



University of California, Davis
Department of Land, Air and Water Resources

Water Law and Policy

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University of California
Agriculture and Natural Resources



Who am I?

- Forest Engineer from Austral University in Chile, with an emphasis in Silviculture of Native Forest
- Worked in research in Chilean temperate forest (Ecophysiology of *Nothofagus* species, Dendrochronology)
- Extensionist for the Forest Service
- MSc in International Agricultural Development, UC Davis
- PhD student at Ecology Graduate Group, UC Davis

Policy experience

- Worked as a technical advisor for senator Horvath on the Development of the Ice Fields and Emergency Response plans in places at risk from Climate Change.
- Technical adviser for the Constituent of the Aysén Region at the Constitutional Assembly



Agenda

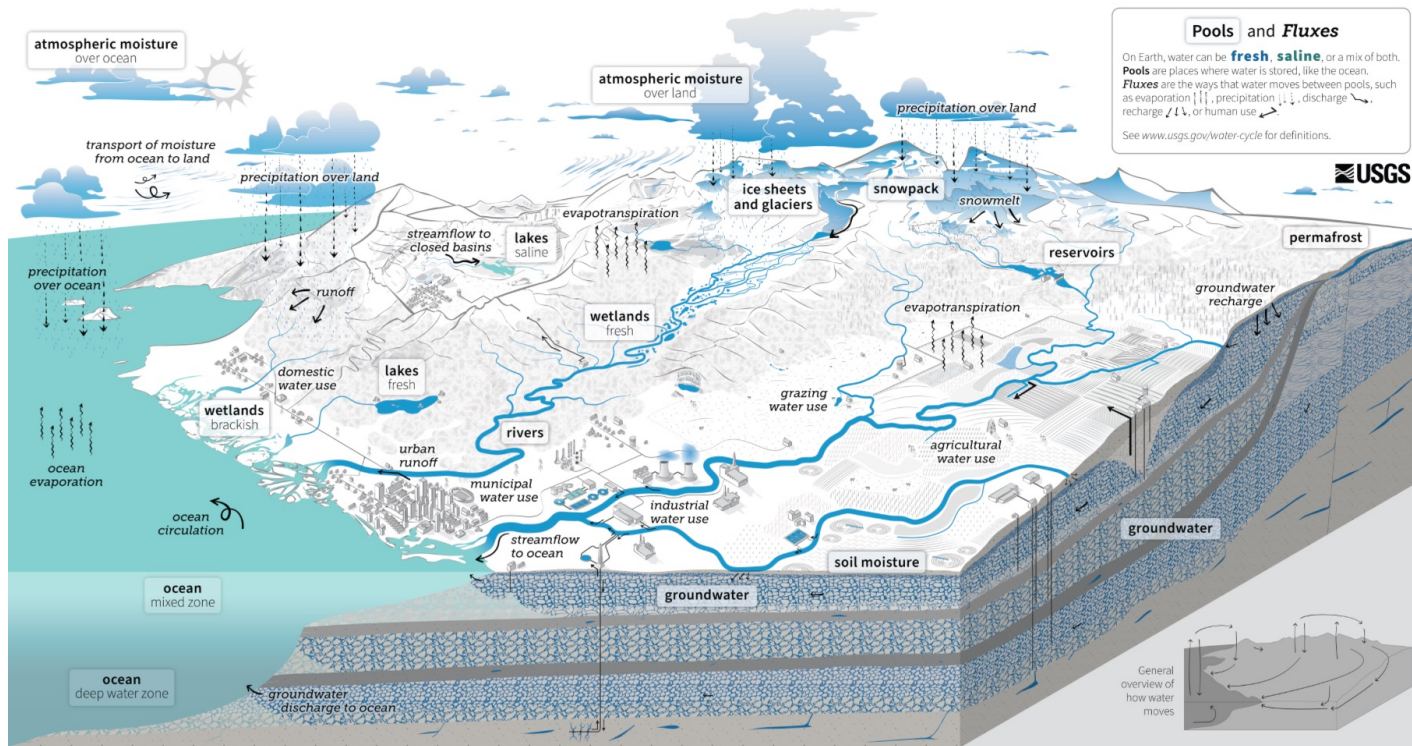
- 1 Hydrologic cycle
- 2 The basin as a landscape management unit
- 3 Water Legal Frameworks
- 4 Environmental/Water Principals and their applications
- 5 Case study: Chile, Mexico
- 6 Questions



