

Efectos de Cambio Climático y Antropogénico en la Sequía

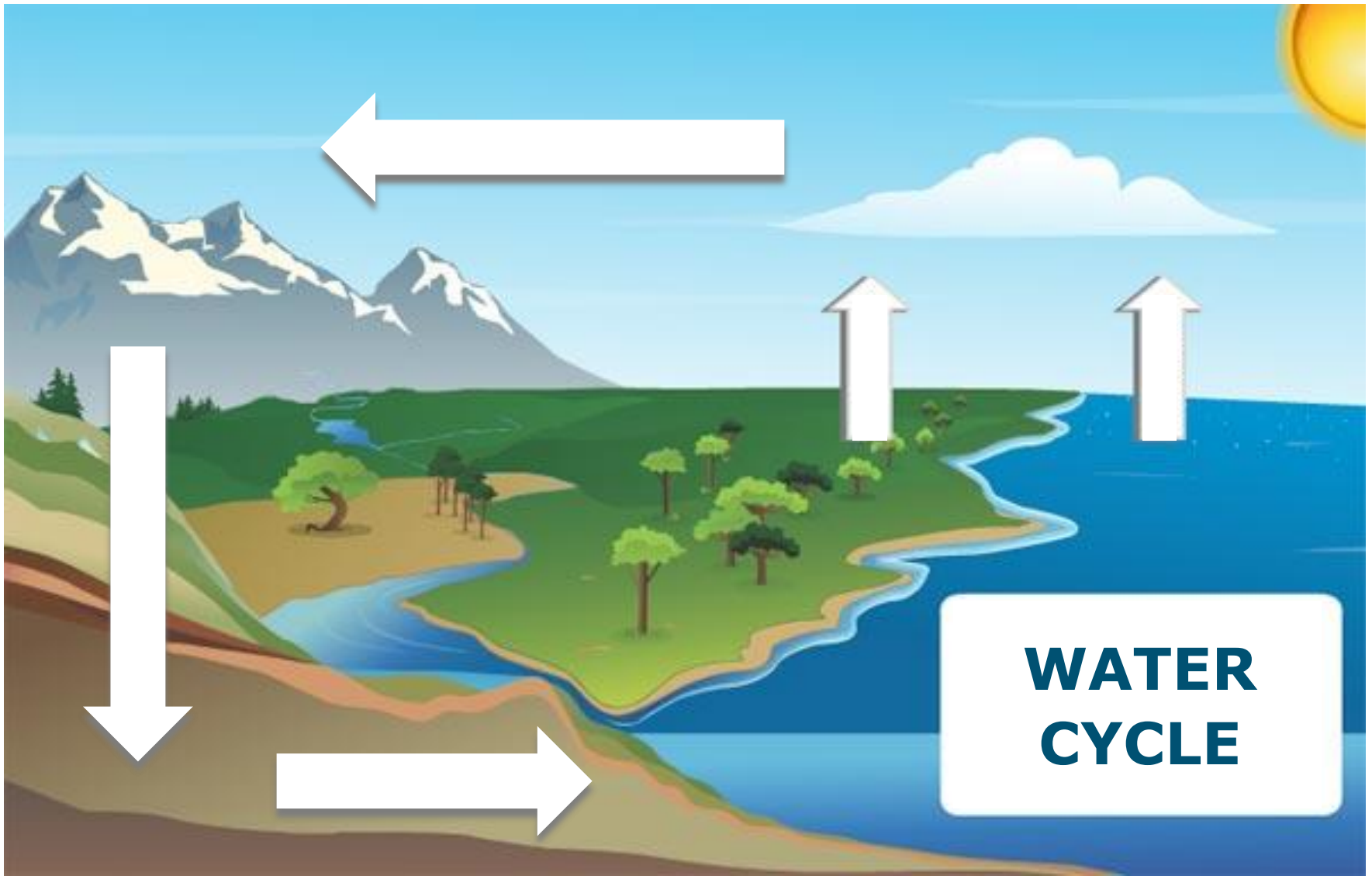
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Programa curso

