



GREEN ANALYTICS
measuring environmental values

Advancements in the Economics and Governance of Water Resource Management

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Green Analytics

Latornell Conservation Symposium

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Overview

- Value of Water
- Water Management Concerns
- Economic Based Solutions
 - Incorporating Water Values into Decision-making
 - Market Based Instruments
- New Governance Approaches

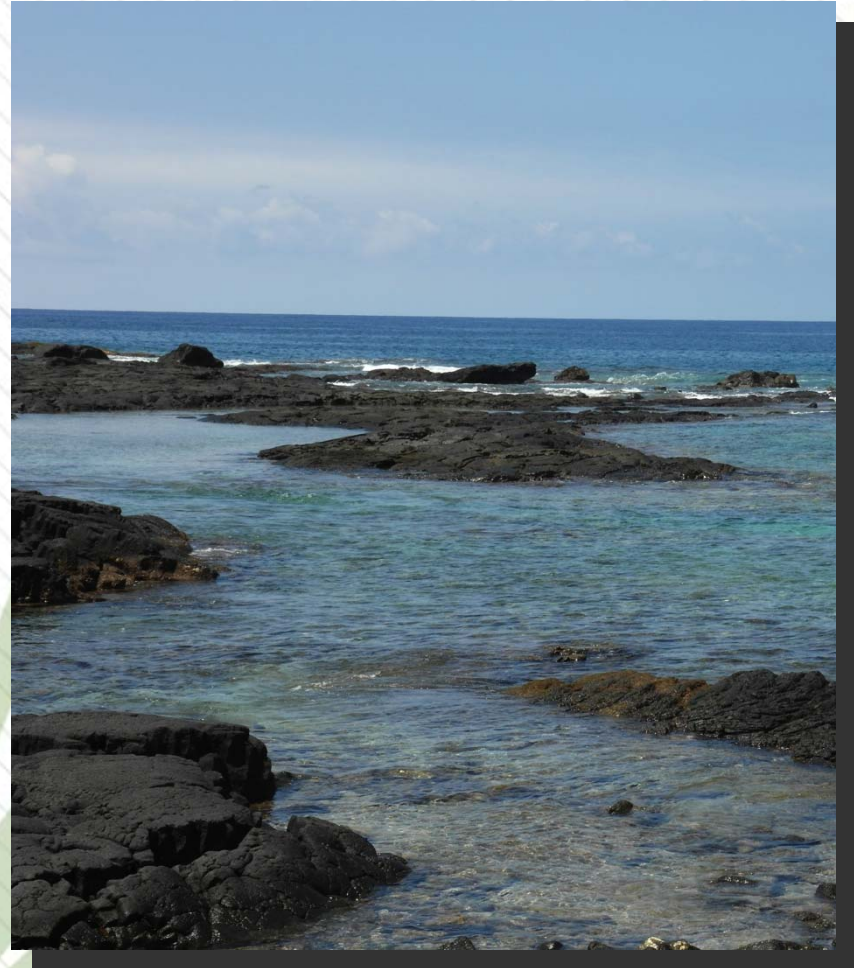
Dublin Statement

- International Conference of Water and the environment (ICWE) – January 1992
 - ICWE, Guiding Principal No.4

“Water has an economic value in all its competing uses and should be recognized as an economic good”

Values of Water

- Water is a social good
- Water is an economic good
- Water has ecological value
- Water has religious, moral, and cultural values



Unique Characteristics of Water

- Water is essential
- Water is scarce (i.e. limited supply)
- Water is fluid
- Water is a system
- Water is bulky and not easily transportable
- Water has no substitute

