

Water Governance and Adaptation to Climate Change: the cases of Chile and Canada

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Agriculture and
Agri-Food Canada

Prairie Farm Rehabilitation
Administration

Agriculture et
Agroalimentaire Canada

Administration du rétablissement
agricole des Prairies

Canada

Governance: a definition

Webster's New World Dictionary of the American Language, 1980

- **Governance is:**

- The “act, manner, function, or power of government”

- **Governance is the process of “*governing*”:**

- “To exercise authority over; rule, administer, direct, control, manage, etc.”
- It's purpose connotes: “the maintenance of public order and the promotion of the common welfare,” and, “orderly management”

What is unique about water?

- Water is an environmental resource
- It is essential for:
 - Society's survival and well-being
 - Economic Development
 - Environmental health and sustainability
- ***Water knows no boundaries***, be they political or jurisdictional boundaries
- ***Water is a cross-cutting resource*** that cannot be neglected by any aspect of society

Integrated Water Resource Management, Dublin Principles, 1992

- 1. Water is a finite, vulnerable, essential resource**
- 2. Water must be managed in a participatory manner involving all stakeholders**
- 3. Women play a central part in water management**
- 4. Water has economic value and should be recognized as an economic good**



The Canadian Model

- **Canadian government**
 - Federal; 1987 Federal Water Policy
- **Provincial government**
 - Western Prairie Region includes:
Alberta, Saskatchewan, Manitoba
- **Local government**
 - Municipalities, cities, towns, etc.
- **Non-government** – organizations

The Canadian Model: Who Owns the Water?

- Water is a public good
- Water rights are allocated by provincial governments
- Water rights are not privately held, nor are they marketable commodities
- Federal intervention is always possible in the interest of “good governance”
 - http://res2.agr.gc.ca/publications/hw/02b2_e.htm

Canada: Federal, Provincial, Local water institutions:

- **Environment** (environment and trans-boundary flow)
- **Watershed** management agencies
- **Health** (public health)
- **Natural Resources** (ground water)
- **Power** generation
- **Agriculture and Agri-Food** (protection & rural water)
- **Indian and Northern Affairs**
- **Fisheries and Oceans** (inland and ocean fisheries)
- **Parks**, recreation
- **Local municipalities** (local gov't)
- **Local watershed groups** (multiple stakeholders)
- **NGOs** (environment, ag, industry, activist)
- **Citizens** (landowners, farmers, private water supplies)

Key Canadian Federal institutions concerned with water resources:

- House of Commons (308 elected representatives) and Senate (105 appointed) representing 32,800,000 people
- 5NR: five natural resource departments:
 - **Environment** (environment and trans-boundary flow)
 - **Health** (public health)
 - **Natural Resources** (ground water)
 - **Agriculture and Agri-Food** (protection & rural water)
 - **Fisheries and Oceans** (inland and ocean fisheries)
- Other federal agencies:
 - **Indian and Northern Affairs** (First Nations water)
 - **Transport Canada** (navigation)
 - **Foreign Affairs** (trade & export)
 - **Canadian Food Inspection Agency** (bottled water)
 - **Parks Canada** is responsible for ecological integrity and water and wastewater systems in national parks.

Key Canadian Provincial institutions concerned with water resources:

- **Legislature (elected politicians)**
- **Natural resource departments:**
 - Environment
 - Health
 - Natural Resources
 - Watershed Authority/ Drinking Water or Water Services/Corporations
 - Agriculture
- **Other departments (e.g. SaskPower)**

Other Canadian institutions concerned with water resources:

- **Municipalities** (water, wastewater, environment)
- **Health Districts** (health inspectors and water/wastewater safety)
- **First Nations** (water, wastewater, environment)
- **Environmental agencies:**
 - Prairie Provinces Water Board (inter-provincial water agreements)
 - Watershed groups (stakeholder interests and environment)
 - **Conservation authorities**
- **Sectoral agencies and industry**
 - Agricultural groups (specialty focus: e.g. irrigators, cattle, dairy, field crop, etc.)
 - Industry and Industry-supported groups (water and wastewater discharge)
- **Advocacy groups** (e.g. Sierra Club, environmental groups)
- **Watershed groups** (land groups, stakeholder groups)
- **Private landowners:** land management, private water, wastewater supplies
- **All Citizens have personal responsibilities to safeguard and protect the environment (water, land and air) from contamination**

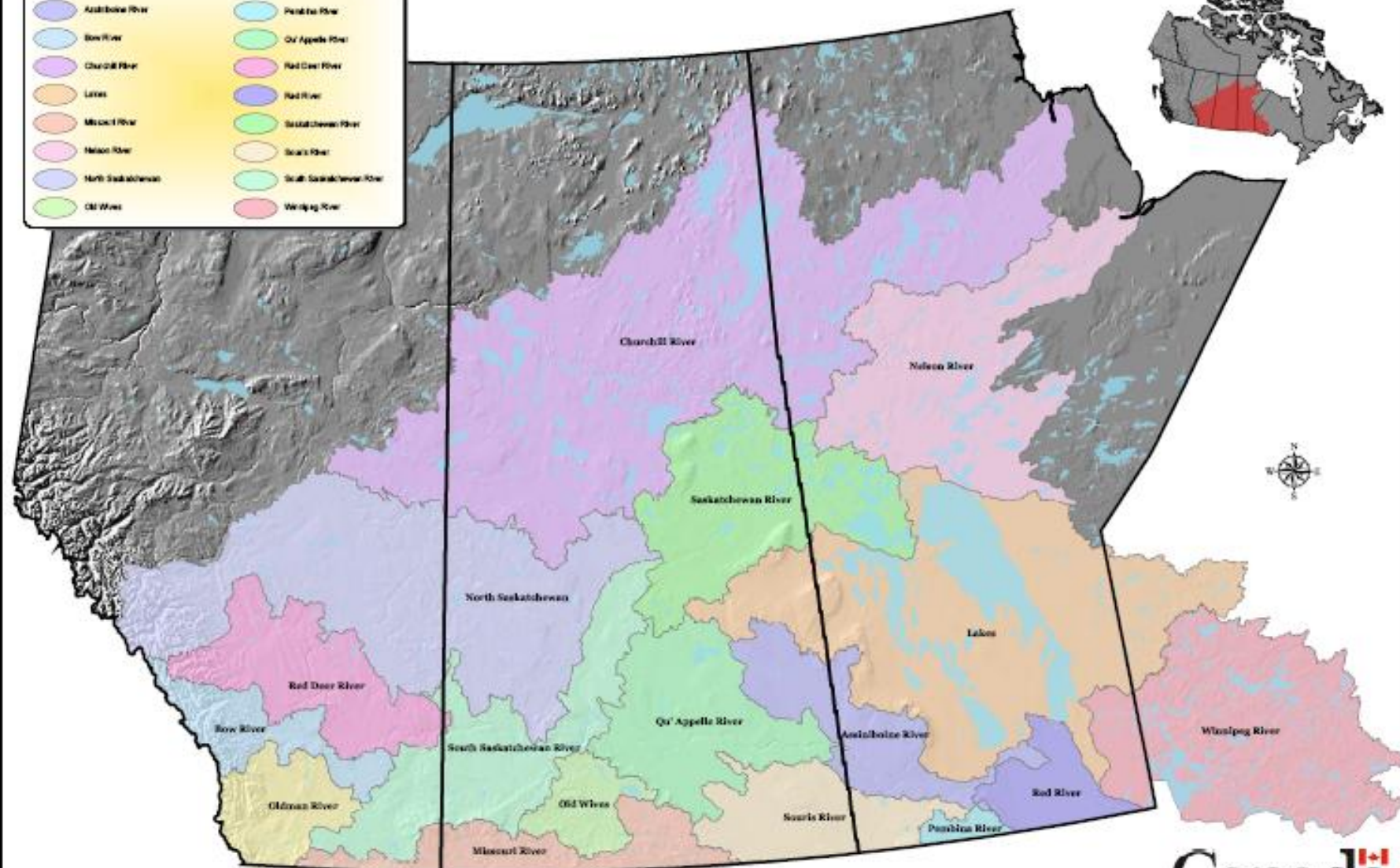


Agriculture and
Agri-Food Canada

Agriculture et
Agroalimentaire Canada

Prairie Provinces Water Board Watershed Boundaries

SUB-BASIN	
	Asiniboine River
	Bow River
	Churchill River
	Lakes
	Missouri River
	Nelson River
	North Saskatchewan
	Oldman River
	Peace River
	Qu'Appelle River
	Red Deer River
	Red River
	Saskatchewan River
	Souris River
	South Saskatchewan River
	Oldman River
	Wapiti River



Canada

Canadian perceptions of water governance

- the Canadian public perceives water strategy
 - “as piecemeal, lacking coherence, and hence inadequate to ensure that water will be managed appropriately in the face of conflicting”
 - *Pearse, 1986, Author of the 1987 Federal Water Strategy*
- “...the current institutional governance of water leads to fragmentation of the issue between many federal departments and agencies...”
 - *Policy Research Initiative, 2005.*
- Water knows no boundaries and it is clearly difficult to manage holistically

