



# **Institutional Adaptations to Climate Change: Comparative Study of Dryland River Basins in Canada and Chile**

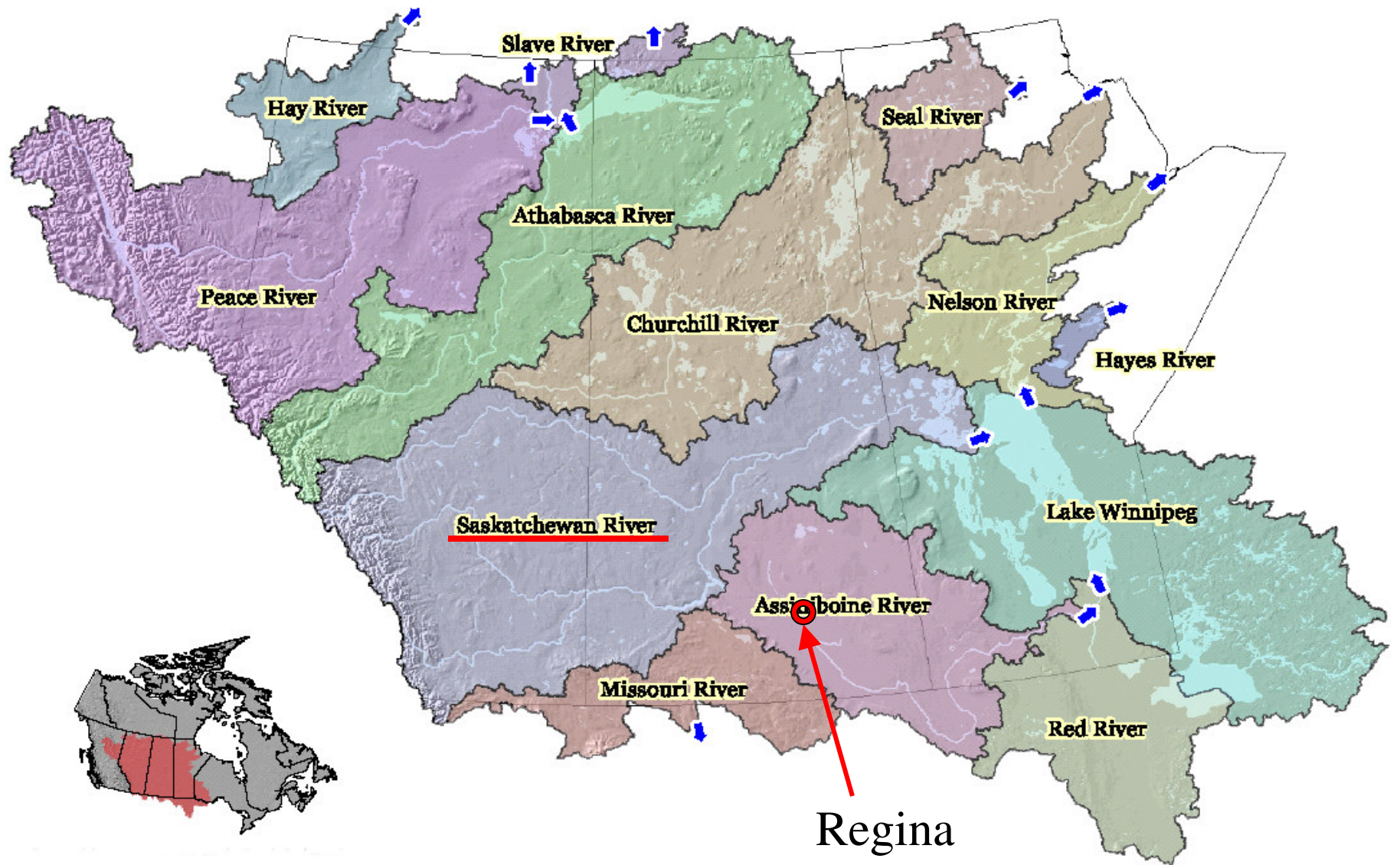
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# A study of two river basins