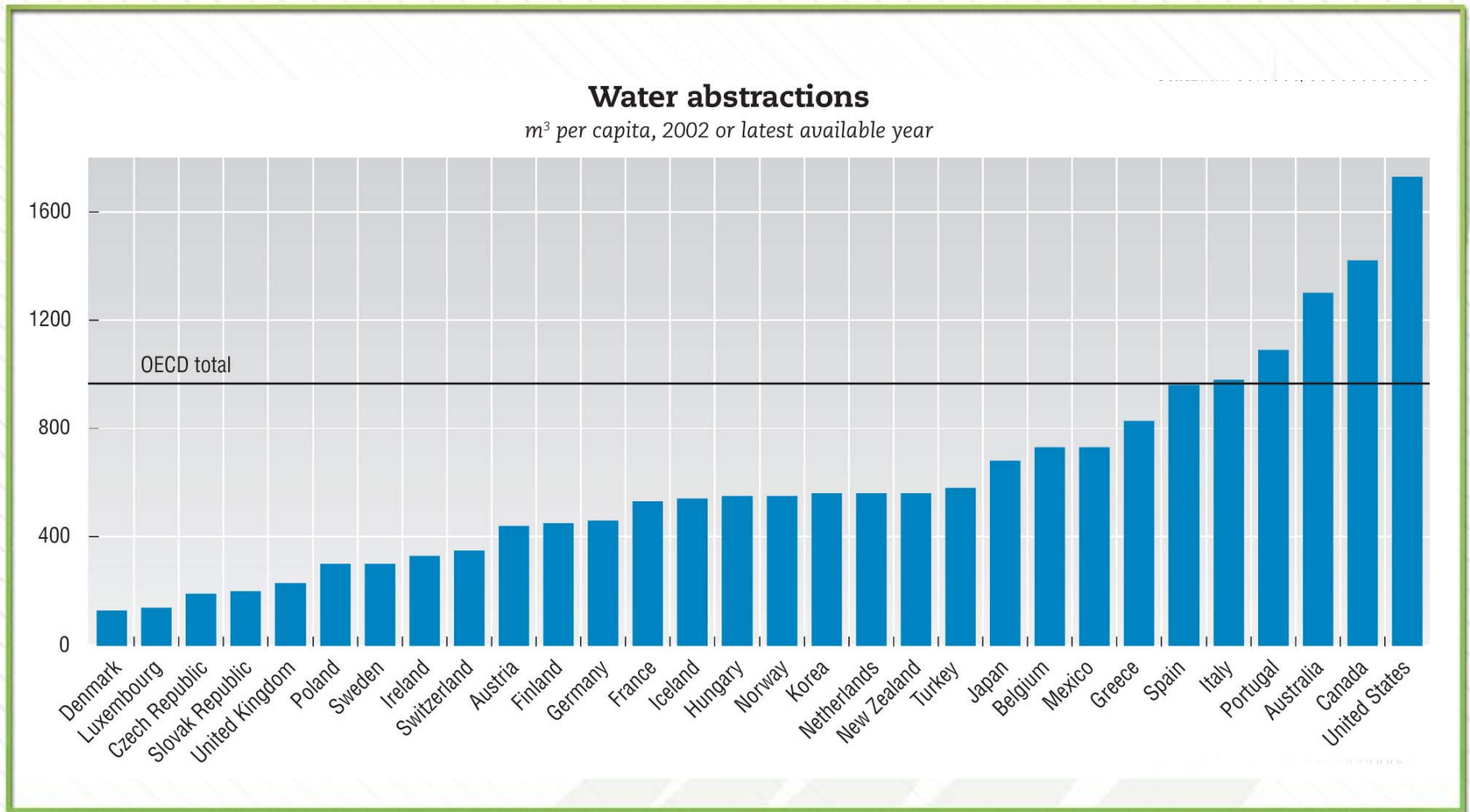
Water - Diamond Paradox

Nothing is more useful than water: but it will purchase scarce anything; scarce anything can be had in exchange for it.

A diamond, on the contrary, has scarce any use-value; but a very great quantity of other goods may frequently be had in exchange for it.

Smith (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations*.

A Value – Usage Disconnect



Source: OECD Factbook 2005 [<http://www.oecd.org/dataoecd/42/27/34416097.pdf>]

Blue Economy Initiative

- Findings from Running Through our Fingers: How Canada Fails to Capture the Value of its Top Asset:
 - The value of aquatic ecosystems are only beginning to be appreciated; their value is at least on the same scale as the value for water's market uses.
 - Market uses of water contribute less value than previously thought when the cost of associated pollution is accounted for.
 - Most sectors of Canada's economy are inadequately informed to make efficient, sustainable choices involving water.
 - Canada's competitors are improving their decision-making by developing a better understanding of water's many values.

Economic Solutions

We must find innovative ways to allocate water to its most **socially** valuable use

But How?

Four Functions of MBI

- Financial function
 - to both encourage and finance water efficiency and conservation investments
- Fiscal function
 - to increase water resource budgets or recover administrative costs.
- Incentive function
 - to change water user behaviour
- Environmental Function
 - to incent behaviour in a socially desirable direction

Source: Marbek Resource Consultants and S. Renzetti (2005)

Components of Water Value

What is YOUR WATER VALUE GAP?