The Chilean Model

- **Chilean government**
 - National state government (unitary or national, divided into regions)
- **Civil Society/ local government**
 - National, Regional, Local
- **Private Companies**
 - For profit
 - Market and economic driven

The Chilean Model

Who owns the water?

- **Chile's Water Code**
 - Established in Chile's constitution, 1981Essentially *designed for economic development*
 - Rev'd 2005 to *address ecological, social issues*
- Water is a public good
- Water rights are granted by the state
- **Chile is characterized as a Water Market**

The Water Code's core

- **Water rights are privately held:**
 - separated from land rights
 - can be freely transferred, sold and bought.
- **Allocated water rights:**
 - Granted by the national government
 - Not conditional on the type of use
 - No priority list
 - Successful for aggressive Ag development
- **Water conflict resolution:**
 - Role of the state is very limited

Key Chilean State (national) institutions concerned with water resources:

- Congress (120 elected representatives) and Senate (38 elected & 10 designated) representing 16,000,000 people
- **General Water Directorate, DGA** (water rights, allocations)
- **Superintendency of Sanitary Services**, (created in 1990 to oversee private companies delivering potable water and treating wastewater)
- **Hydrological Works Directorate**, (water infrastructure development and maintenance)
- **Health** (disease prevention from potable water)
- **National Commission of the Environment**
- **National Irrigation Commission**
- **Agriculture and Livestock Service**, (protection of agriculture and natural resources; water contamination and monitoring)
- **National Forestry Corporation, Maritime and Merchant Marine Directorate**, (maritime and marine)

Key Chilean Civil Society Institutions concerned with water resources:

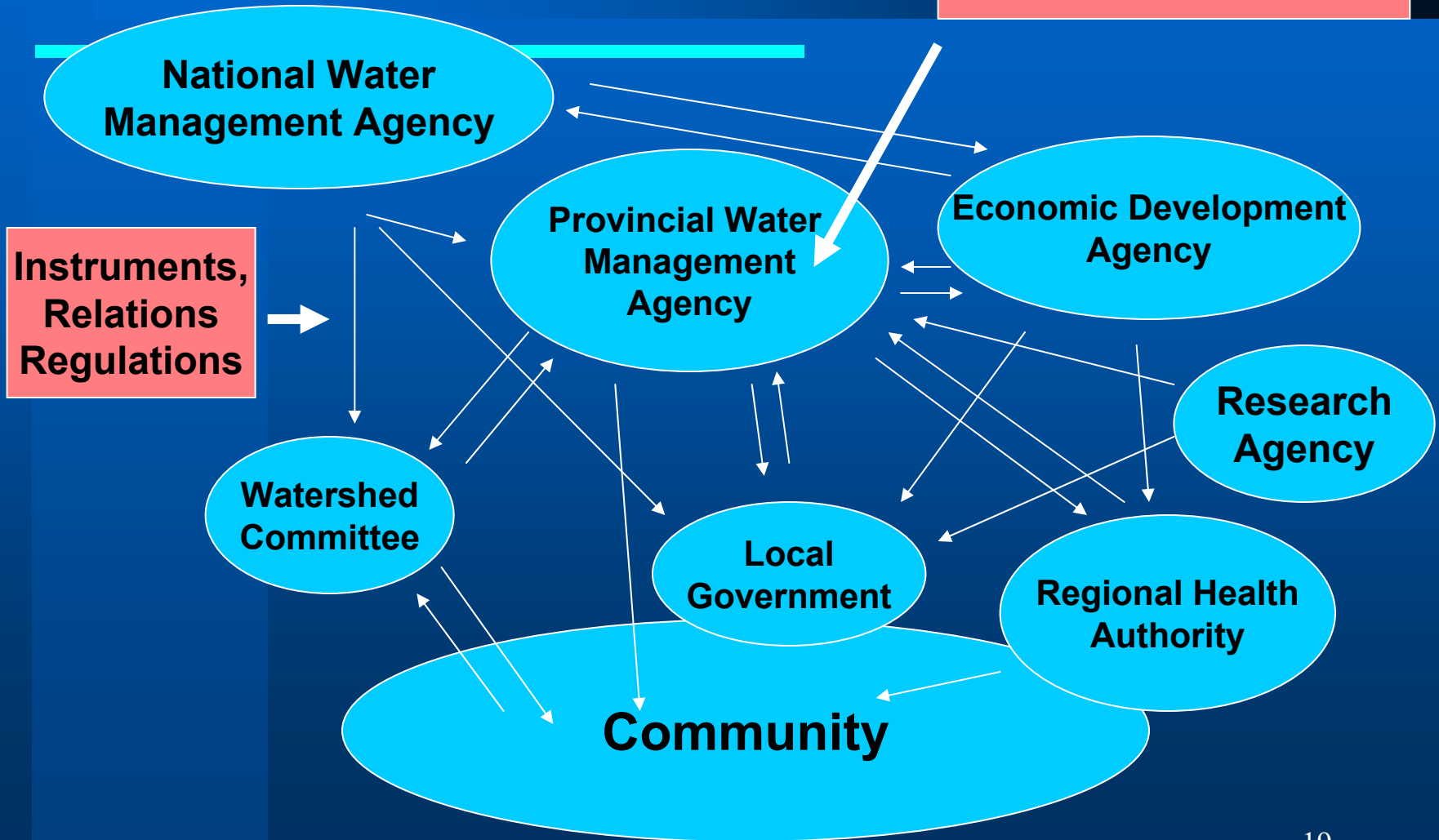
- **Monitoring Cooperatives, Juntas de Vigilancia** (water rights, allocations)
- **Irrigation Canal Association, Asociaciones de Canalistas** (water withdrawals from dams and canals)
- **Water Communities, Comunidades de aguas** (water users groups or clubs)
- **Potable Water Committees, Comités de Agua Potable** (potable water public stakeholders' citizen groups)
- **Drainage Communities, Comunidades de Drenaje** (water drainage)

Chilean Private Companies involved in water management:

- ***For profit*** companies are involved in:
 - Supply and distribution of **potable water serving cities and municipalities**
 - **Agricultural uses** (Ag industry operates & maintains water systems on corporate farms)
 - **Wastewater treatment for municipalities**
 - **Water and wastewater systems for industries** (mining, processing, manufacturing, etc.)