Miércoles, 11 de noviembre

Sesión 1 09:00 – 11:00	Presentación “Efectos de Cambio Climático y Antropogénico en la Sequía des Aguas Subterráneas”
11:00-11:30	Proyecto: Trabajo en la computadora en grupos <i>Café</i>
Sesión 2 11:30 – 13:00	Proyecto: Preparación de Presentaciones de los grupos
13:00-14:30	<i>Almuerzo</i>
Sesión 3 14:30 – 16:00	Proyecto: Presentaciones de los grupos Discusión plenaria “Cuantificación de propagación de Sequía desde Sequía meteorológica a Sequía des Aguas Subterráneas”
16:00-16:30	<i>Café</i>
Sesión 4 16:30 – 18:00	Discusión plenaria de próximo pasos Evaluación del entrenamiento Palabras de despedida oficial



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Changing climate causes weather chaos in Chile

March 30, 2015, by Kieran Cooke



climateneWSnetwork.net/changing-climate-causes-weather-chaos-in-chile/

What is being described as an environmental catastrophe is hitting Chile as torrential rains batter the north while the south suffers prolonged drought and wildfires. LONDON, 30 March, 2015 – The Atacama desert region of northern Chile, one of the driest areas on Earth, has been hit in recent days by **torrential rains and floods** that have caused deaths, swept away homes and left much of the region without power. Meanwhile, in the usually lush southern parts of the country, wildfires are raging across lands and forests parched by the longest period of drought in living memory, endangering some of the world’s richest flora and fauna. “We are witnessing a **massive environmental catastrophe**,” Luis Mariano Rendon, head of the **Accion Ecologica** environmental group, told the AFP news agency.

<http://climateneWSnetwork.net/changing-climate-causes-weather-chaos-in-chile/>

Climate change effects on water resources in Chile



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Climate change

Temperature increases projected
+
Changes in precipitation patterns

= affects on hydrology

Observed changes and trends

- Rise in temps in central valley and Andes mountains (where most of Chile's water resources are stored) 1979 – 2006
- Glaciers in retreat

(OECD, 2013)

Projected impacts 1

- Increase in mean temperature (2 – 4 °C), greater increase in Andean regions
- Change in annual precipitation (> 30% in some areas of the country by 2040)
- Reduction in the mountainous area capable of storing snow and shift in snow line towards higher altitudes
- Retreat of glaciers significantly impacting water supply

Projected impacts 2

- Increase in months with a hydrological deficit = low-flows occurring more frequently
- Increased frequency of extreme events will degrade surface water quality
- Increase in drought, especially in the northern and central regions
- Negative impacts on ecosystems that depend on the quality and quantity of water resources

(OECD, 2013)

Affects in Chile

- Water shortages are affecting agriculture and mining
- Hampering copper production, exacerbating forest fires, driving energy prices higher
- Potential damage to water supply and sanitation services in coastal cities
- Groundwater contamination by saline intrusion

Bolivia, La Paz



La Paz ~4000m a.s.l.

2.3 million people

2 main water sources:

- i) Rainfall (dry season May – October)**
- ii) Glaciers (12-40% of city's potable water)**