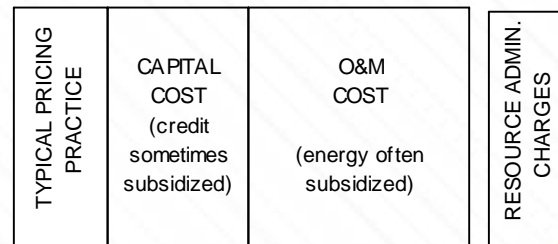
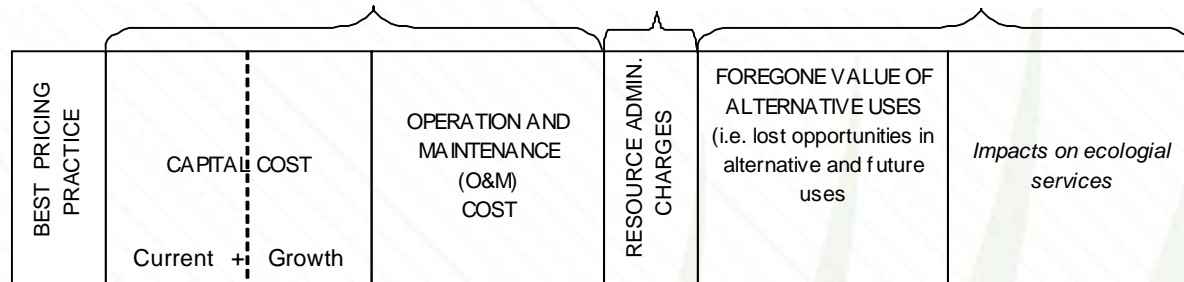
Scale of Response: increasing price towards FULL "Societal" COST

Scope of Challenge and EI Functions:

Financial

Fiscal

Management Objectives (incentive) and External Costs (Environmental)



**frequently not levied or do not cover real costs*

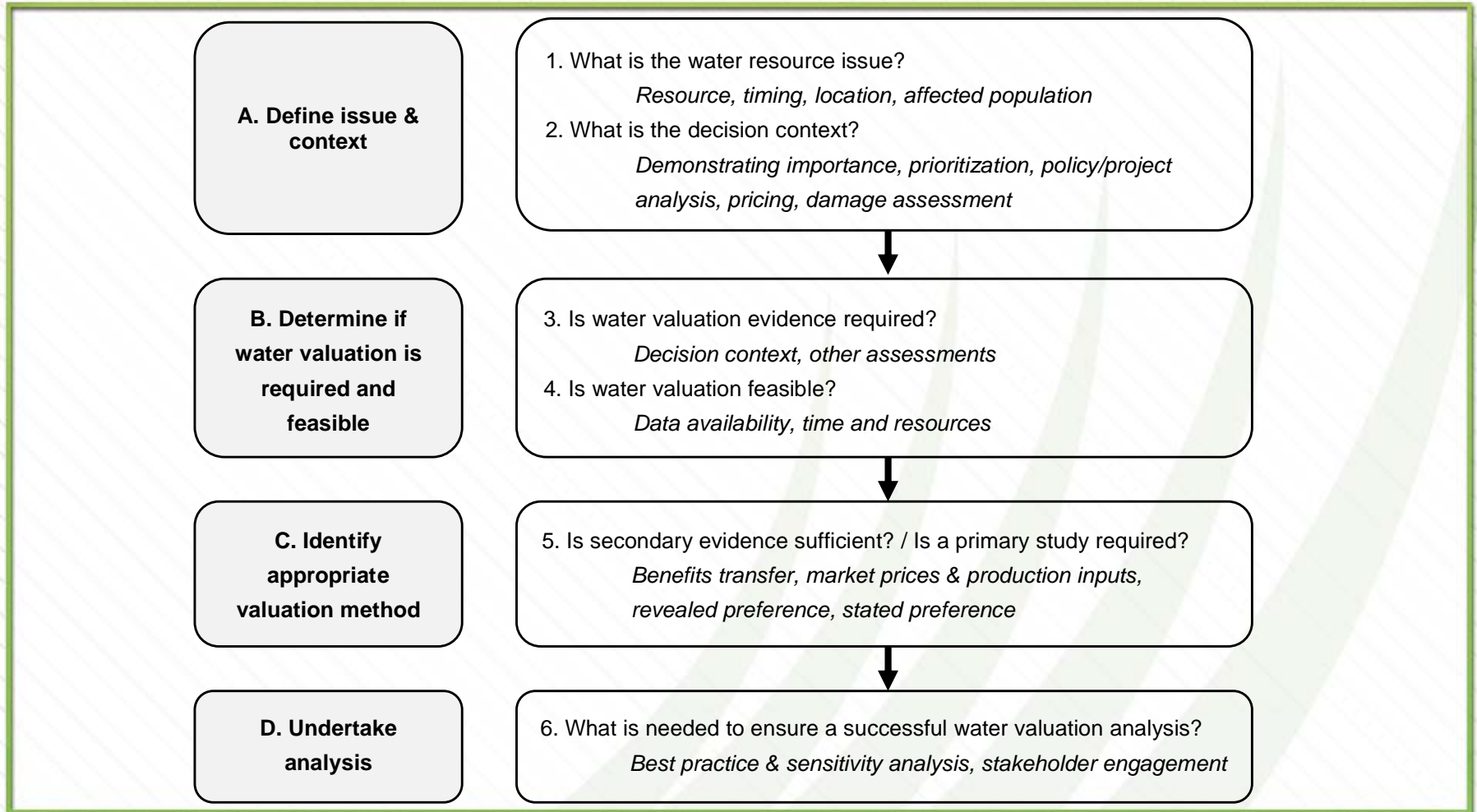
Identify your price on this continuum
What is your Value GAP?