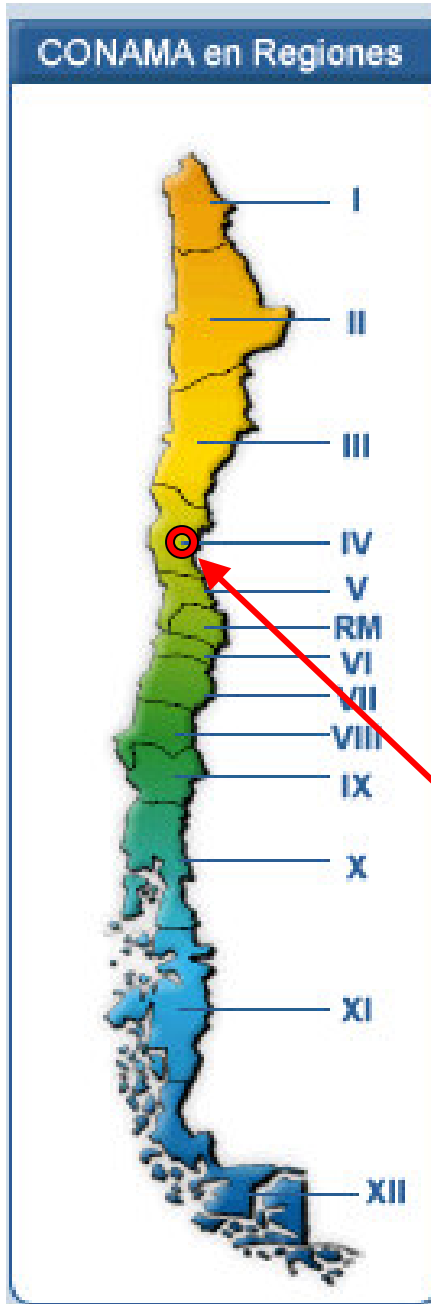
The Elqui Basin, Coquimbo Region, Chile  
(9,600 km<sup>2</sup>)

and

The South Saskatchewan River Basin, Canada  
(420,000 sq. km.)



Source: Prairie Farm Rehabilitation Administration (PFRA)



Region IV



Elqui River Basin

# Some similarities

- A similar environment—a dry climate adjacent to a major mountain system and landscapes at risk of desertification.
- In both regions agriculture plays a critical economic role and water resources are important to agriculture.
- The institutions serving the regions are relatively stable.
- Both the Canadian and Chilean governments have ratified the Kyoto Protocol.