Puelo River,
Chile



1 Hydrologic Cycle



USGS website

“The water is life”

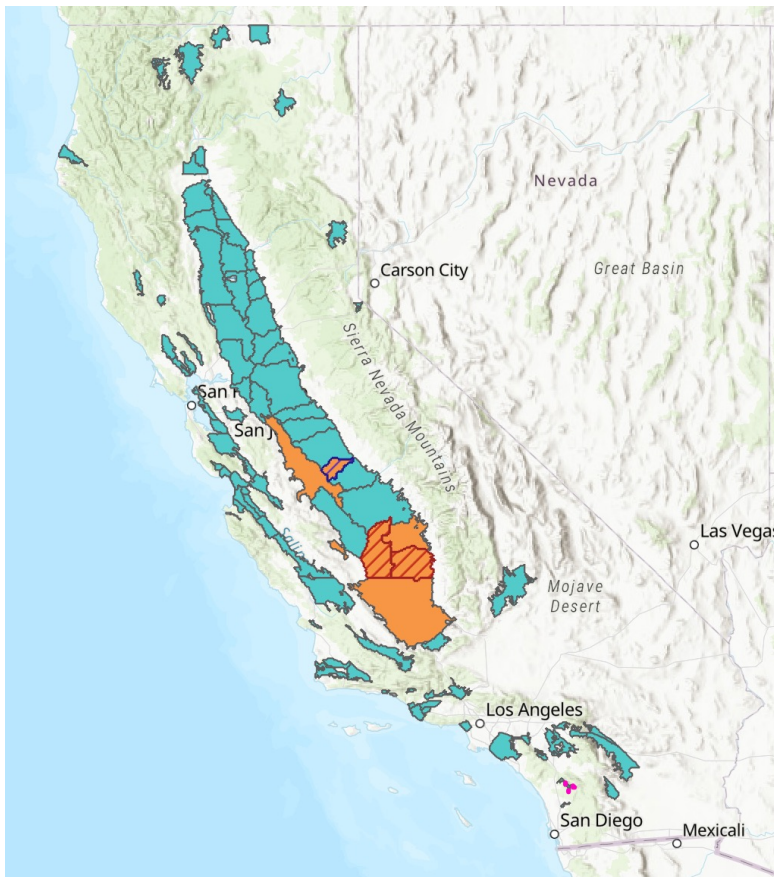
“The water does not get lost in the ocean”



2 The Basin as a Landscape Management Unit

Watersheds are practical management units because **they reflect the natural flow of water and the interconnectedness of ecosystems.**

Managing at the watershed level allows for a comprehensive and coordinated approach to address water resource management, environmental conservation, pollution control, and disaster resilience.



Groundwater basins, SGMA



3 Water Legal Frameworks



California Water Policy



Regional Water Quality Boards

North Coast
 San Francisco Bay
 Central Coast
 Los Angeles
 Central Valley
 Lahontan
 Colorado River
 Santa Ana
 San Diego

- ### 1. POLICIES TO BE MET AT ALL TIMES
- Beneficial and Reasonable Use:** "... water resources [should] be put to beneficial use ... and that the waste or unreasonable use water be prevented." Lead by the State Water Resources Control Board (SWRCB), California Code Title 10.
 - Water is owned by all Californians:** "All water within the State is the property of the people of the State, but the right to the use of water may be acquired by appropriation in the manner provided by law." California Water Code §102. This doctrine is a reversal of the legal systems of California and can limit or modify water allocation, protect river ecosystems, and promote recreational and scenic values. California Constitution Article X, Section 2.
 - Public Trust Doctrine:** Water must be preserved in trust by the state for public use (e.g. navigation, fishing, recreation, environmental protection and restoration). This doctrine is a reversal of the legal systems of California and can limit or modify water allocation, protect river ecosystems, and promote recreational and scenic values. California Constitution Article X, Section 2.
 - Clean Water Act – Porter-Cologne Water Quality Control Act:** To protect the water quality of all California waters, including rivers, lakes, aquifers, estuaries and bays (surface & groundwater) through 7 Regional Water Quality Control Boards. This law set water quality standards in rivers, and regulates point and non-point pollution sources among other California Water Code Division 7 Water Quality.
 - Safe Drinking Water Act:** "Ensuring the safety of drinking water, establishing standards, supervising public water systems, ensuring compliance, monitoring and reporting." It specifies Maximum Contaminant Levels (MCL) for contaminants. California Health and Safety Code § 16170 California Code of Regulations Title 22.
 - Human Right to Water:** "every human being has the right to safe, clean, affordable and accessible water adequate for human consumption, cooking and sanitary purposes..." It requires that all relevant agencies (DWR, SWRCB) to consider this policy when revising, adopting or establishing policies and regulations pertinent to the use of water. California Code of Regulations Title 22.
 - Endangered Species Act (ESA) and California ESA:** conserving and protecting animal and plant species at risk by listing them or endangered, threatened or candidate, designating critical habitat, restoring and ensuring compliance. Lead by California Fish and Wildlife, California Fish and Game Code, Section 2020.
 - Flood Control Act:** Established flood control as a federal responsibility law, lead by the US Army Corps of Engineers. Flood Control Act 1917, 1928, 1936, 1944, 1948, 1970 and 1982.

