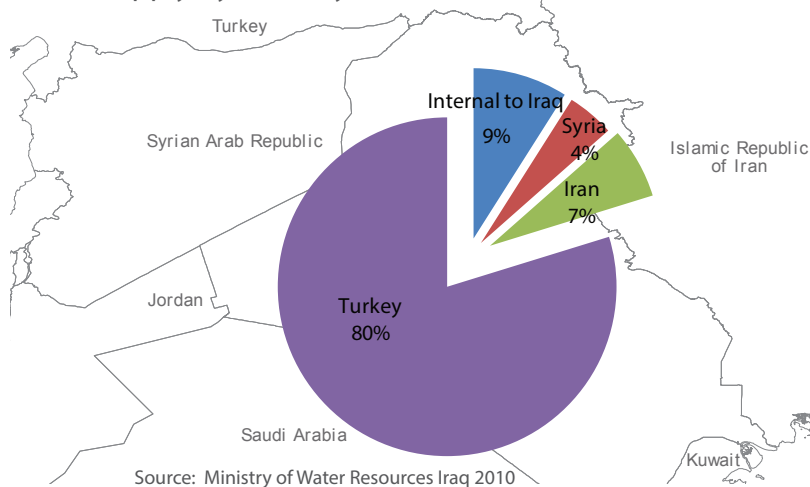


Affected Cropland / Percentage of Cropland



Source: FAO, IAU (2009)

Water Supply by Country



Endnotes

- 1 Ministry of Environment Annual Report 2010
- 2 FAO 2010
- 3 FAO AQUASTAT 2009
- 4 Ministry of Environment Annual Report 2010
- 5 Ibid
- 6 Ibid
- 7 1 donum in Iraq is equal to 2500 sq m, or 0.4 hectares.
- 8 Iraq National Development Plan (2010-2014)
- 9 Iraq Ministry of Environment Annual Report 2009
- 10 United States Department of Agriculture, May 11, 2010. Foreign Agricultural Service, Commodity Intelligence Report
- 11 Problem Statement: UNDP Water- Climate Change Workshop 2010
- 12 UN Country Team in Iraq, Common Country Assessment (2009)
- 13 UNICEF/COSIT/KRSO MICS 2006
- 14 UNICEF/COSIT/KRSO MICS 2006
- 15 Ministry of Environment Annual Report 2010
- 16 IOM 2011 Annual Report
- 17 Water Resources Institute, United Nations World Water Development Report 3 2009
- 18 Iraq Knowledge Network 2011
- 19 FAO/IAU Drought Mapping Analysis 2009
- 20 IOM, Emergency Monitoring and Needs Assessments: Post-2006 Displacement in Iraq – 1 October Monthly Report (October 2009)
- 21 Problem Statement: UNDP Water- Climate Change Workshop 2010