VALUE GAP

Increasing Conservation

Source: Marbek Resource Consultants and S. Renzetti (2005)

Integrating Water Valuation in Decisions



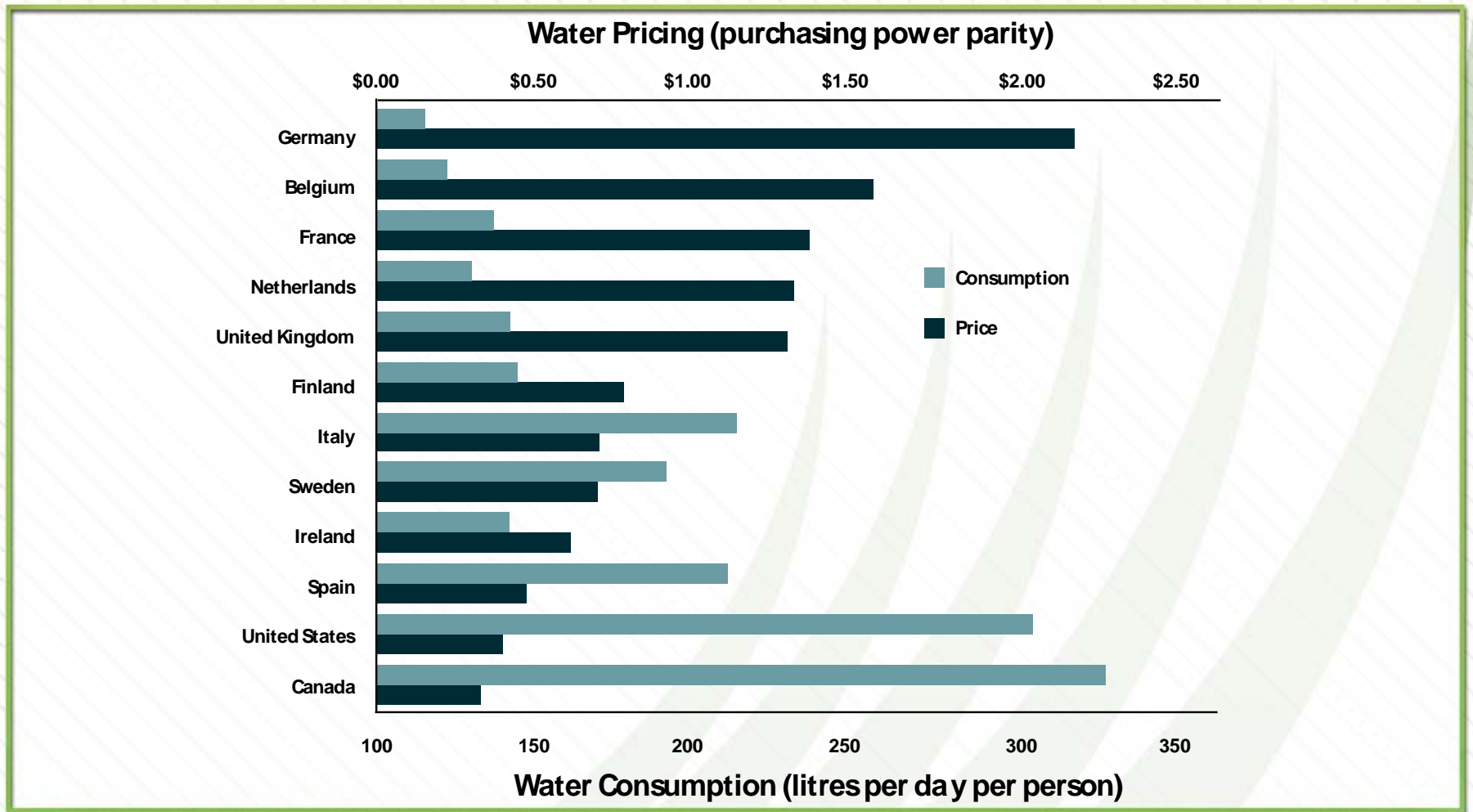
Source: CCME (2010)