- ### 2. SURFACE WATER
- Surface Water Allocation System
 Agency SWRCB – Division of Water Rights
 Legal Instrument: Statements of Water, Diversion and Use
- Riparian Rights:** Luv + Hagan 09 Cal. 255, 1885
 • Linked to the land next to a river
 • Shared equally among landowners
 • No water storage is allowed
 • No need to obtain a water permit
 • Can't be lost by ripose
- Appropriative Water Rights:** California Water Code, Title 23, Division 3, Ch. 25
 Legal Instrument: Water Right Permit
 • Based on seniority of use: "First in time, first in right"
 • Can be lost by non-use "Use it or lose it" or other "5-year"
 • Voluntary use with defined beneficial use (purpose) and location
 • Pre-1914 do not require water right permit
 • Post-1914 require a water right permit
 • Individual water right holder/landowner privately owned
 • Central Valley Project, other federally built infrastructure, State Water Project, Colorado River aqueduct and San Diego Aqueduct, Imperial and Coachella canals, Los Angeles Aqueduct, Hatch-Hetchy System, Mokelumne Aqueduct, El River – Russian River (Post-Valley Project), North American (Cannon) Aqueduct.

- ### 3. GROUNDWATER
- Groundwater Allocation System
 Code + Wellheadlaw, 141 California 116 (1903)
Overlying Rights
 • Groundwater use for land above the groundwater basin
 • Not lost by non-use
 • Shared equally among landowners ("correlative use")
Appropriative groundwater rights
 • Groundwater use outside of the groundwater basin
 • Only if water is available after overlying needs
 • First in time, first in right
Adjudicated Groundwater: City of Pasadena v City of Alhambra (1949) 33 Cal 2d 908
 Agency SWRCB – Division of Water Rights, Adjudicated Areas
 Legal Instrument: Groundwater Allocation
 • A groundwater basin where a court has determined groundwater allocation among users. There are 27 adjudicated areas administered by a "watermaster". They are exempt from submitting a Groundwater Sustainability Plan (GSP). SGMA requires submission of their groundwater levels, groundwater extractions, recharge and storage.
Sustainable Groundwater Management Act (SGMA): California Water Code Title 23, Division 3, Chapter 25
 Agency DWR – Sustainable Groundwater Management Program
 Legal Instrument: Groundwater Allocation
 • Groundwater resources be managed sustainably for long-term reliability and multiple economic, social and environmental benefits.
 • Avoid a unbeneficial result:
 - Depletion of groundwater that impairs SW beneficial uses
 - Groundwater Sustainability Agencies (GSA) locally implementing SGMA +255
 - Groundwater Sustainability Plans (GSP) approved and updated every 5 years, if fail to approve the GSP then there is an intervention by the SWRCB to manage the GW basin.

