



Issue 170 | Dec 5, 2014 | Focus on WASH & Climate Change

This issue contains links to 2014 reports and journal articles that discuss the impacts of climate change on WASH-related resources and services. Included are a UN report on water technologies for areas affected by climate change; a USAID study on water scarcity and food security; country studies from Bangladesh, China, and Pakistan; an Overseas Development Institute report on WASH and climate change in Africa; and other reports and websites.

EVENTS

Dec 1–12, 2014 – UN Climate Change Conference, Lima, Peru. [Link](#)

The 20th session of the Conference of the Parties and the 10th session of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol will be held December 1–12. This site contains live webcasts of the conference, press releases, and announcements.

REPORTS/COUNTRY REPORTS

Technologies for Adaptation in the Water Sector, 2014. United Nations. [Link](#)

Climate change will increase the natural variability of rainfall patterns and is likely to generate more extreme events, such as floods and droughts. These phenomena are expected to have significant effects on water safety and security, altering patterns of availability and distribution, and increasing water contamination. Technologies employed to respond to changes in the water sector are highlighted as a crucial resource for ensuring the effectiveness of adaptation. This policy brief was developed for national and local level government policy makers. In so doing, it draws upon existing examples of water technologies to highlight lessons learned and provide recommendations for policy.

Adaptation to Climate Change in Water, Sanitation and Hygiene: Assessing Risks, Appraising Options in Africa, 2014. Overseas Development Institute. [Link](#)

Water will be the main channel through which the impacts of climate change will be felt by people, ecosystems, and economies. However, predicting impacts on the availability and quality of fresh water resources, and on water-dependent services and sanitation, remains difficult. This report presents the findings of research into the risks to WASH delivery posed by climate change in Africa, drawing on rapid case study reviews of WASH programming in Malawi, Sierra Leone, and Tanzania.

Impact of Population Growth and Climate Change on Water Scarcity, Agricultural

Output and Food Security: Climate Change and Environment in the Arab World Program, 2014. Earth Institute; USAID. [Link](#)

The Middle East and North Africa (MENA) region is no exception to the increasing distress facing water resources around the world, especially as a consequence of climate change and population growth. With less available water, the agriculture sector faces challenges in providing a greater output to meet the increase in population. This research project explored the changes in water availability and agriculture production as a result of the changes in climate and population growth in chosen areas in Egypt and Lebanon.

River Salinity and Climate Change: Evidence from Coastal Bangladesh, 2014. S Dasgupta, The World Bank. [Link](#)

In a changing climate, saltwater intrusion is expected to worsen in low-lying coastal areas around the world. Understanding the physical and economic effects of salinity ingress, and planning adaptations, are keys to the long-term development of countries for which sea level rise has been identified as a major risk from climate change. This paper presents a study conducted in Bangladesh, which quantifies the prospective relationship between climate-induced changes in sea level, temperature, rainfall, and altered riverine flows from the Himalayas, and the spread and intensity of salinization on river water in the coastal zone for 2050.

India Needs Climate-Resilient Sanitation Tech. *Scidevnet*, Jan 2014. G Barat. [Link](#)

The influence of climate change on sanitation and the need to improve the water and sanitation sector have received limited recognition in India. Climate-resilient sanitation technologies need to be developed and integrated with India's national sanitation policy and programs. In India, more than 73 million workdays are lost each year as a result of waterborne infections.

Gender, Water and Climate Change: The Case of Pakistan, 2014. Y Hamid. [Link](#)

The management of water resources has gendered impact through its effects on food security, agricultural production, domestic water supply, sanitation, and health. It is important to note that patterns of water collection are likely to be dependent on season and climatic factors. Decreased water availability due to climate change will therefore not only impact the agricultural potential for women farmers to produce food and to generate income, it will also impact their time usage. Climate change impacts, including drought, saline intrusions into water sources, and erratic rainfall will all cause women to work longer to secure water resources for domestic use. This means that women may have even less time to earn an income or to access education, training, or other opportunities.

Our Global Water Towers: Ensuring Ecosystem Services from Mountains under Climate Change: Policy Brief. M Price, UNESCO. [Link](#)

Mountains are among the most sensitive regions to climate change and provide some of the clearest indicators of global warming. In the 20th century, they experienced above-average warming, in comparison to the global mean. Enhancing the resilience of mountain communities most at risk from climate change is of high priority as the impacts of climate change become increasingly evident. A key step toward this goal is to use vulnerability assessment to identify the areas and communities most at risk. Sensitive management of ecosystems can help promote climate change adaptation. A key approach is ecosystem-based adaptation, which is increasingly being applied in mountain areas and emphasizes the sustainable use of biodiversity and other ecosystem services as a means to foster the adaptive capacity of mountain socio-ecological systems to respond to anticipated climate change.

Connecting Water, Sanitation, and Hygiene with Fresh Water Conservation and Climate Resilience: The Need to Facilitate Integration in Development Assistance. E Shopes, Natural Resources Defense Council. [Link](#)

This issue brief starts with the premise that projects that integrate WASH interventions, climate resilience, and fresh water conservation are more efficient and sustainable. From an efficiency standpoint, two separate projects operating in the same region covering different but related work will require separate resources, such as staff and funding. On the other hand, one integrated project has the potential to reduce time and related expenses—leaving more resources for another community or need.