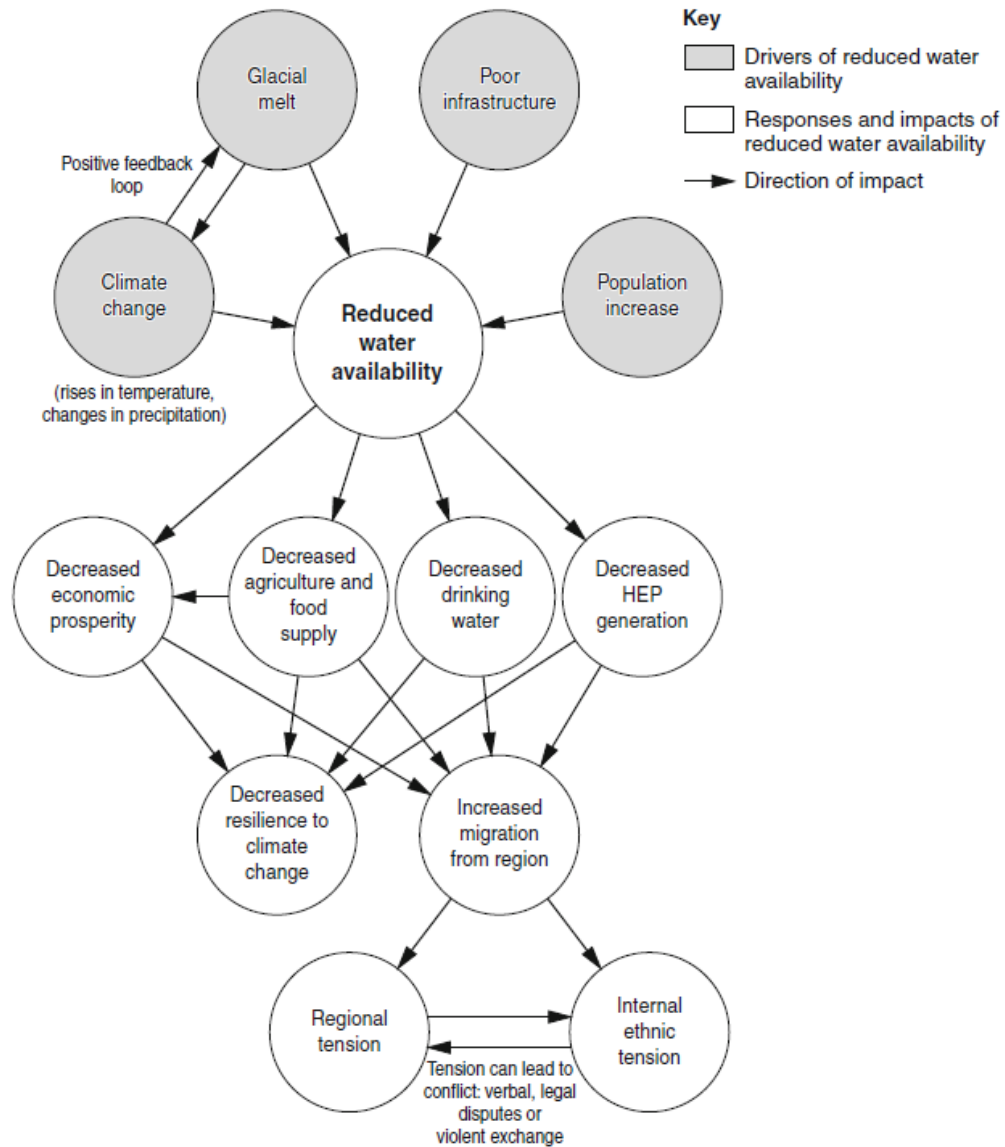
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