## Team Members and their Institutions

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# Partners

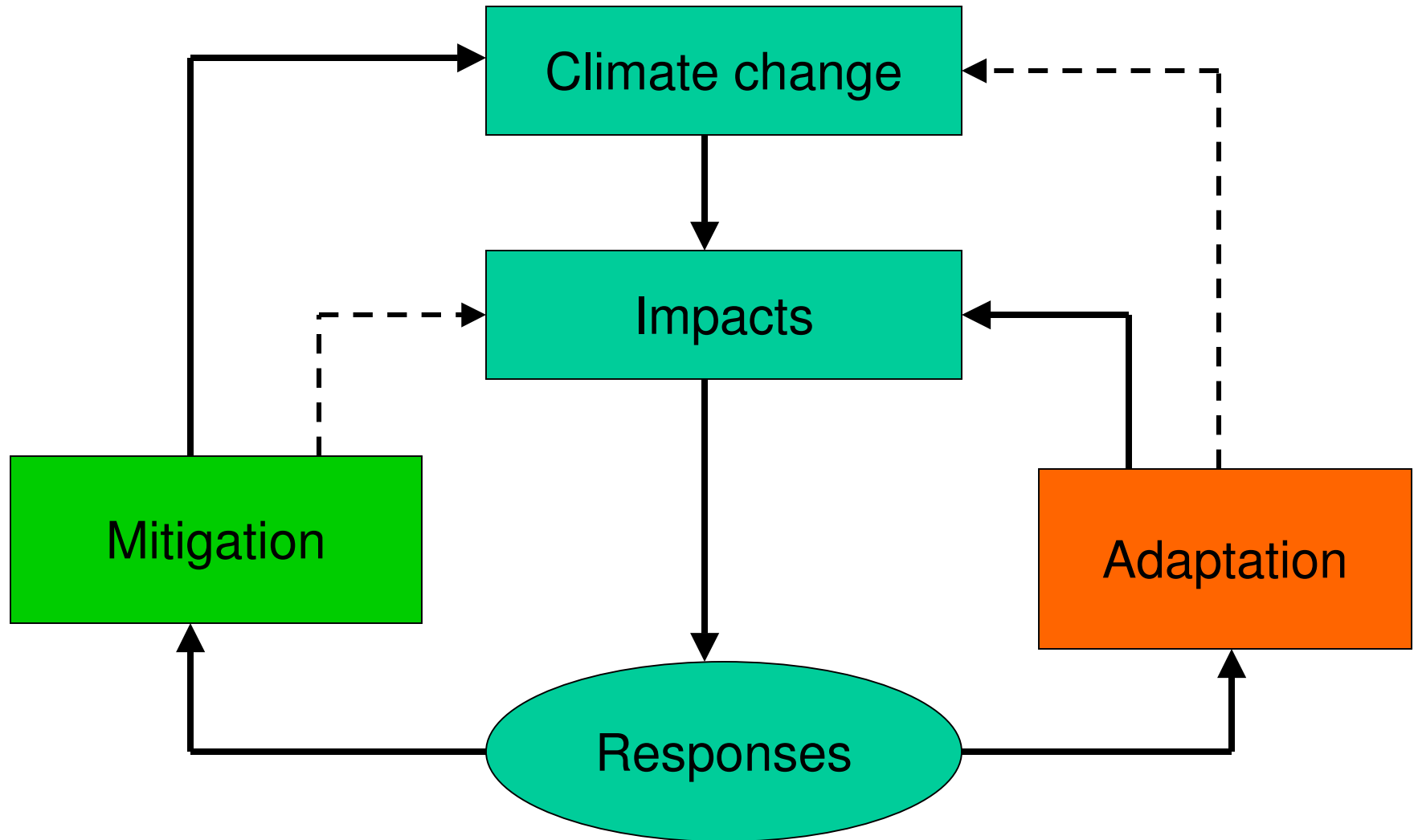
- Canadian Plains Research Center
  - PARC/C-CIARN Prairies
  - Prairie Farm Rehabilitation Administration (PFRA)
  - Alberta Environment
  - Saskatchewan Watershed Authority
  - Transboundary Waters Unit , Environment Canada
  - National Water Research Institute
- 
- Centro de Estudios Regionales
  - National Commission of the Environment of Chile (CONAMA)
  - Centro del Agua para Zonas Aridas y Semiaridas (CAZALAC)
  - Instituto de Ecologia Politica (IEP)