JOURNAL ARTICLES

Strategies for Building Resilience to Hazards in Water, Sanitation and Hygiene (WASH) Systems: The Role of Public Private Partnerships. *International Journal of Disaster Risk Reduction*, Dec 2014. A Johannessen. [Link](#)

The aim of this paper is to enhance understanding of how the resilience of WASH systems to hazards can be improved. In turn, it aims to inform different strategies for public-private partnerships. In a new approach that acknowledges the multi-leveled nature of resilience, risk at the relevant levels are taken into account (regional/river basin, urban area, and individual). As pressures from climate change and development add up, businesses must become aware of the risks involved in operating and investing without considering ecosystem health, both in terms of the services they provide for mitigating floods and droughts, as well as in terms of the development approaches that define how ecosystems are managed.

Water Resource Management and Climate Change Adaptation: A Holistic and Multiple Criteria Perspective. *Mitig Adapt Strateg Glob Change*, Jan 2014. K Miller. [Link](#)

Anthropogenic climate change is likely to significantly increase human exposure to droughts and floods. It will also alter seasonal patterns of water availability and affect water quality and the health of aquatic ecosystems with various implications for social and economic well-being. This paper puts forward an innovative methodological framework for planning development-compatible climate policies drawing on multi-criteria decision analysis and an implicit risk management approach to the economics of climate change.

Delays in Reducing Waterborne and Water-Related Infectious Diseases in China Under Climate Change. *Nature*, Nov 2014. M Hodges. [Link](#)

As certain infectious diseases are sensitive to changes in both climate and WASH conditions, the authors project impacts of climate change on WASH-attributable diseases in China in 2020 and 2030 by coupling estimates of the temperature sensitivity of diarrheal diseases and three vector-borne diseases, temperature projections from global climate models, WASH-infrastructure development scenarios, and projected demographic changes. By 2030, climate change is projected to delay China's rapid progress toward reducing WASH-attributable infectious disease burden by 8–85 months.

Multimodel Assessment of Water Scarcity Under Climate Change. *Proc NAS*, Mar 2014. J Schewe. [Link](#)

Water scarcity severely impairs food security and economic prosperity in many countries today. Expected future population changes will, in many countries as well as globally, increase the pressure on available water resources. On the supply side, renewable water resources will be affected by projected changes in precipitation patterns, temperature, and other climate

variables. According to the authors, climate change is likely to exacerbate regional and global water scarcity considerably. Global warming of 2 °C above present temperatures will cause 15 percent of the global population to experience a severe decrease in water resources and will increase the number of people living under absolute water scarcity by another 40 percent (according to some models, more than 100 percent) compared with the effect of population growth alone.

Climate Change and Foodborne Transmission of Parasites: A Consideration of Possible Interactions and Impacts for Selected Parasites. *Food Research International*, Jun 2014. K Utaaker. [Abstract](#)

A complicated and perhaps underestimated threat is how climate change may affect foodborne parasites. The authors review some selected examples of these pathogens and how they may interact and alter with the changing environment: the complexity and variation in their lifecycles mean that different parasites will not necessarily be affected similarly by the same climate changes. This review aims to open the reader's mind as to how exposure routes and transmission routes may be affected by climate change.

Climate Impacts on Human Livelihoods: Where Uncertainty Matters in Projections of Water Availability. *Earth Syst. Dynam. Discuss*, Mar 2014. T Lissner. [Link](#)

Climate change will have adverse impacts on many different sectors of society, with manifold consequences for human livelihoods and well-being. However, a systematic method to quantify human well-being and livelihoods across sectors is so far unavailable, making it difficult to determine the extent of such impacts. This article presents a methodology to consistently measure adequate human livelihood conditions for well-being and development.

OTHER REPORTS/RESOURCES

WHO Guidance to Protect Health from Climate Change through Health Adaptation Planning, 2014. World Health Organization. [Link](#)

The present guidance aims to ensure that the health sector works with partners in the environment and other related communities and follow a systematic process to: 1) identify national strategic goals for building health resilience to climate change and 2) develop a national plan with prioritized activities to achieve these goals, within a specific time period and given available resources.

Gender and Climate Change, 2014. Australian Red Cross. [Link](#)

This guidance note outlines how climate change can impact men and women differently and identifies important ways in which gender roles can strengthen men's and women's capacity to adapt to changing climate-related risks.

Intergovernmental Panel on Climate Change. [Link](#)

The Intergovernmental Panel on Climate Change is the leading international body for the assessment of climate change. It was established by the United Nations Environment Program and the World Meteorological Organization in 1988 to provide the world with a clear scientific view on the current state of knowledge on climate change and its potential environmental and socio-economic impacts.



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About WASHplus - WASHplus, a five-year project funded through USAID's Bureau for Global Health, supports healthy households and communities by creating and delivering interventions that lead to improvements in access, practice and health outcomes related to water, sanitation, hygiene (WASH) and household air pollution (HAP). WASHplus uses at-scale, targeted as well as integrated approaches to reduce diarrheal diseases and acute respiratory infections, the two top killers of children under five years of age globally. For information, visit www.washplus.org or email: contact@washplus.org.