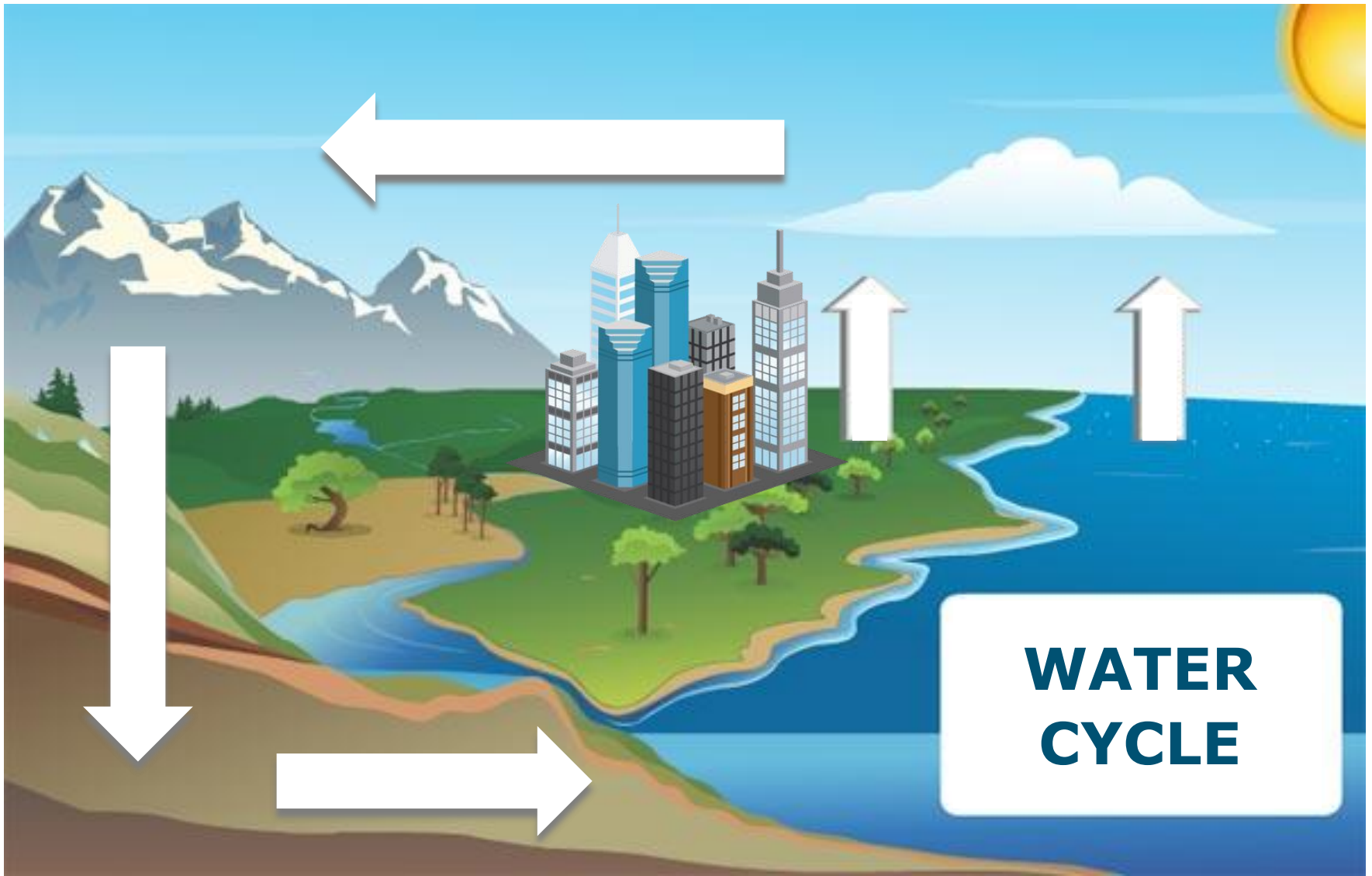