- ### 4. WATER FOR THE ENVIRONMENT
- Agency SWRCB – Division of Water Right
 Legal Instrument: Estuarine Flow Permit
- Policies:**
 1. Endangered Species Act (ESA)
 2. California Wild and Scenic Rivers Act (Public Resources Code Section 5071.50 et seq)
 3. Fish passage in reservoirs (Fish and Game Code §917)
 4. Federal Energy Regulatory Commission (FERC) relicensing process for hydropower dams and a biological opinion (Federal Power Act §102)
 5. Public Trust Doctrine
- Environmental Need Objective:** to protect freshwater and riparian ecosystems
- Components**
 • Quantity, magnitude, timing, frequency, duration and rate of change
 • Quality: temperature, PH, TSS, DCO, BOD, metals, salinity
 • Habitat: channel forms, sediment transport and composition, woody habitat
 • Connectivity: longitudinal, transversal, and 2W-GW connection

- ### 5. TRIBAL WATER
- Water Allocation System Defined by Each Tribe
 Agency (ies)
 • WRCB – Division of Water Rights, Adjudicated Areas
 • Applicable Regional Water Quality Control Boards (DWR/Secretary's Indian Water Rights Office (SIWRO))
 • Bureau of Indian Affairs
 • Bureau of Reclamation
 Legal Instrument: Easement, Reserved Rights
- Policies**
 • Winters Doctrine: Tribal rights include water (Winters + United States, 1908)
 • Winters Doctrine: Land use inside includes water (Winters + United States, 1908)
 • Tribal Beneficial Usage (TBU)
- Characteristics**
 • Sovereign nations subject to federal government rules
 • Defined by (1) Treaties, (2) Court cases, (3) Federal mandates or operations, and (4) adjudications or settlements.
 • Linked to the tribal land (Federal land)
 • Tribal Beneficial Usage (TBU) are beneficial and reasonable uses, and meet water quality standards

- ### 6. RECYCLED WATER
- Water Allocation System Specified by the Supplier
 California Water Code Div. 7, Ch. 2, Sec. 105000; Ch. 7, Sec. 115000; Title 22, Div. 4, Ch. 3, Art. 3, Div. 7, Ch. 7, Sec. 13500
- Agencies:**
 • SWRCB – Drinking Water Branch
 • Regional Water Quality Control Boards
 • Local Water Agencies
- Legal Instrument: Recycled Water Permits**
 • Acquisition Do not require a new water right, an individual company must connect to a recycled water supply (e.g. a municipal utility), establish an agreement, and comply with permit requirements, water quality and use restrictions.
 • Beneficial uses: Non- potable uses (e.g. irrigation, golf courses, etc.) direct and indirect potable reuse (e.g. aquifer recharge).
 • Water Quality: Depends on the beneficial use, regulated by Porter-Cologne Water Quality Act
 • Reporting: Water producer to report monthly volume of influent, effluent and treatment level

- ### 7. AGRICULTURE
- King Lands Regulatory Program (ILRP), RWQCB
 Central Valley Salinity Abatement for Long-Term Sustainability (CVSALTS) – CV RWQCB
 Multibasin Land Reapposing Program (MLRP)

- ### 8. COLORADO RIVER
- California Water Code, Division 6, Part 5 (Sections 1250-1256)
 Agencies:
 • Colorado River Board of California
 • U.S. Bureau of Reclamation
 • Coachella Valley W.D. Imperial ID, Los Angeles DWR, Metropolitan W.D. West Valley ID, San Diego W.A. DWR, CA Dept. of Fish and Wildlife.

INSTRUCTIONS

Before starting, locate your position on the map using a pin and identify whether you are:
 • Near a river (blue and green lines).
 • On top of an aquifer (pink or hatched pink area).
 • Close to tribal land (yellow outline), or
 • Receiving water from major water projects (aqueducts or canals).

Then follow the steps below to identify which water policies apply to your location and use:

- Box 1 – Policies to Be Met at All Times:** Review the general policies that apply statewide, regardless of water source or use.
- Box 2 – Surface Water:** Read the policies and allocation systems that apply to the use of surface water, including riparian and appropriative rights.
- Box 3 – Groundwater:** Review the groundwater policies and management systems including SGMA and adjudicated basins.
- Box 4 – Water for the Environment:** Learn about the policies that maintain water in rivers for ecological, recreational, and scenic purposes.
- Box 5 – Tribal Water:** Read the policies and doctrines that apply to water within or connected to tribal territories and federally reserved rights.
- Box 6 – Recycled Water:** Review the policies governing the use of recycled water, including permits, beneficial uses, and reporting requirements.
- Box 7 – Agriculture:** Review the policies that apply only to agricultural lands.
- Box 8 – Colorado River:** Review the policies apply to agencies receiving water from the Colorado River.