The Structure of Governance

Values
Internal decision-making
Resources



Different institutional contexts

Chile:

- Centralized authority
- The **free market** as a central organizational mechanism

Canada:

- Decentralized authority
- **Complex governance** systems

Chile:

Climate Change and Water Resources

- **A decrease in yearly precipitation and increased evapotranspiration.**
- **Increased aridity in the Norte Chico and central valley.**
- **Increasing unbalances between supply and demand**
- **Increment of water conflicts**

The Chilean Water Market: an assessment

● Positive:

- Infrastructure investments esp. Ag and Hydro
- Increased Ag exports
- Leasing of rights during drought
- Transfer of rights
- Improved water services

● Negative

- Conflict between consumptive/ non-consumptive
- Hoarding/speculation of unused rights
- Concept of “stealing from poor”
- Water Code has limited the state’s power to regulate

“Stealing Water from the Poor”

- **“The Chilean water market is characterized as the “law of the jungle”, where the powerful can do what they want with the water rights of the small”.**
- **The incapacity of public and private institutions to resolve these conflicts.**
- **The judicial system is too slow, too costly, and unpredictable.**

Source: Galaz, V., *Privatizing the Commons, Natural Resources, Equity and the Chilean Water Market*, FLACSO, Santiago, 2003 O, Santiago, 2003

