



Introduction of APCWS

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Background of the Center



Background and Leadership

- In 2010, Tsinghua University initialized the Asia-Pacific Center for Water Security, in collaboration with the Asian Development Bank (ADB).
- In August 2011 ADB approved financial support to give technical assistance to the Center
- In September 2012, Partnership Agreement was signed
- President Prof. Jining Chen takes a leadership role of the Center.



Missions and Objectives

The **Missions** of the Center are basically to promote advanced research, knowledge sharing and smart decision making in relation to water security issues among Asian countries.

Objectives:

- Identify and research on current and future priorities in water security in the Asia-Pacific region
- Assess and improve water security in Asia-Pacific countries
- Support decision-makers in water security practices that are environmentally sustainable
- Work with collaborating institutions to strengthen the region's research and development capacity on water security



Major Activities completed/to be completed soon

- Building water research network
- Organizing workshop – “*The International Workshop on the Water-Food Energy Security Nexus in Asia*”, September 6-8, 2011 in Beijing
- Organizing workshop – “*International Workshop on Water-Food-Energy Security Nexus – Theory and Methodology for AWDO III*” was held on November 26-27, 2012 in Beijing



Major Activities completed/to be completed soon

- Building website and database to support the research work of AWDOIII
- Arranging a peer review journal for issues concerning water security
- Organizing Urban Water Security Learning Week



Research



Research Outcomes

- Development of a spatial multi-objective optimization model for sustainable urban wastewater system layout
- Quantitative microbial risk assessment of urban water bodies
- Modeling environmental impacts of urban expansion
- Forecasting urban land use change with Bing Maps & Silverlight
- Simulation and management of water quality risk in a water supply system
- Water environment security indicator system for urban water management
- Coupling models system for drinking water source



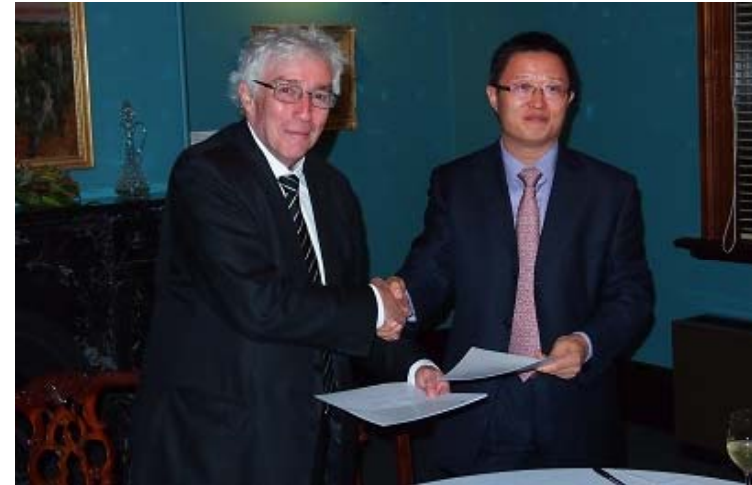
Collaboration Network



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Network building

- IWC, signed an MoU, focusing on AWDO collaboration and training
- Griffith University, signed an MoU, focusing on AWDO collaboration and research, exchange of students



Network building

- A strategic cooperation agreement has been signed with General Water. General Water is a Chinese SOE operating in the areas of drinking water and waste water treatment.



- An MoU was signed between the Center and the Water Resources University, Viet Nam to promote the collaboration in water research.



Network building

- MoU to be signed
 - University of DA NONG
 - University of Canberra
 - University of Queensland
 - FAO
 - UN ESCAP
 - Foreign Economic Cooperation Office , Ministry of Environmental Protection of China
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Workshops



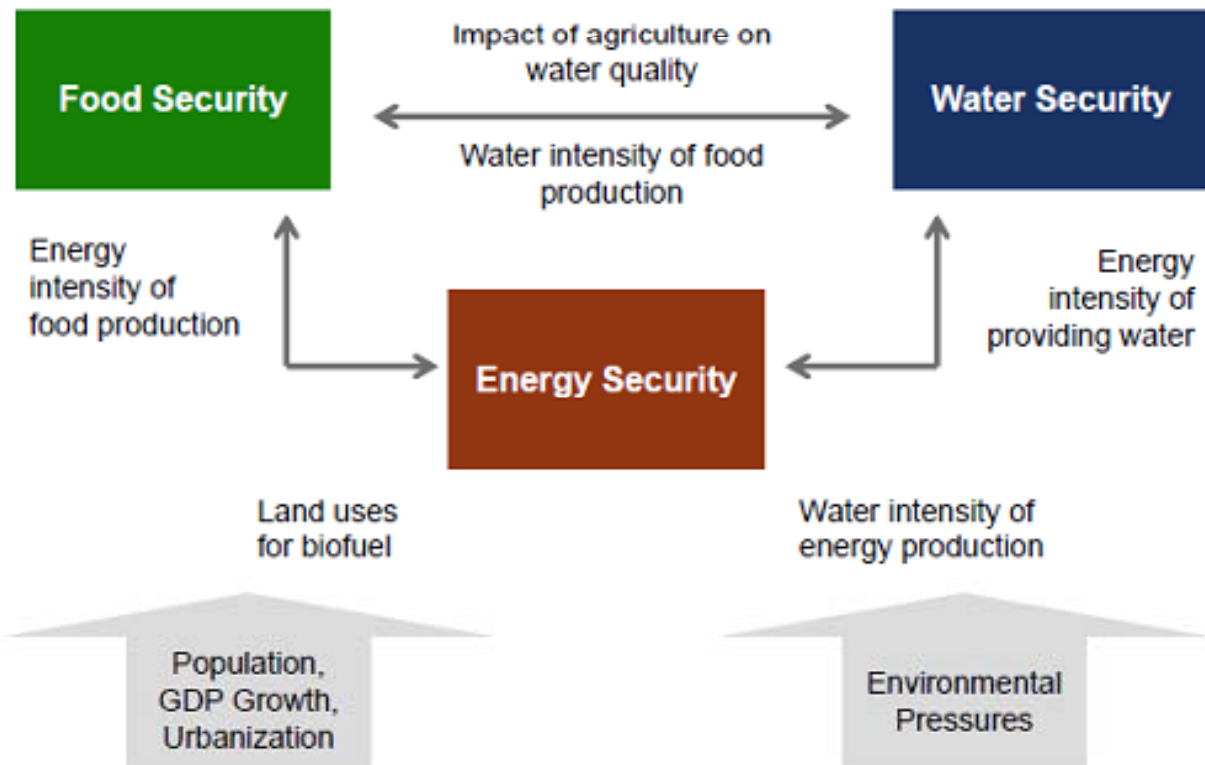
The International Workshop on the W-F-E Security Nexus in Asia (6-8 Sep 2011, Beijing)