# Research Assistants

- Four Ph.D., thirteen Masters, and two Post-Doctoral researchers
- Training
- Thesis work

# *Dealing with Climate Change: Mitigation and Adaptation*



# The Focus of the Project: Adaptation

1. Mitigation will not prevent climate change from occurring.
2. It is necessary to take advantage of **new opportunities** (longer growing season) and avoid some of the **negative impacts** (extreme weather variability, drought)

# **What Forms of Adaptation?**

Institutional Adaptation: informal (rural communities and households) and formal (public agencies and private organizations)

Anticipatory/reactive; planned/autonomous, and public/private

## **A policy relevant project**

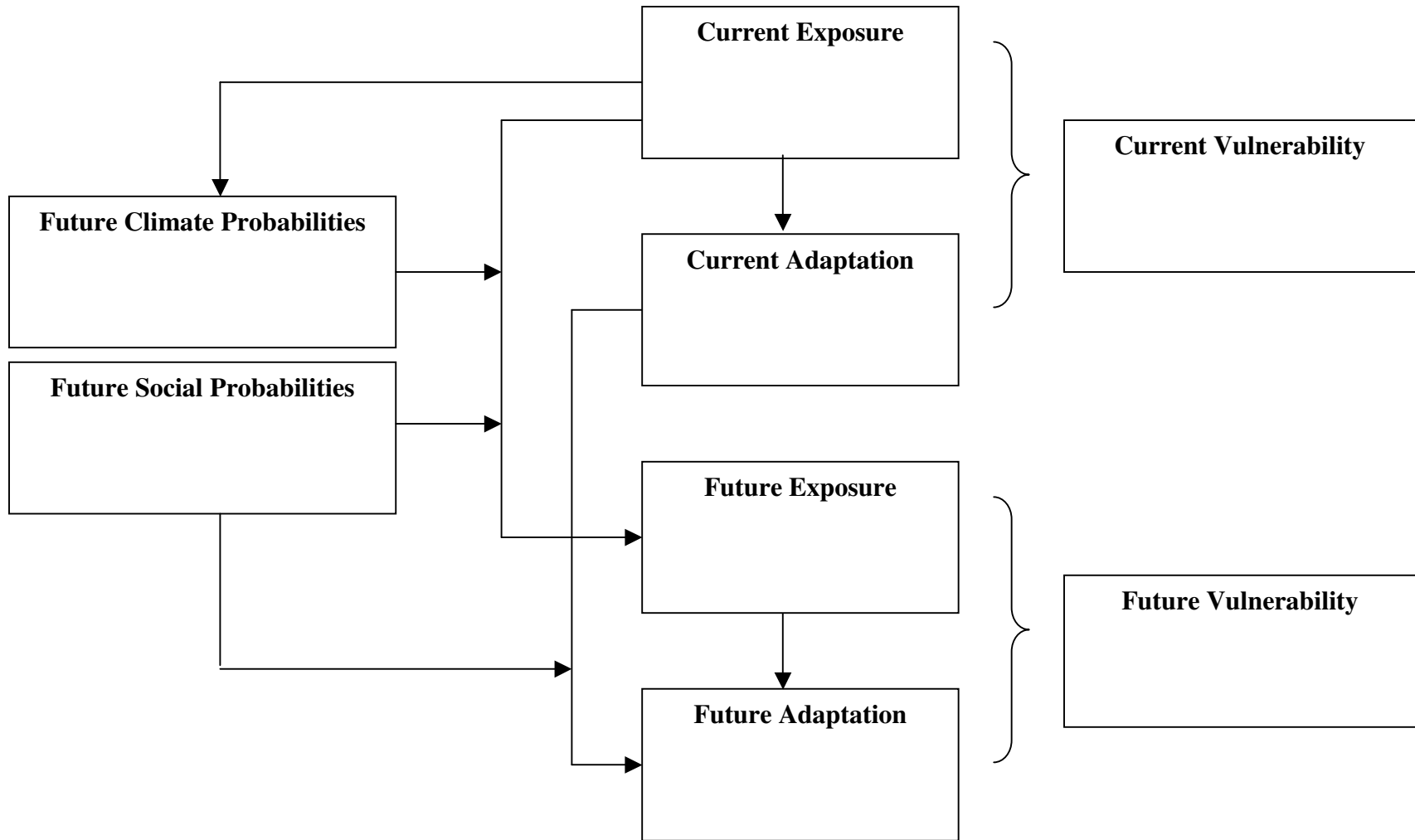
- It addresses a critical issue of national and international significance *that has not* been systematically studied at the empirical level.
- It will provides insights about issues that are central to the design and implementation of adaptation policies and programs.

# Project Goal

The **goal** of our project is to develop a systematic and comprehensive understanding of the **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 in dryland environments.**



# Conceptual Framework



## **The Objectives:**

- **(1) To identify the current social and physical vulnerabilities regarding the hydrological resources and climatic conditions in the rural sectors of the two basins;**
- **(2) To examine the potential scenarios of climate change in the two regions and their potential risks;**
- **(3) To evaluate and discuss the regional institutional capacities to reduce future vulnerabilities associated to climate change and its impact on the hydrological resources of both basins.**

# Objective 1: Main activities

- Ethnographic study of rural households and communities (definition and understanding of social and physical vulnerabilities, social mechanisms to reduce vulnerabilities, and formal institutional support)
- An assessment of the capacity of institutions to reduce the vulnerability of these two rural groups (degree of coordination, human capital, conflict management)

## Objective 1: Main activities

- A study of conflicts related to the use of water resources (description of the process, how actors behaved during the conflict, what was the role of the formal institutions, how the conflict was resolved).

## Objective 1: Main activities

- A historical study of institutional adaptive capacities in situations of extreme vulnerability, e.g. 1930s in Canada and 1960s in Chile.

## **Objective 2: Main activities.**

A definition of the different scenarios of climate change in the next decades for the two regions. The scenarios will be derived from global climate models based on different emission scenarios.

Examination of the potential contingent effects of climate change risks on the identified vulnerabilities.



## **Objective 3: Main activities**

- An analysis of the current institutional capacities in the context of the future scenarios of climate change risks.
- A discussion process with the institutions (focal groups, conferences, workshops) to identify the changes required to adapt to the new climatic conditions.

# Dissemination

- A website
- Annual reports
- Stakeholder meetings
- Video
- Use of existing media
- Distribution of material through e-mail.
- Annual seminars and an international conference

# Program of Activities

Activities	2004	2005	2006	2007	2008
Objective 1	XXX	XXX	XXX		
Objective 2	XXX	XXX	XXX		
Objective 3			XXX	XXX	X
Dissemination	XXX	XXX	XXX	XXX	XXX

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