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COUNCIL

Newton-Picarte
Fund

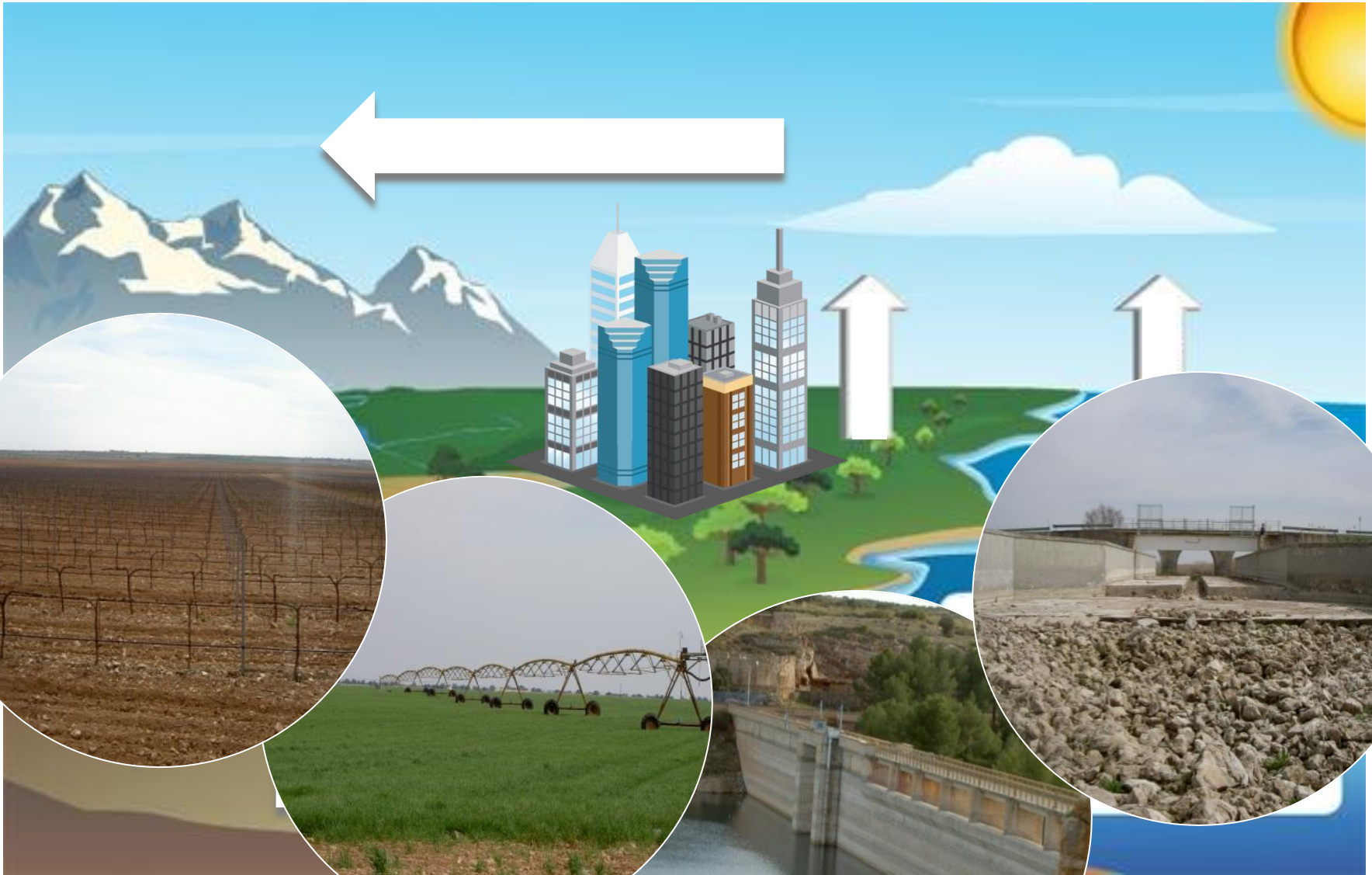
Fig. 4 Network diagram outlining the drivers of Bolivian water scarcity and impact relationships (adapted from Stewart 2010). *Gray circles* represent drivers of reduced water availability and *white circles* represent the responses of reduced water availability and further impacts





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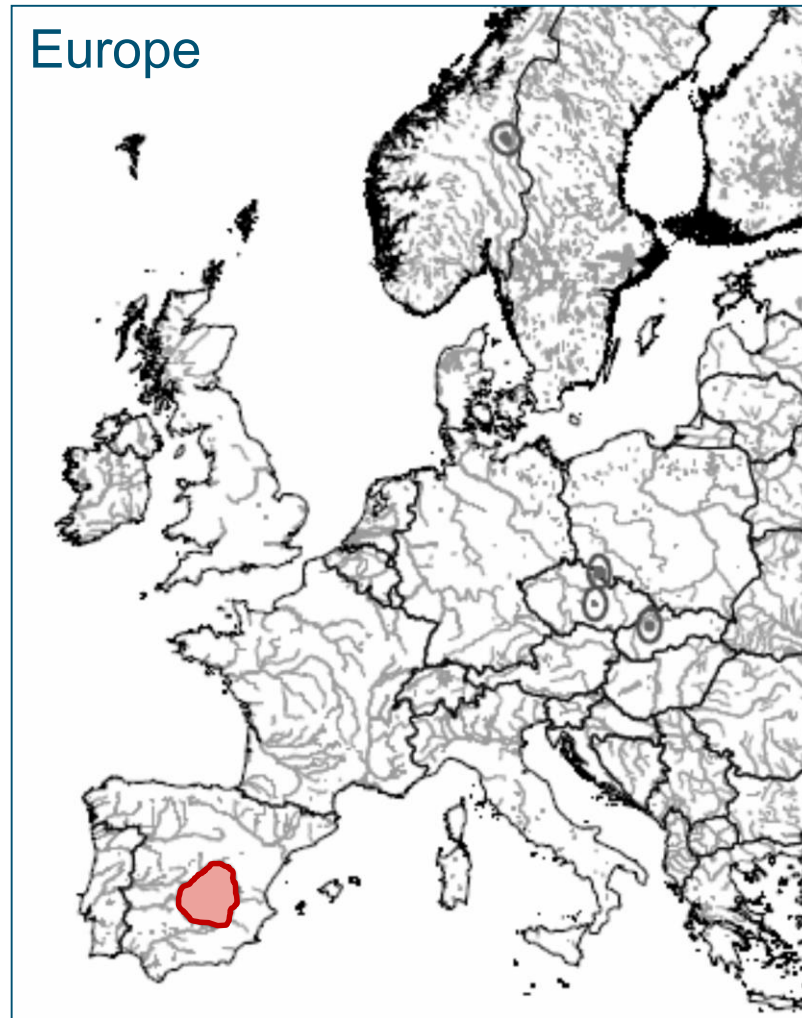