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Market Based Instruments (MBI)

- Urban Water Supply
 - Conservation Pricing
- Basin Water Allocation
 - Transferring rights to water withdrawal
- Water Quality Management
 - Phosphorous trading
- MBI are not a substitute for regulation, they compliment regulation

Price – Consumption Relationship



Source: Brandes, O., S. Renzetti, and K. Stinchcombe (2010)

New Thinking on Governance

- Governance refers to the process through which decisions are taken within or among organizations, including:
 - who is involved
 - the assignment of responsibility
 - the prioritization of goals
 - the rendering of accountability.

Source: Bakker et al. (2008)

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New Thinking on Governance

- **Shared Governance (Bakker et al, 2008)**
 - Involves a range of actors in decision making and governance.
 - It requires action from all levels of government, and delegates powers to municipalities and non-governmental actors to facilitate broader programs and minimize conflicts.
- **Collective Action and the Commons (Ostrom, 2009)**
 - Research demonstrates that it is possible for individuals to act collectively to manage shared natural resources on a sustainable basis.

Centre for Market Based Instruments

- What is CMBI?
 - A Canadian knowledge network that bridges theory and practice in applying market-based incentives approaches to for conservation and stewardship, in four areas:
 - Water
 - Land-use
 - Energy
 - Forestry and Agriculture
- Mission Statement
 - To support communities and partners developing market-based environmental policies through education, research and practice.
- CMBI's Approach (Values)
 - Evidence-based decisions
 - Efficient and feasible solutions
 - Innovation through collaboration



Centre for Market Based Instruments

- Goals of the CMBI
 - Design and Evaluation (action focus):
 - to develop, test, and evaluate **market based approaches** for managing environmental goods and services in order to facilitate their adoption in public policy.
 - Share Information and Support a Community of Practice
- Currently hosted by Alberta Innovates Technology Futures

Additional Resources

- Bakker et al. (2008). Good Governance for Water Conservation: A Primer. Program on Water Governance, UBC.
- Brandes, O., S. Renzetti, and K. Stinchcombe (2010). Worth Every Penny: A Primer on Conservation-Oriented Water Pricing. POLIS Project on Ecological Governance.
- Canadian Council of Ministers of the Environment (2010). Water Valuation Guidance Document.
- Manniz, A. and V. Adamowicz (2011). Economic instruments for water management: selected Australian and Canadian Case Study and issues for application in Canada. Sustainable Prosperity, State of the Knowledge Report.
- Marbek Resource Consultants and S. Renzetti (2005). Analysis of Economic Instruments for Water Conservation. Canadian Council of Ministers of the Environment, Water Conservation and Economics Task Group, Project #: 337-2005
- Ostrom, E. (2009). A General Framework for Analyzing Sustainability of Social-Ecological Systems. Science, 325: 419-422
- Renzetti, S. D. Dupont, and C. Wood (2011). Running Through our Fingers: How Canada Fails to Capture the Value of its Top Asset. Blue Economy Initiative.
- Program on Water Governance, UBC: <http://www.watergovernance.ca/>

Thank You

