

# **The International Water Security Network and Drought in the Arid Americas: Strengthening Transboundary Water Security and Reducing Climate Change Vulnerability Via Adaptive Management**

Sebastian Vicuña<sup>1</sup>, Robert G. Varady<sup>2</sup>, Christopher A. Scott<sup>3</sup>, Rafael de Grenade<sup>4</sup>, Nicolas Pineda Pablos<sup>5</sup>, Bram Willems<sup>6</sup>, Facundo Martin<sup>7</sup>, and Paula Mussetta<sup>8</sup>

- (1) *Centro de Cambio Global, Pontificia Universidad Católica de Chile, Vicuña Mackenna 4860, Macul, Santiago, Chile, e-mail: svicuna@uc.cl*
- (2) *Udall Center for Studies in Public Policy, University of Arizona, 803 E. 1st St. Tucson, AZ, USA, e-mail: rvarady@email.arizona.edu*
- (3) *Udall Center for Studies in Public Policy, University of Arizona, 803 E. 1st St. Tucson, AZ, USA, e-mail: cascott@email.arizona.edu*
- (4) *Udall Center for Studies in Public Policy, University of Arizona, 803 E. 1st St. Tucson, AZ, USA, e-mail: rdegrenade@email.arizona.edu*
- (5) *El Colegio de Sonora (Mexico), Ave. Obregón 54, Centro, Hermosillo, Sonora, Mexico , e-mail: npineda@colson.edu.mx*
- (6) *Departamento de Ciencias Físicas, Universidad Nacional Mayor de San Marcos, Av. Universitaria /Av. Germán Amézaga s/n., Lima, Peru, e-mail: bwillems@unmsm.edu.pe*
- (7) *Instituto de Ciencias Humanas, Sociales y Ambientales, Universidad Nacional de Cuyo, Centro Universitario, Mendoza, y El Centro Científico Tecnológico (CCT) CONICET, Av. Ruiz Leal s/n Parque General San Martín, Mendoza, Argentina, e-mail: fdmartingarcia@gmail.com*
- (8) *El Centro Científico Tecnológico (CCT) CONICET, Av. Ruiz Leal s/n Parque General San Martín, Mendoza, Argentina, e-mail: pcmussetta@gmail.com*

## **Abstract**

The availability of freshwater for humans and ecosystems is a critical and growing concern around the world. Global environmental change, growing populations, development challenges, and social and political upheaval compound this issue. In arid regions of the Americas, escalating urban, industry, and agricultural demands increase competition for the already scarce supply of available surface water and groundwater. The changing nature of water governance has come to the forefront of science and policy, particularly the question of how a more democratic and responsive governance framework may promote water security. To address these concerns, the Lloyd's Register Foundation of England has funded a collaborative team of researchers and institutions called the International Water Security Network (IWSN). This enterprise investigates issues of water supply and governance at local, regional, global, and transnational scales across five continents. Researchers at the University of the West of England, Monash South Africa, and the University of Arizona are addressing cross-cutting themes of 'risks & vulnerabilities' and 'innovation and adaptive capacity' of international water security. In regions of the arid Americas such as the Sonoran Desert of Mexico and the Andes in South America, the IWSN effort—with a special emphasis on transboundary regions—is being carried out under the aegis of the Inter-American Institute for Global Change Research (IAI)'s Center of Excellence for Water Security, AQUASEC, coordinated by the University of Arizona. Launched in March 2012, AQUASEC is a partnership among scientists and decisionmakers throughout the arid Americas. Participating institutions include the University of Arizona in Tucson, USA; El Colegio de Sonora in Hermosillo, Mexico; Universidad Nacional Mayor de San Marcos, Lima, Peru; Universidad Nacional de Cuyo and CONICET in Mendoza, Argentina; Pontificia Universidad Católica de Chile in Santiago; and IAI in Montevideo, Uruguay. With an emphasis on drought and other consequences of water scarcity, research teams at each of these institutions are developing projects related to a subtheme of the International Water Security Network research objectives called, Strengthening Transboundary Water Security: Adaptive Management to Reduce Climate Change Vulnerability