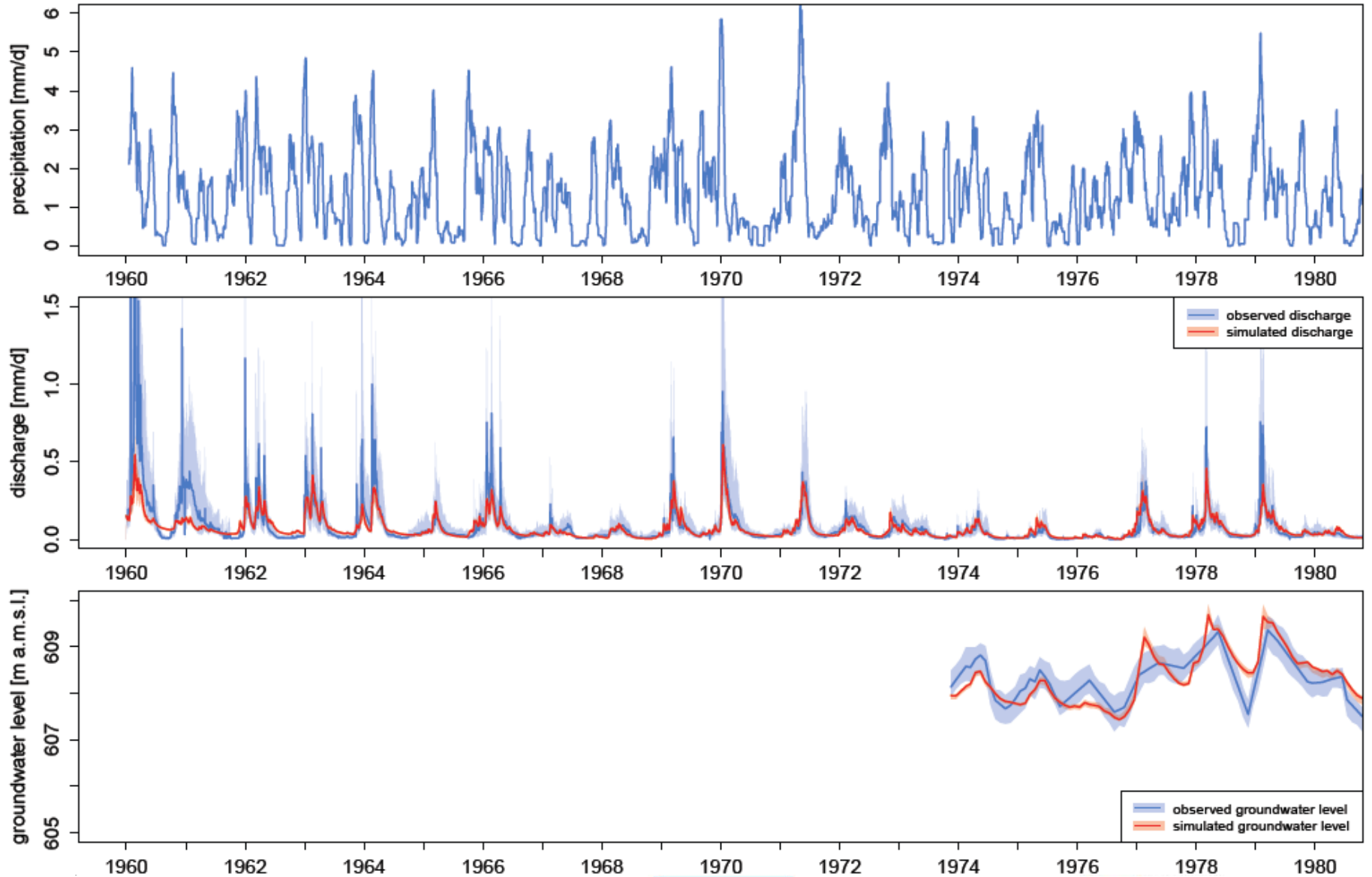
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