

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

Darrell R. Corkal, *P. Eng. , PFRA*

Dr. Harry (Polo) Diaz, *U of R*

Dr. David Gauthier, *U of R*

Saskatoon, Saskatchewan, 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

The IAACC Project Goal

Develop a systematic understanding of **capacities of regional institutions** to formulate and implement strategies of **adaptation to climate change risks and the forecasted impacts of climate change on** the supply and management of **water resources**.

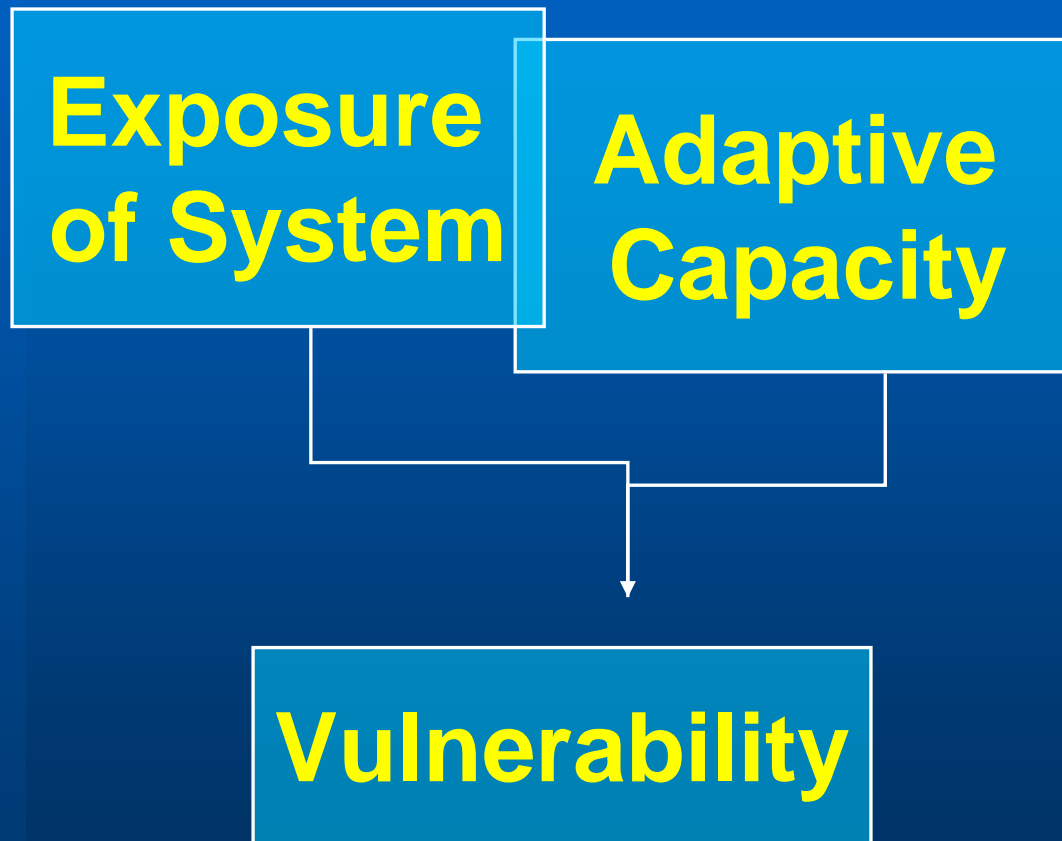
Two project basins:

- **South Sask River Basin, Canada**
- **Rio Elqui River Basin, Chile**

IACC Project Objectives:

1. Identify **current vulnerabilities of rural communities to water and climate** conditions in both basins;
2. Examine **potential future scenarios of climate change** in the two basins and their potential risks
3. Evaluate, discuss **regional institutional capacities to reduce the future vulnerabilities** of rural communities associated to climate change and its impact on the hydrological resources