4 Environmental/Water Principles and their applications

- What are the Principles?

Constitution of the Country



Statutory Laws

Laws pass by Congress (federal or states legislatures)



Administrative Laws

Regulation created by executive agencies (EPA, FDA...)



Case Law / Common Law

Decision made by courts that interpret statutes and creates binding precedents for future



4 Environmental/Water Principles and their applications

- **What are the Principles?**

Foundational concepts that guide the interpretation, application, and creation of legal rules.

Ensure consistency

What are some Principles that apply to water management in California?

Constitution of the Country



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Case Law / Common Law

Decision made by courts that interpret statutes and creates binding precedents for future



4 Environmental/Water Principles and their applications

What are some Principles that apply to water management in California?

- Human Rights to Water and Sanitation
- Reasonable and Beneficial Use
- Prior Appropriation “First in time, First in Right”
- Riparian Rights
- Public Trust Doctrine



4 Environmental/Water Principles and their applications

Human Right to Water and Sanitation:

“Every human being has the right to safe, clean, affordable, and accessible water for human consumption, cooking, and sanitary purposes.” (AB 685)

Safe

Clean

Affordable

Accessible

Consumption

Reasonable and Beneficial Use:

“Water resources [should] be put to beneficial use And that the waste or unreasonable use of water be prevented”

Beneficial use: “Beneficial uses’ of the waters of the state that may be protected against water quality degradation include, but are not necessarily limited to, domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.”



4 Environmental/Water Principles around the world

- Human Right to Water and Sanitation
- Reasonable use
- Efficiency
- Beneficial use
- Environmental conservation
- Best science available
- Environmental Justice
- Intergenerational justice
- Climate Justice
- Integrity of water and land
- No regression
- Precautionary
- Preventive
- Progressivity
- Transparency
- Citizen participation
- Cost-effectivity
- Basin as a management unit



5 Study case: Chile and Mexico



5 Study case: Chile



Chileconvention.cl



5 Study case: Chile

**Water as non-appropriable
Natural Common Good**

Principles of:

- Human Rights to Water and Sanitation
Water is essential for life
- Prioritization of uses, being the human right to water and ecosystem balance always prevail
- Reasonable use of water
- Authorizations of water use based on effective available water
- Obligate the holder to the use that justifies their granting
- Participatory and decentralize water governance system
- Basin as a management unit (Water Basin Councils)
- The State as a steward
- Intergenerational and territorial justice



5 Study case: Chile

Art. 12. Natural common goods are elements or components of Nature over which the State has a special duty of **stewardship to ensure the rights of Nature and the interest of present and future generations.**

Natural common goods are the territorial sea and its seabed; beaches; waters, glaciers, and wetlands; geothermal fields; the air and the atmosphere; high mountain areas, protected areas, and native forests; the subsoil; and others as declared by the Constitution and the law.

Among these goods, **water in all its states and air are non-appropriable**, as well as those recognized by international law and those that the Constitution or the laws declare as such.

In the case of Natural common goods that are incapable of appropriation, the State shall **preserve** them, **conserve** them and, where appropriate, **restore** them. It shall also **administer them in a democratic, solidaristic, participatory, and equitable manner**

The State may grant administrative authorizations for the use of non-appropriable natural common goods, in accordance with the law, on a temporary basis, subject to grounds for **expiration, termination, and revocation**, with specific conservation obligations justified in the **public interest, the protection of nature, and the collective benefit**. These authorizations, whether individual or collective, do not generate property rights.



5 Study case: Chile

Art. 1 The State must protect water, in all its states and phases, and its **hydrological cycle. Water is essential for life and for the exercise of the human rights and the rights of Nature.**

The exercise of the **human right to water, sanitation, and the ecosystems' balance shall always prevail.** The law shall determine the other uses.

Art. 2. The State shall ensure the **reasonable use of water.** Water use authorizations shall be granted by the National Water Agency, shall be non-commercial in nature, shall be granted based on the **effective availability of water,** and shall oblige the holder to **the use that justifies their granting.**



5 Study case: Chile

Art. 3. The State shall ensure a **participatory and decentralized water governance system** through integrated watershed management, with the **hydrographic basin being the minimum unit of management**.

Basin Councils shall be responsible for the administration of waters, without prejudice to the oversight and other powers of the National Water Agency and other competent institutions.