- Rapid economic, population growth and urbanization in Asia.
- Pressure on infrastructure.
- Higher food demand is expected.
- Need more energy.
- Gap between supply and demand of freshwater.



The International Workshop on the W-F-E Security Nexus in Asia (6-8 Sep 2011, Beijing)

The Water-Energy-Food Nexus



Source: Bentham (2011).



The International Workshop on the W-F-E Security Nexus in Asia (6-8 Sep 2011, Beijing)

Measurement of the WFE security nexus

- Basic understanding of the status of the WFE security can be achieved by measurement of the baselines which may include
 - the status of renewable water resources
 - trends in sectoral water uses, allocation and recycle
 - advance in technology and markets
- Measurements of achievements/results can provide information to evaluate the efficiency of the current approaches in the WFE security management.
- The potential water conflicts and capacity in conflict resolution need to be assessed to identify the major issues existing in the current WFE security management.



The International Workshop on the W-F-E Security Nexus in Asia (6-8 Sep 2011, Beijing)

Management of the WFE security nexus

- A system approach to WFE nexus integration and management is needed.
- Decision-making-support system need to be developed.
- Mechanisms need to be built for effective integration of WFE nexus in development.



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Collaboration is needed to promote the idea of the nexus

- Collaboration can lead to share failure and success stories.
- Scope for substantial collaboration between different institutions on WFE nexus is needed.
- Collaboration should be more enhanced between
 - (i) technical and non-technical;
 - (ii) stakeholders and leaders;
 - (iii) academics and leaders;
 - (iv) across region/subregion;
 - (v) across agencies; and
 - (vi) from national to local levels



Other Activities



Web site and Database

- Understanding the indicator system/
Receiving data for AWDO II from ADB
- Building database for AWDO III
- Collecting data from published website and ADB's projects, and from partner organization
- Set up demo platform in the near future
- Share data with partner organizations



Activities being undertaken

- Urban Water Security Learning Week for DMCs
- Water Security Prize and Awards Programme
- Collaboration research with partner organizations
- Discussion on collaboration strategy with ADB



Peer Review Journal

Paper title	authors
Recent Developments and Emerging Trends on Water Security for Sustainable Development in Asia-Pacific Region	Dr. Ti Le-Huu
The role of national bioassessment in assessing environmental water security	Prof. David Choquet
Land Use/Cover Change Effect on the Floods with Different Return Periods: a case study of Beijing, China	Dr. Wang Yueling/Prof. Yang Xiaoliu
A Comparison of the Water Management System in France and China	Dr. Xu Jian/Prof. Yang Xiaoliu
Modeling System for Drinking Water Source and Its Application to Jiangdong Reservoir in Xiamen City	Dr. Li Zhiyi/Prof. Du Pengfei
Changes in hourly precipitation may explain the sharp reduction of discharge in the middle reach of the Yellow River after 2000	Prof. Wang Zhongjing Prof. Chu Junying/Prof. Wang Can
Exploring price effects on residential water conservation technology diffusion process: a case study of Tianjin city	Prof. Gustaf Olsson
Water and Energy Interactions - Challenges and Opportunities	Prof. Gustaf Olsson
Decision Support System for Emergency Scheduling of Raw Water Supply System with Multiple Sources	Prof. Liu Shuming
The effects of land use types at different scales of riparian corridors on the water quality and fish communities in headwater streams of Taizi River, China	Dr. Ding Sen/Dr. Meng Wei
Agenda for Urban drainage management: A perspective of infrastructure resilience	Prof. Liu Yi/Prof. Chen Jining
Substance flow analysis for urban drainage system of a representative hypothetical city in China	Prof. Zeng Siyu



Other activities with ADB

- Support to ADB's loan project in China's Yunnan Province
- Support ADB's RKSI in its water related training program
- Support "Seminar on Environmentally Sustainable Development – Ecological Progress and Role of International Community" 14 Jan 2013, Beijing



Thank You!



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