Conceptual Vulnerability Model



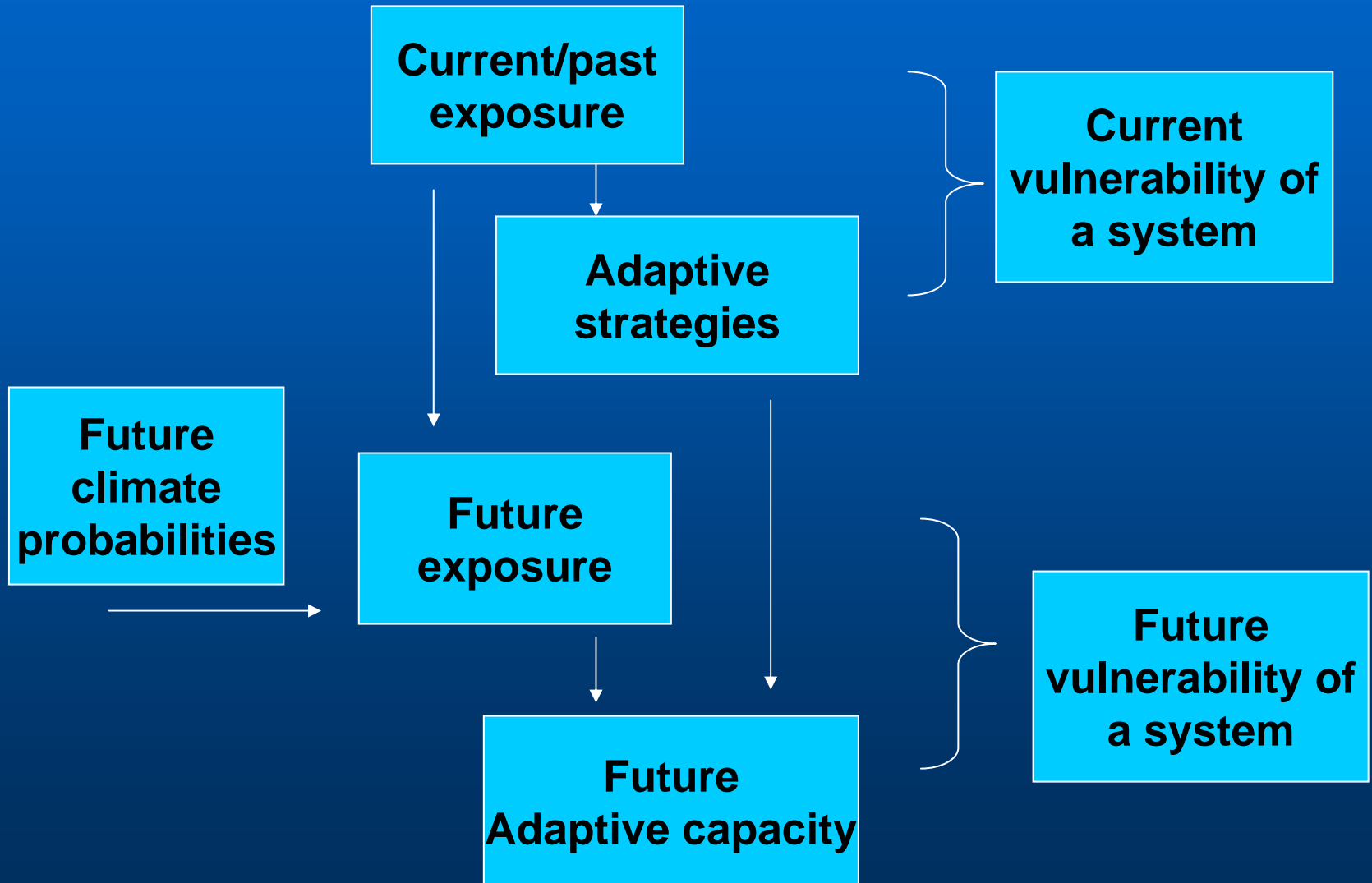
Our project seeks to understand:

Adaptive capacity of rural communities

Roles played by governance institutional actors in the development (or underdevelopment) of that adaptive capacity.

Focuses on the problematic of **vulnerability in the context of an institutional system.**

The Vulnerability Approach



What are institutions?

Institutions are rules -- which define roles and procedures for people-- and their resulting **organizational forms**. They determine what is appropriate, legitimate and proper by establishing **cognitive and normative structures** which define perceptions and interpretations.

The purpose of institutional assessment:

To understand governance **institutional actors and processes** and to identify **issues that impact upon the vulnerability of the communities.**

Assess institutional governance capacity:

1. **to identify problems and issues** in the civil society
2. **to seek solutions** to those problems and to deal with issues,
3. **to implement solutions**