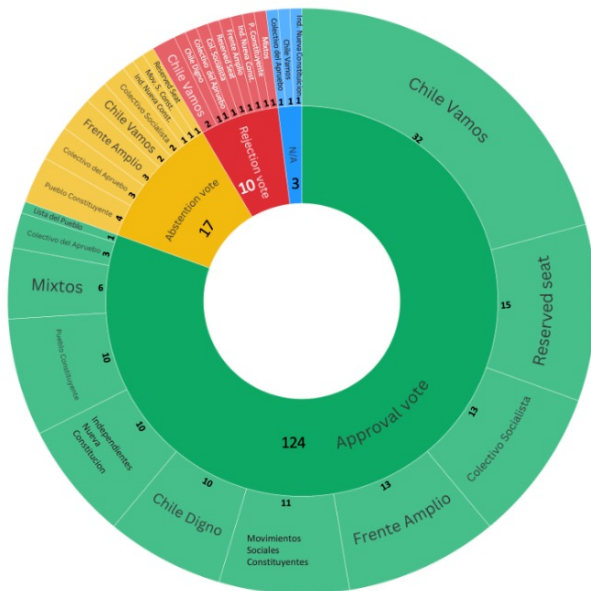
The law shall regulate the powers, operation, and composition of the Councils. It shall consider, at a minimum, the presence of holders of water authorizations, civil society, and the territorial entities present in the respective basin, ensuring that **no single actor may achieve control on its own**.

The Councils may coordinate and associate with one another when appropriate. In those cases where a Council is not established, the administration shall be determined by the National Water Agency.

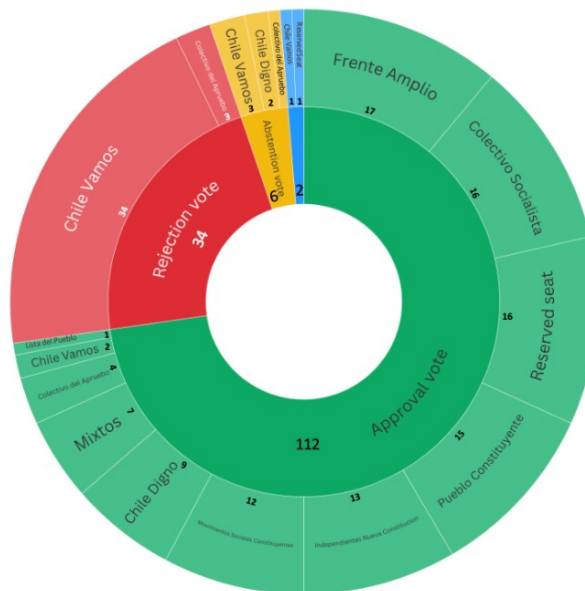


5 Study case: Chile

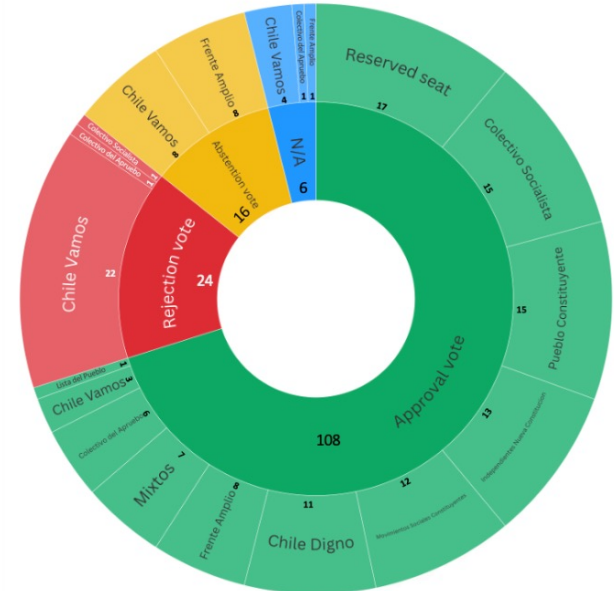
Art1 (b) - Human Right to Water and Sanitation and Ecosystem balance