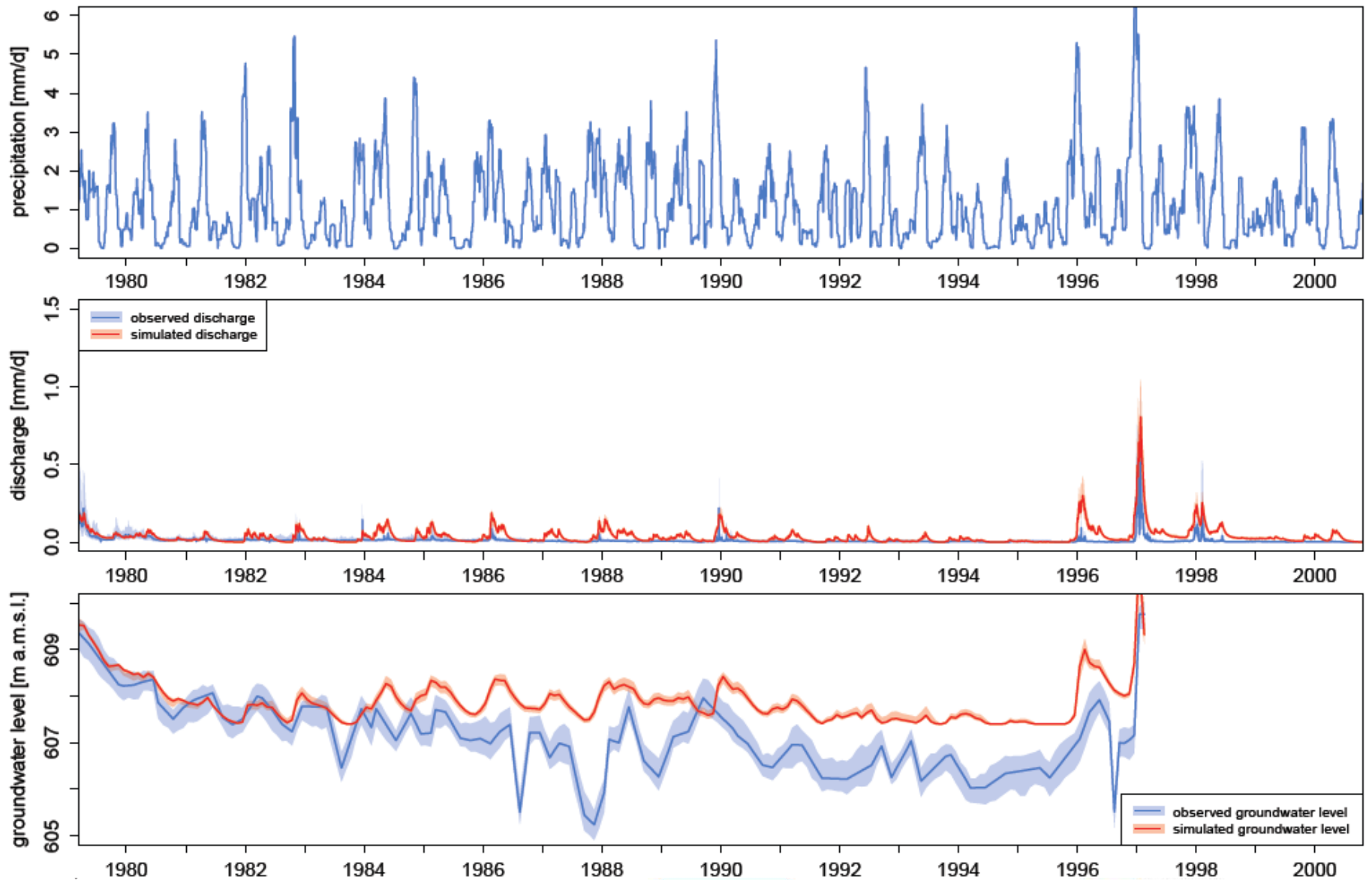
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Undisturbed period > calibration