Our focus

THE STUDY



COMMUNITY

**Formal
Institutions**

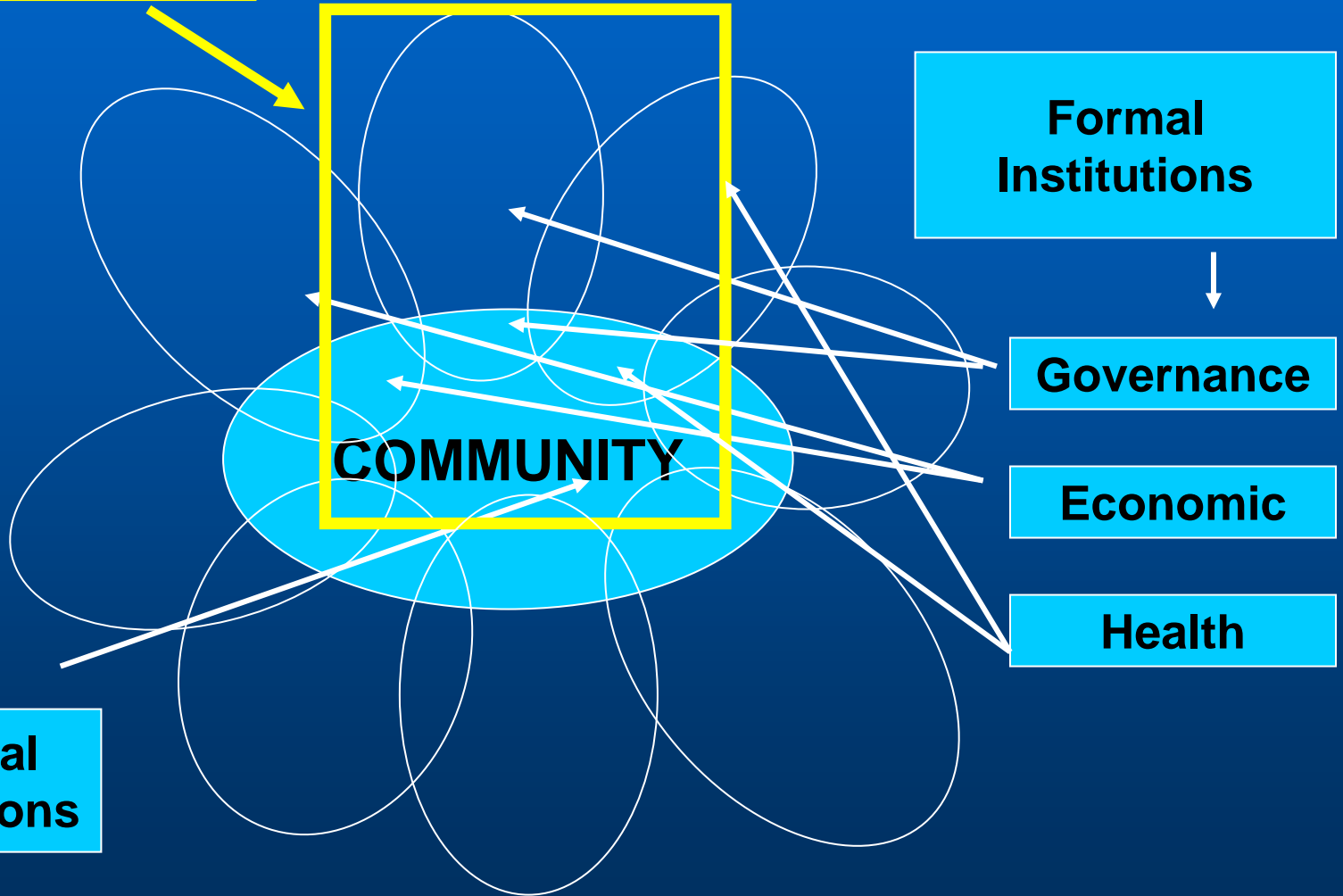


Governance

Economic

Health

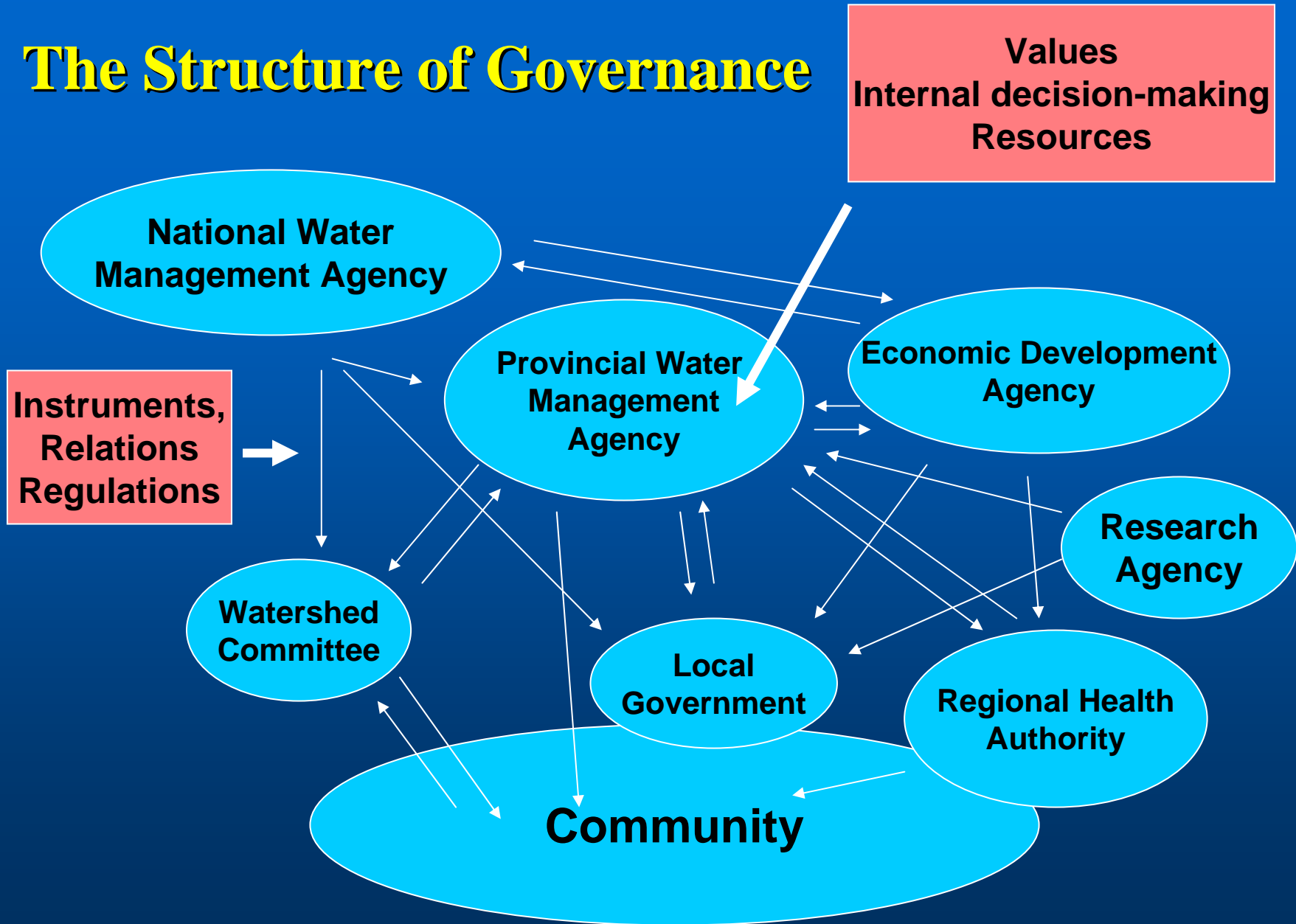
**Informal
institutions**



Governance:

- **processes and institutions by which authority in a country is exercised by the common good** (World Bank Group 2000). The exercise of authority includes three elements:
- The process by which those in authority are selected, monitored, and replaced;
- The capacity of the local government to manage its resources effectively, and to implement sound policies; and
- The respect of citizens and the local government for the institutions that govern economic and social interactions between them.

The Structure of Governance



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”

Which Aspects of Governance Should Be Assessed?

- The assessment should evaluate **the rules** that define the use and distribution of water resources, **the organizations** that define and apply these rules, and **their cognitive and normative structures** .

The methodological dimensions for the assessment of institutions

- **Organizations and their links**
 - roles, responsibilities, distribution of power
- **Instruments**
 - Formal rules (legal, political) affecting water management, climate (environment), health
- **Management, decision-making**
 - Openness & Ability to identify and solve water mgmt. problems (climate, society)
- **Institutional values on climate change and sustainability**
 - Present values, Future planning

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

Chile: National Water Demand (m³/s)

Sector	1993	2015
Agriculture	6,550.7	9,925.4
Human Consumption	354.0	603.6
Industrial	639.6	1,580.4
Mining	546.0	799.2
Energy	19,236.6	172,138.0
Total	27,326.9	185,046.6

Source: Universidad de Chile, *Informe Pais. Estado del Medio Ambiente en Chile*, LOM Ediciones, 2002

Has Chile the institutional capacity to deal with water scarcities?