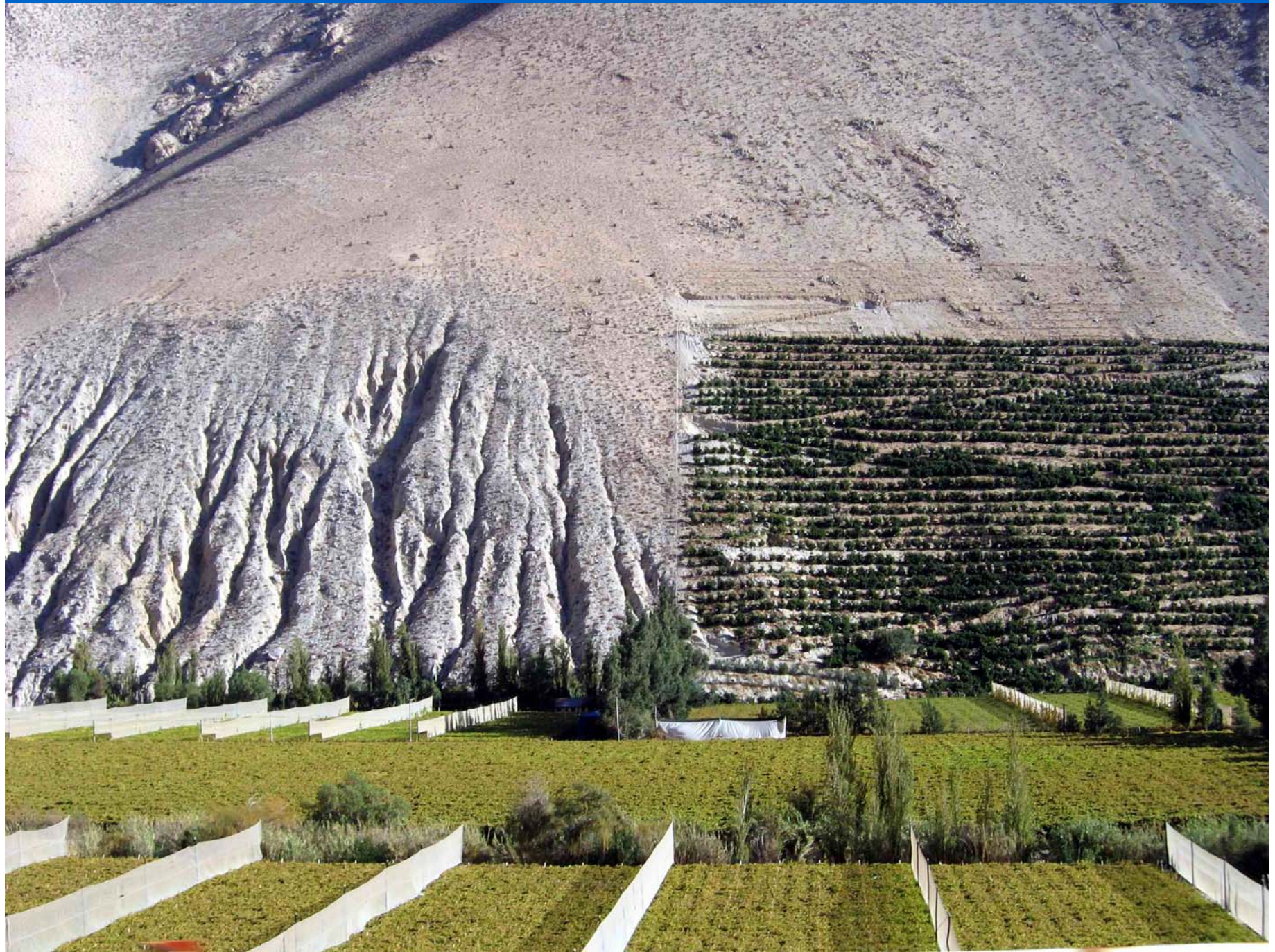




BIENVENIDO EL NUEVO MIL







“We use state of the art irrigation technology learned from Israel. Earth canals have been converted to concrete, and we now are promoting pipelines to conserve water loss. We have ready drought plans in place.” Irrigation manager



Manager: “People in the valley say we have made the rocks bloom...We are very concerned that water users in the basin are not ready for water supply shortages”



Preliminary Research in Canada: local governments

- **Communities are:**
 - governed at arm's length by provinces and federal gov'ts
 - local RMs, towns are left to implement regulations as best they can, with limited resources.
- **Local governments:**
 - have significant local knowledge
 - cannot be experts in all disciplines/regulations
 - realize their decisions have great future impact
 - challenged with many issues (e.g. environment) while trying to survive and make a living