Disturbed period > extrapolation



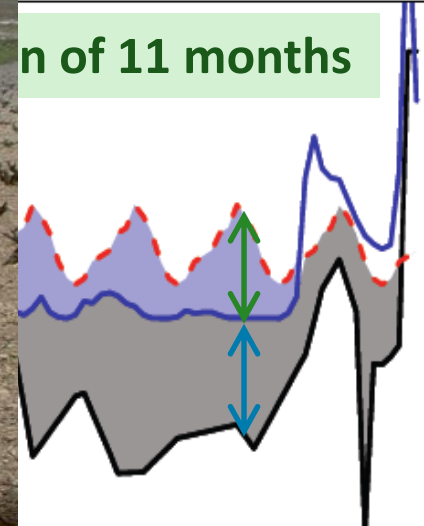
human influence

Van Loon and Van Lanen, 2013, WRR



rio Guadiana

n of 11 months



in groundwater



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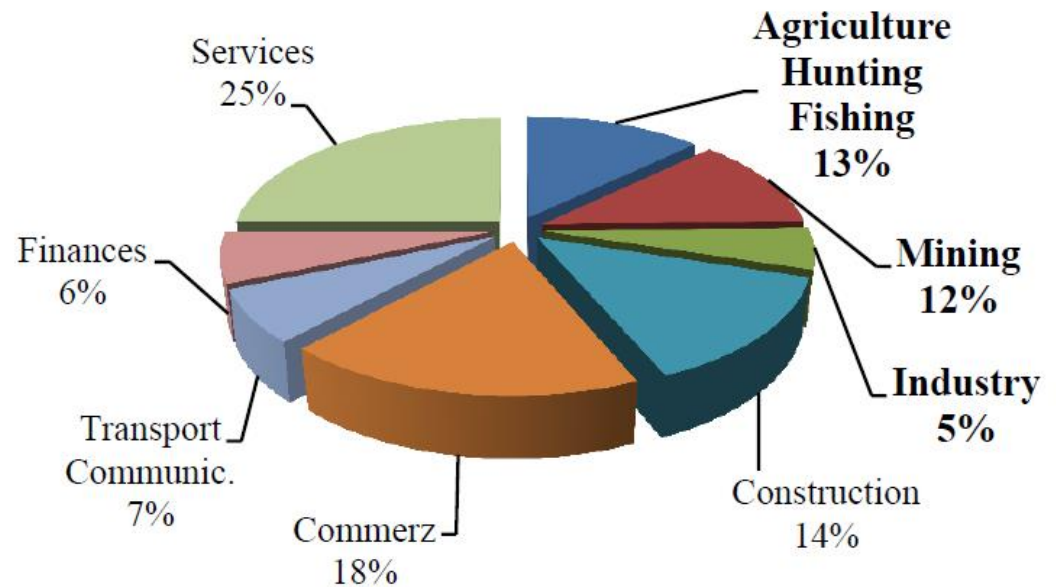
Chile

Water resources management in Chile

Withdrawals by sector 2000

Domestic:	11%
Agriculture:	63%
Industry:	25%

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