- Very restricted due to legal and political conditions
- Access and use of water is defined by the Water Code of 1981, which has created a **water market** and **limited the state's power to regulate water resources.**

The Water Code's core

- **Water rights:**
 - 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

The Chilean Water Market: an assessment

● Positive:

- Infrastructure investments esp. Ag and Hydro
- 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”

“Stealing Water from the Poor”

- **“The Chilean water market is characterized by 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











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)

Canada: local governments

- **Communities are:**
 - governed at arm's length by provincial and national governments
 - local RMs, towns are left to implement those regulations as best they can, with the resources they have.
- **Local governments:**
 - have significant local knowledge
 - forced by lack of resources to also become experts in all areas of management: legislation, budgeting, environmental issues, and business
 - their decisions have great impact on the future of the area
 - Are challenged to research and learn each issue - a demanding expectation for those who are farming, ranching, or doing other work full-time

Canada: The adaptive capacity of two small communities (preliminary findings)

- **Community water conservation program**
- **Household water management strategies**
- **Farm water management strategies**
- **Purchasing 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

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 constitutionally 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

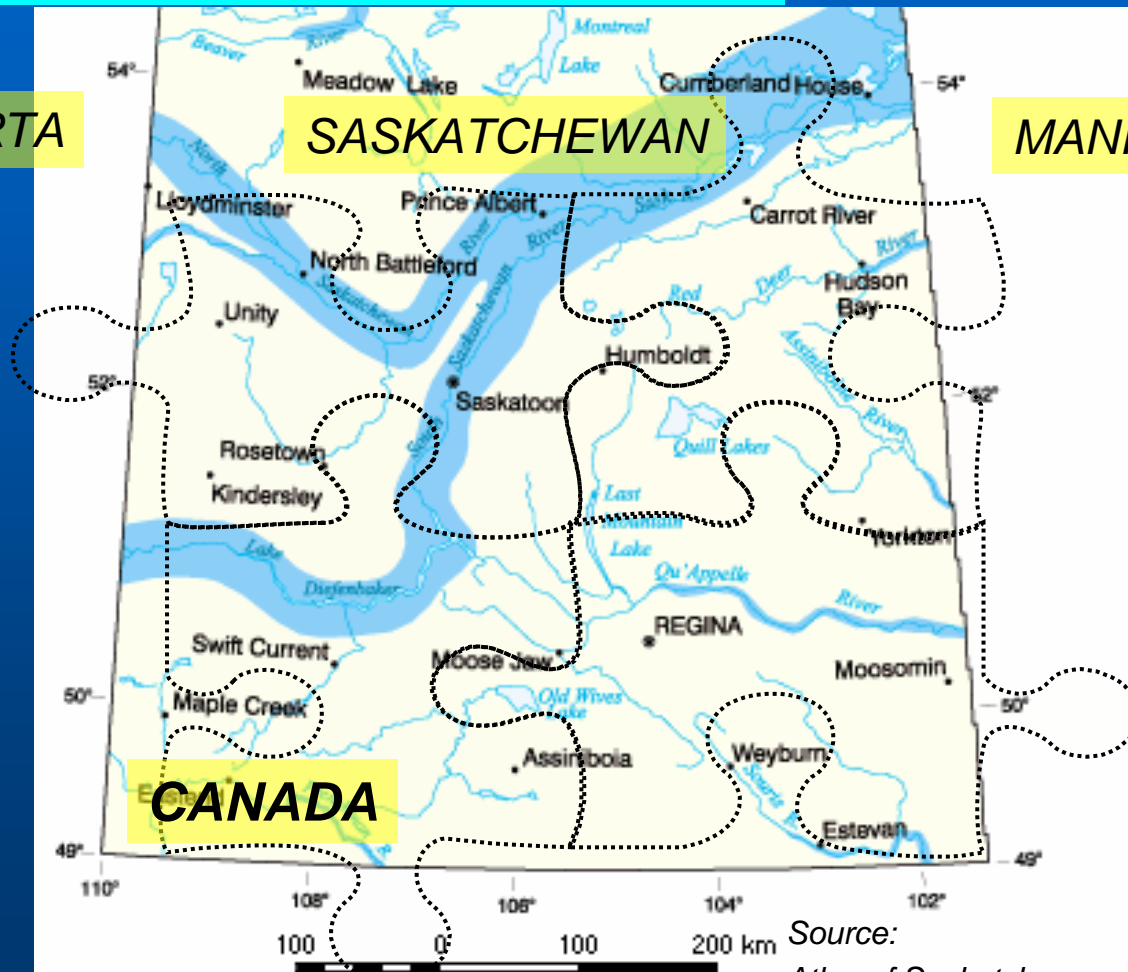
- **Canada's multi-governance** may have advantages for IWRM basin management but weaknesses for economic-good water management. **Chile's water market** emphasis has strengths for infrastructure development but may have weaknesses for rural citizens and basin management