Art. 12A (b) Water as a non-appropriable Natural Common Good



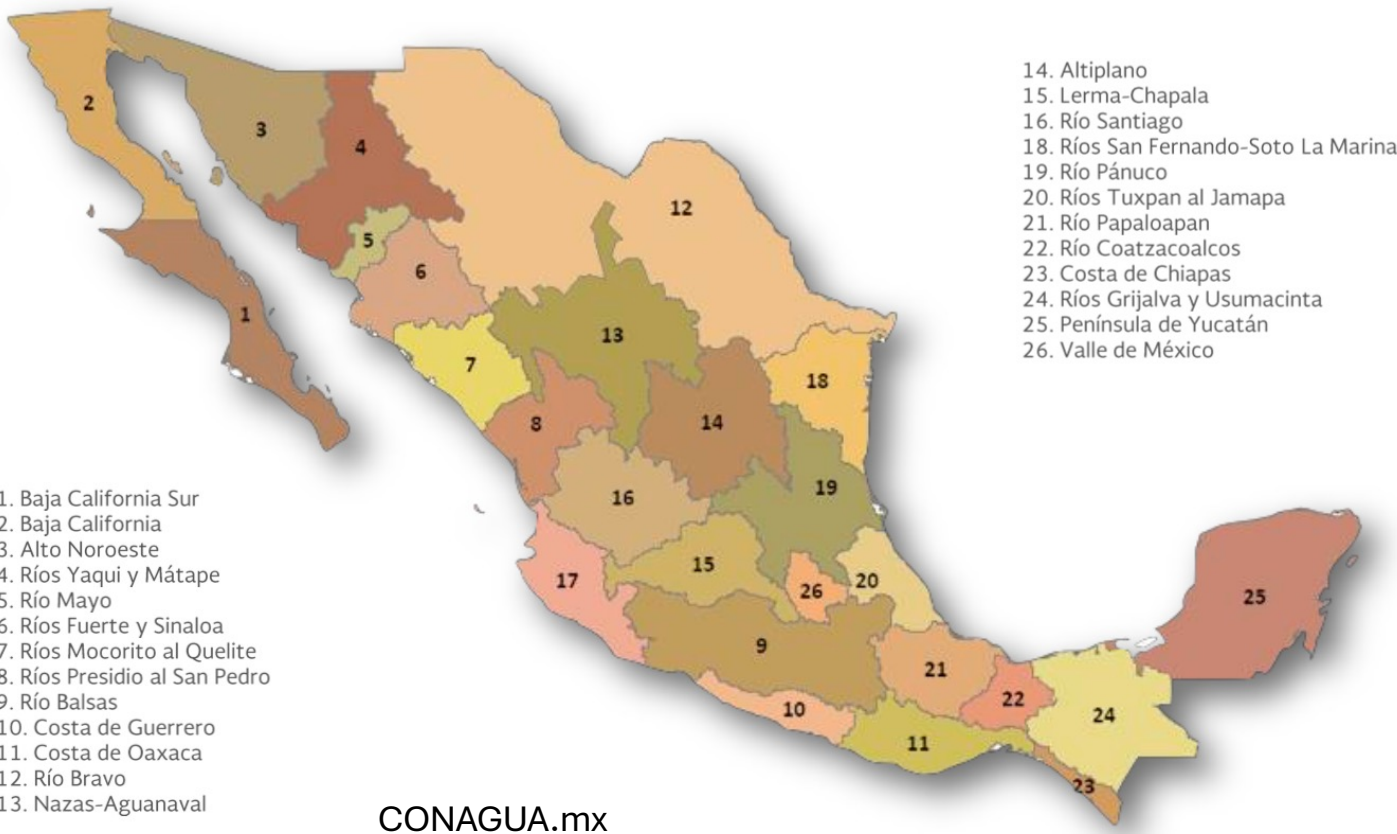
Art 3. Water Governance



■ Approval vote ■ Rejection vote ■ N/A ■ Abstention vote



5 Study case: Basin Councils - Mexico



Constitution

HR to Water, Art 4 (2012)
Water are from the Nation



General Law of Water (Dec. 2025)

Intergenerational equity, no
discrimination, citizen
participation, Prevention,
Precaution, progressivity and no
regressivity, sustainability, In
dubio pro aqua, Universality



National Law of Water (1992)

Sustainability, equity and universal
access, social participation,
responsibility and efficiency,
prevention of contamination,
prioritization of uses



Basin Councils (1993)



5 Study case: Basin Councils - Mexico

Objectives:



6 Questions?

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