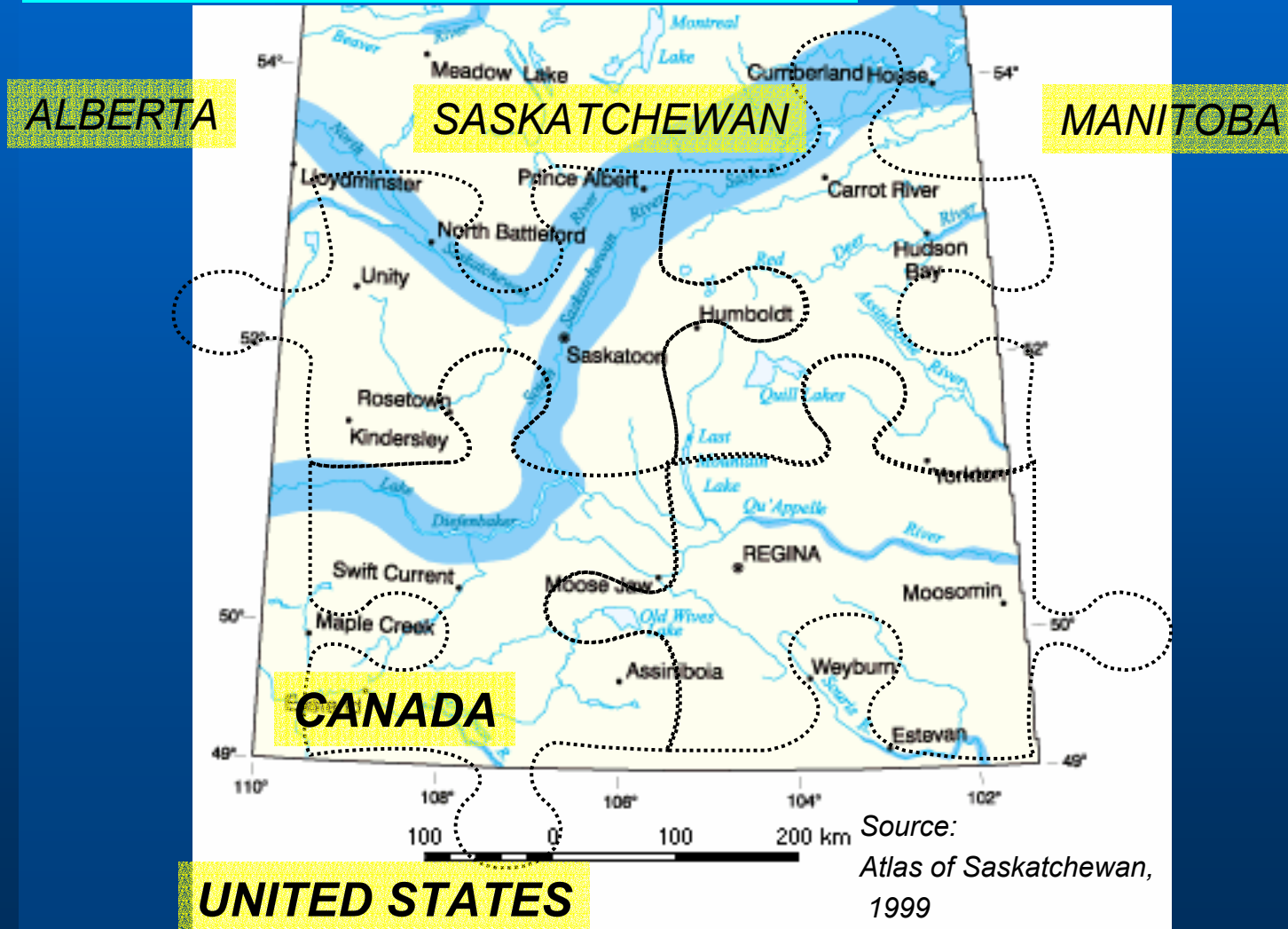
Canadian Adaptations in Rural Communities

- Community water conservation
- Water management strategies
 - Household
 - Farm water
- Crop and hail insurance
- Community solidarity
- Diversifying crop varieties
- Diversifying income sources

Canada: Community evaluation of external governance institutions

- Widespread negative feeling toward government organizations
- Complaints about:
 - the large number of agencies
 - lack of information about roles, functions
 - lack of a sufficient government *understanding* of the *local situation*
 - application of province-wide regulations
- Local government is not viewed as government

The governance puzzle



Canada and Chile

Similarities in water governance

- **Water is recognized as public good: governments grant water licenses and exercise degrees of legal, admin. control**
- **Numerous formal/informal water agencies**
- **Water Acts/Regulations legally enshrined**
- **IWRM is practiced on highly-developed water infrastructure**
 - **key water demands include municipal, agricultural and power generation**