The governance puzzle

ALBERTA

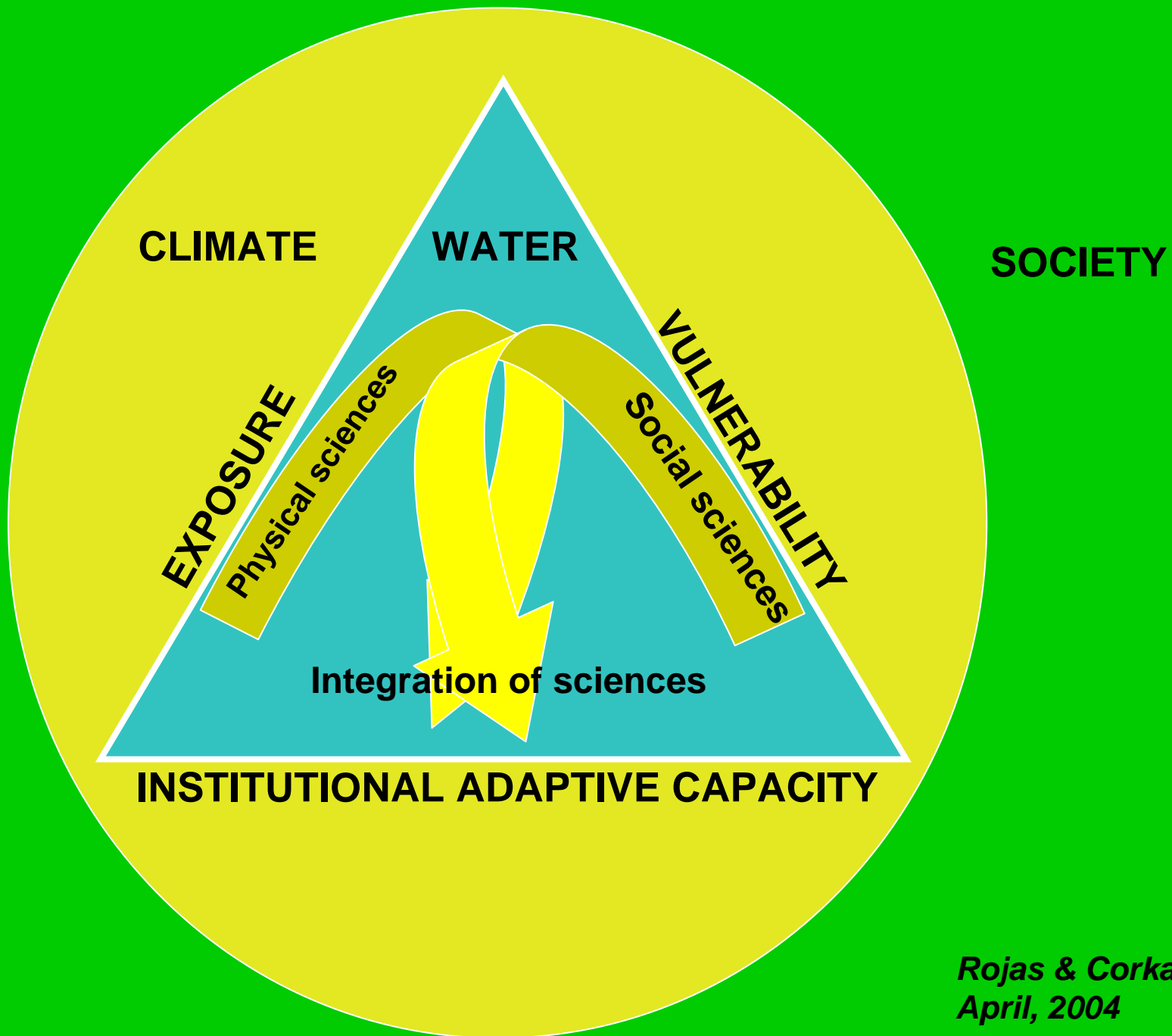
SASKATCHEWAN

MANITOBA



UNITED STATES

Source:
Atlas of Saskatchewan,
1999



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