

# Capacity Development for Integrated Land and Water Use Planning

Principal Investigator – Dr. Wei Xu, Department of Geography, University of Lethbridge, 2012-2015

## Challenge

Water governance frameworks have been widely adopted, however, there is as of yet little guidance on how such arrangements should operate, be evaluated, or be improved. There is a lack of clarity in identifying the components of these arrangements, which hinders a consistent understanding of water governance. Furthermore, assorted water governance capacity elements are analyzed individually, but there is a lack of comprehensive framework upon which capacity of water governance can be assessed. Recent changes in Alberta's water governance structure provide a window on water governance implementation and an opportunity to clarify important questions surrounding successful water governance.

## Project

Under the Water for Life strategy and Water Act, Alberta was implementing a new water governance structure including Alberta Water Council, Watershed Planning and Advisory Councils (WPAC), and Watershed Stewardship Groups. These multi-stakeholder and multi-level partnerships have developed water management plans for more than five years. Under Alberta's Land Steward Act and Land Use Framework, regional municipalities and Regional Advisory Councils have to develop watershed based regional plans integrating land and water management.

This raises several policy questions with respect to the implementation of water governance structures, including: How can the shared responsibilities for water use and conservation be fulfilled? What are the roles of various actors and how can the capacity and capability of partnerships and networks be enhanced? How will these institutional changes affect the capacity and capability for integrated land and water planning? And, what constitutes better water governance practices?

The objectives of this research are to:

- i) Conduct a stakeholder analysis to identify the perception of the new Alberta governance structure during the early years of implementation, how land and water planning are envisioned to be integrated, and perceptions of how social justice is secured in this governance structure;
- ii) Conduct a survey to elicit perceptions within the broader community of the effects of institutional changes on effective water governance, water use and conservation; and
- iii) Conduct a stakeholder analysis on the capacity and capability of integrated land and water governance and planning, and identify strategies to build water governance capacity in Alberta.

## Outputs

This research has resulted in the following scholarly journal publications and end-user reports (selected publications):

### Book Chapters:

- Emami, P., Wei Xu, H. Bjornlund and T. Johnston (2015). A Framework for Assessing the Procedural Justice in Integrated Resource Planning Processes. Sustainable Development and Planning, In O Ozcevik, C.A. Brebbia, and S.M. Sener (eds), WIT press. Pp.12. DOI 10.2495/SDP150101.
- Amber Zary, Henning Bjornlund and Wei Xu (2015) A Framework for Assessing Capacity in Water Governance. In C.A. Brebbia (ed.) Water Resources Management VIII. WIT Press. Pages 12. DOI 10.2495/WRM150281.
- Bjornlund Henning, Alex, Zuo, Sarah Wheeler and Wei Xu (2014) Exploring the Reluctance to Embrace Water Markets in Alberta, Canada In K. William Easter and Qiuqiong Huang (eds) Water Markets for the 21st Century: What we have learned, Springer Science, Pages 215-237.
- Bjornlund, H., Xu, Wei and Zhao, X. (2013) Generational differences in policy preferences for water sharing – implications for the future, in Brebbia, C.A. Ed. pp. 307-319. Water and Society II, WIT Press, Southampton.
- Bjornlund, H. and Xu, Wei (2013) Sustainable irrigation – Alberta perspectives, in H. Bjornlund, C.A. Brebbia and S. Wheeler (eds), Sustainable Irrigation and Drainage IV: Management, Technology and Policies, pp. 17-28. WIT Press, Southampton.
- Bewer, R., Xu, Wei and Bjornlund, H. (2013) Recreational value of irrigation infrastructure: A case study of Chestermere Lake, Alberta, Canada, in H. Bjornlund, C.A. Brebbia and S. Wheeler (eds), Sustainable Irrigation and Drainage IV: Management, Technology and Policies, pp. 413-425. WIT Press, Southampton.

### Articles:

- Alec Zuo, Sarah Ann Wheeler, Henning Bjornlund, Jane Edwards and Wei Xu. Exploring generational differences towards water resources and policy preferences of water re-allocation in Alberta, Canada, Water Resources Management
- Bjornlund, H. Zhao, Xinzheng, Xu, Wei (2014). Variation in the perspective on sharing water - irrigators, their communities and the wider society. International Journal of Water Governance 2:19-42. DOI: 10.7564/13-IJWG29.
- Bjornlund, H. Zuo, A. Wheeler, S. Xu, Wei and Edwards, J. (2013) Policy preferences for water sharing in Alberta, Canada. Water Resources and Economics 1:93 – 110.

### Anticipated Outputs include:

- Zary, Amber, Wei Xu and Henning Bjornlund. Capacity in Alberta's Water Governance Structure, The Canadian Geographer.
- Montgomery, Jenna; Wei. Xu, Henning. Bjornlund, and Jane Edwards. An innovative framework for evaluating water governance processes. Agricultural Water Management.
- Zary, Amber, Wei Xu, Henning Bjornlund, Tom Johnston, Ivan Townshend. Capacity-Building Needs in Alberta's Water Governance Structure. Water International

- Emami, P. Wei Xu and Henning Bjornlund. Evaluating procedural justice in the regional planning process: lessons from Alberta's regional plans. Journal of Hydrology

Additionally, this research has been disseminated through several presentations:

- Montgomery, Jenna, Wei, Xu, and Henning, Bjornlund (2015). An innovative framework for evaluating water governance processes. International Conference on Water Resource and Environment, WRE 2015 Beijing July 25 – 29.
- Xu, Wei (2015) Practicing water resource governance: a theoretical reflection. The fourth global conference on economic geography. August 19 – 23

## Outcomes

Outcomes include:

- Strengthened relationships with researchers. Researchers and graduate students participated in many professional and academic conferences through which relationships with other researchers were enhanced.
- Increased knowledge. Researchers and graduate students published many papers and presented in several conferences about water governance and water sharing. Two graduate theses were produced and provide important insight into Alberta water governance.
- Increased opportunity for future research as several high quality graduate students were trained throughout the project.
- Strengthened relationships with partners. Two of the project's trained graduate students are now working for Alberta Environment, a project partner.

## Research Team and Partners:

### Research Team:

Dr. Wei Xu, Department of Geography, University of Lethbridge

Dr. Henning Bjornlund, Department of Economics, University of Lethbridge

### Partners:

Alberta Innovates Energy and Environment Solutions (AIEES)

Alberta Environment (AE)

University of Lethbridge

### Highly Qualified Personnel (HQP):

Amber Zary, Masters

Jenna Montgomery, Masters

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