Canada and Chile

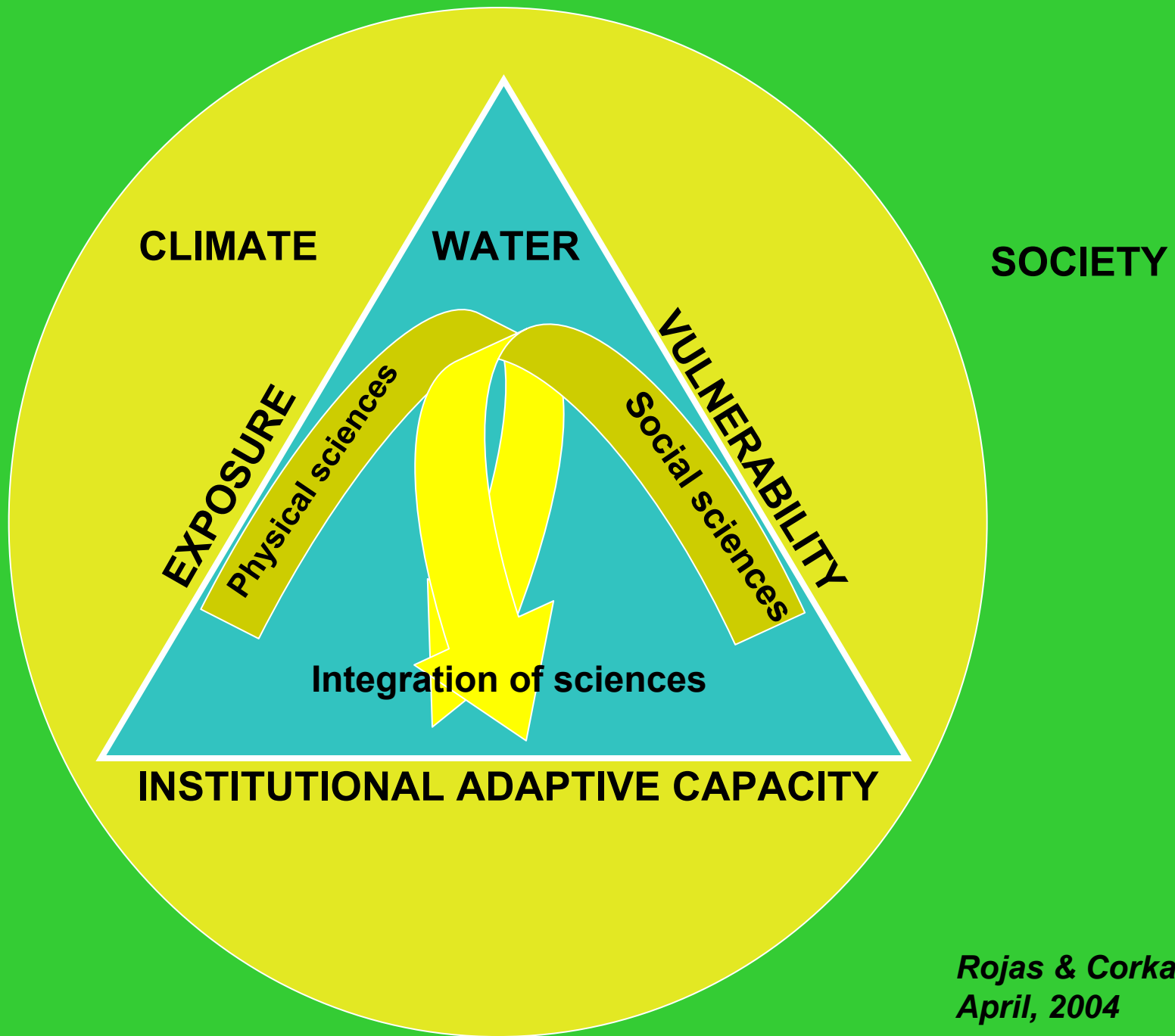
Contrasts in water governance

- Canada relies heavily on **government management** of water resources; in Chile the **influence of government is more detached**
- Canada **does not have a water market** - water rights are not privately held and marketed economically; **Chile's Water Market is unique**, and allows for a significant role of private sector investment, ownership and water resource management

Canada and Chile

Contrasts in water governance

- **Canada's multi-governance** may have:
 - advantages for IWRM basin management
 - weaknesses for recognizing water as an economic-good
- **Chile's water market** emphasis may have:
 - strengths for infrastructure development and economic growth in agriculture
 - Weaknesses for non-economical aspects or water management i.e. social equity, environmental needst



*Rojas & Corkal,
April, 2004*

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***Go to PARC website for more Project Information:
<http://www.parc.ca/mcri/index.php>***