Water Security, Governance, Science-Policy Dialogues, and Capacity Building



Linking the

International Water Security Network (IWSN) and

AQUASEC Center of Excellence for Water Security

to the

UNESCO proposed initiatives:

"Enhancing Climate Services for Improved Water Resources Management..." (CliMWaR-LAC)

and

"Addressing Water Security: Climate Impacts and Adaptation Responses in Africa, Asia and LAC"

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United Nations Educational, Scientific and Cultural Organization Meeting UNESCO International Hydrological Programme and Flanders Brussels, Belgium February 24-25, 2016



INTER-AMERICAN INSTITUTE FOR GLOBAL CHANGE RESEARCH

Building a water security network in the arid Americas



Past and ongoing efforts, supported by



National Oceanic & Atmospheric Administration (NOAA)



National Science Foundation



Inter-American Institute for Global Change Research (IAI) Water-climate-drought in U.S.-Mex. border area



AQUASEC: Center of Excellence for Water Security

Water Security in the Americas The International Water Security Network (IWSN)

IWSN partners

- University of the West of England
- Monash University/South Africa
- University of Arizona, Udall Center
 AQUASEC (partner institutions)

Relationships & capacity-building

- Researcher-scientist networks
- Graduate (postgraduate) student involvement
- Stakeholder engagement & workshops
- Development of communities of practice

Research

- Regional/local projects & transboundary settings
- Development of water-security index
- Identification of hotspots



The IWSN network



The Udall Center for Studies in Public Policy

At the University of Arizona



<u>Goal</u>

Conduct high-quality, practical, applied research intended to influence public policy

Background and approach

- Role of institutions, public participation in decisionmaking, information flows, science-policy dialogues
- Experience in U.S. Southwest & U.S.-Mexico border region, arid Americas, South Asia
- Specialization in water governance at various scales—local to global
 - Transboundary effects & science diplomacy, human-natural systems, water-climate relationship, water-energy-food nexus, water reuse, water & health, groundwater governance, water security
- Strong record of scientific publications
- Extremely diverse funding portfolio

Proposed Joint Activities



- Integrating stakeholders and research partners for social vulnerability & institutional-capacity assessments in Maipo & Elqui basins in Chile, and Ica & Piura basins in Peru
- 2. Regional Institute for Water–Food–Energy Security Research (ir-NEXUS) in Peru
- 3. Addressing water security in South Asia: Local study teams & science-policy dialogues
- 4. Science diplomacy & water security initiative
- Training workshop on water security & demand management in the arid Americas, Mendoza, Argentina (August 2016)

Proposed activity #1

Andean basins in Chile, Argentina, and Peru Integrating stakeholders and research partners

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Centro UC

Cambio Globa

<u>Context</u>

- Over-allocated river basins, e.g.,
 - Maipo & Elqui basins, Chile
 - Mendoza & Tunuyán basins, Argentina
 - Ica & Piura basins, Peru
- Rapid hydro-climatic & globaleconomic change
- Need to strengthen adaptive capacity



72*0'0*0 71*30'0*0 71"0'0"0 70*30'0*0 Mining sites **Copper mining:** Hydropower plants > 235,000 tons/yr Main rivers Maipo river Maipo basin Santiago: Metropolitan Region > 6 million popul. Urbana areas Irrigated agriculture Industry: > 700 facilities **Hydroelectricity** : 340 MW Agriculture (vegetables, fruits, wines): 250,000 ha (16% of basin) Ecosystems, tourism, recreation 20 30

71'00'0

71*30'0*0

Rio Maipo basin: Multiple uses of water

70*30'0*0

AQUASEC river-basin adaptation network

Result of 5 years' collaboration between Univ. of Arizona, Pontificia Univ. Católica-Chile, CONICET & Univ. Nacional Cuyo, Mendoza Depto. General de Irrigación (provincial water agency)

- Coordinated by Prof. Christopher Scott
- Multiple funding streams
- Leveraging opportunities through 2018



What's needed?

- Funding for postdocs
- Exchange of practitioners and researchers
- Research projects
- Workshops/stakeholder involvement

Proposed activity #2

Ayacucho, Peru Regional Institute for Water–Food–Energy Security Research (ir-NEXUS)

<u>Context</u>

- Arid-semiarid conditions featuring permanent water scarcity, currently facing severe drought due to El Niño
- Poor agricultural soil quality
- Rapidly expanding cities opportunities





Cuchoquesera dam that provides water to the 220,000 inhabitants of Huamanga, capital of Ayacucho. Jan. 28. 2016, less than 25% capacity

ir-NEXUS — Ayacucho

Result of 2 years' collaboration between Center of Competence in Water and Univ. of Ayacucho (UNSCH), devel. by Agua-Andes with support from PEER-USAID, IWSN, AQUASEC

- Program led by Prof. Bram Willems
- Investment of approx. US\$ 7 M from UNSCH
- Important leveraging opportunities in 2016 and for design & implementation of ir-NEXUS



What's needed?

- Scholarships for MA/PhD students
- Exchange of students/researchers
- Funding for postdocs
- Advisory support for design & strengthening organization of institute
- Research projects
- Workshops/stakeholder involvement

Proposed activity #3 Himalayan basins in India and Nepal Irrigation-hydropower tradeoffs & complementarities

RESEARCH

PROGRAM ON Water, Land and Ecosystems

Context

- Rapid hydropower development in river basins with extensive irrigation (including farmer-managed systems)
- Rapid hydro-climatic and global-economic change
- Need to strengthen institutional systems, ecosystem-services assessment

Ganges headwaters, Uttarakhand, India





HI-NEX hydropower-irrigation science-policy network

Result of 2 years' collaboration between Univ. of Arizona, People's Science Inst., Univ. of Delhi, International Centre for Integrated Mountain Development (ICIMOD)

- Coordinated by Prof. Christopher Scott
- Supported by CGIAR
- Leveraging opportunities

What's needed?

- Funding for partners in India & Nepal
- Funding for students & postdocs
- Exchange of practitioners & researchers, incl. with Andean basins
- Research projects
- Science-policy engagement



Proposed activity #4

Water governance capacity-building workshop Mendoza, Argentina – August 3-6, 2016

<u>Title</u>: "Good Water Governance Practices: Adapting Successful Approaches to Address Water Security in Mendoza and Elsewhere"

- Workshop emphasizes "soft-path" modes of water governance
- Hosted and partly supported by regional water authority (DGI), partly supported by IWSN



What's needed?

 Additional cosponsors to help support participation of water professionals from across the Americas



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www.lrfoundation.org.uk and http://www.iai.int/



