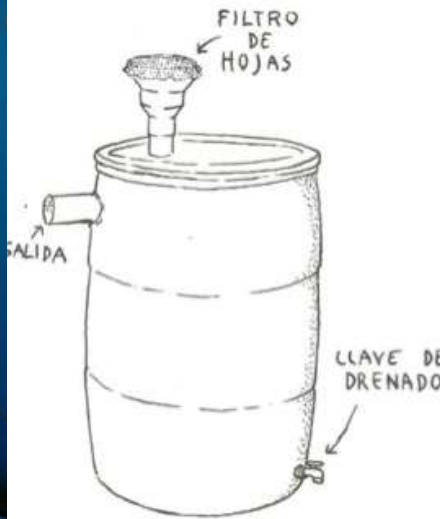


Downspout politics, upstream conflict:

Formalizing rainwater harvesting in the United States



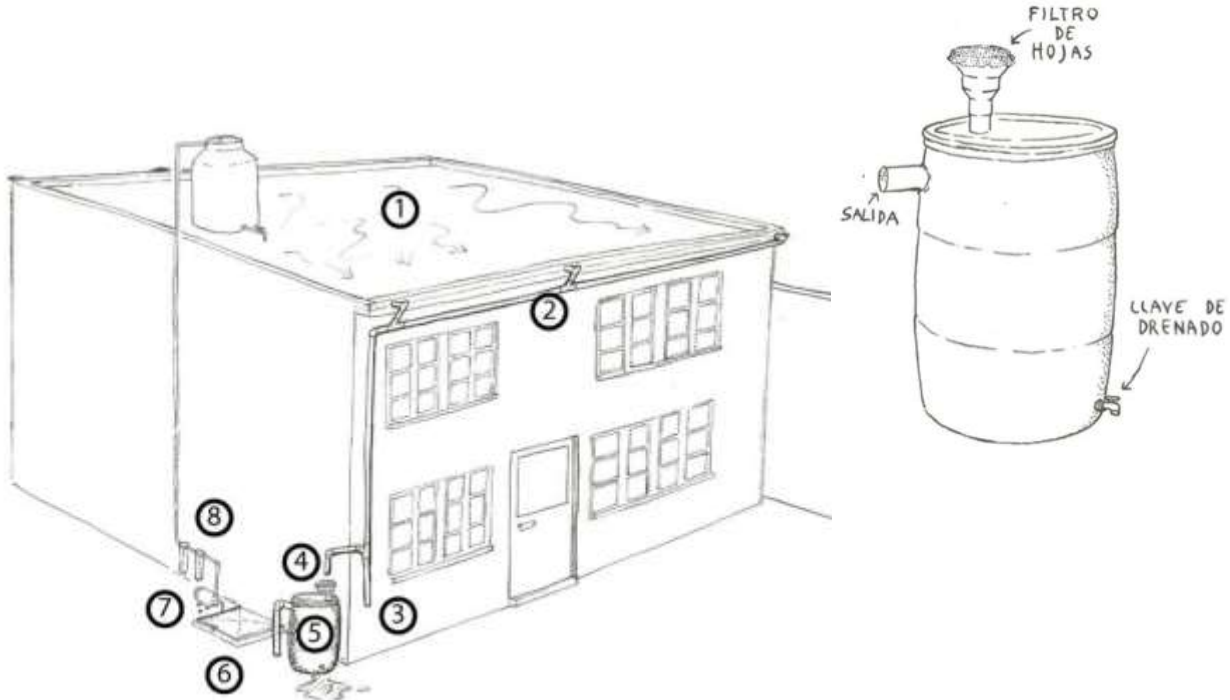
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Manuscript under review at *Water International*

“Who owns the rain? Turns out, not you.”
--Reporter, KSL News, Salt Lake City, Utah



Images: IRRI and Brad Lancaster

- **FORMALIZATION**, *n.* the action of FORMALIZE *v.*; to render formal; to impart or constitute the form, essence, or characteristic; to give legal formality to

--Oxford English Dictionary, 2013

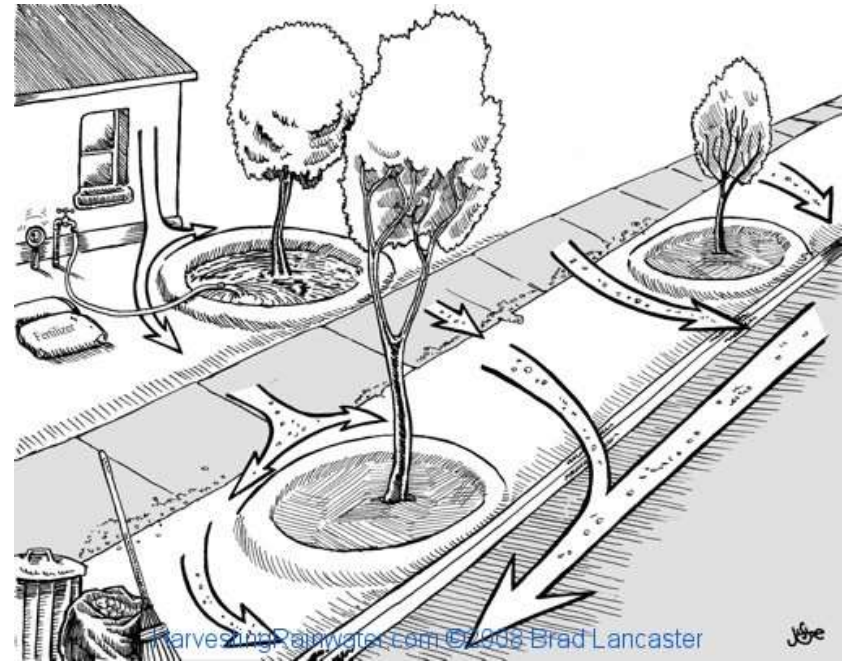
Structure of talk

- Compiling the RWH policy database
- Three key trends in formalization
- Why does formalization succeed or fail?
Insights from Texas and Colorado
- Conclusion and implications

Types of rainwater harvesting

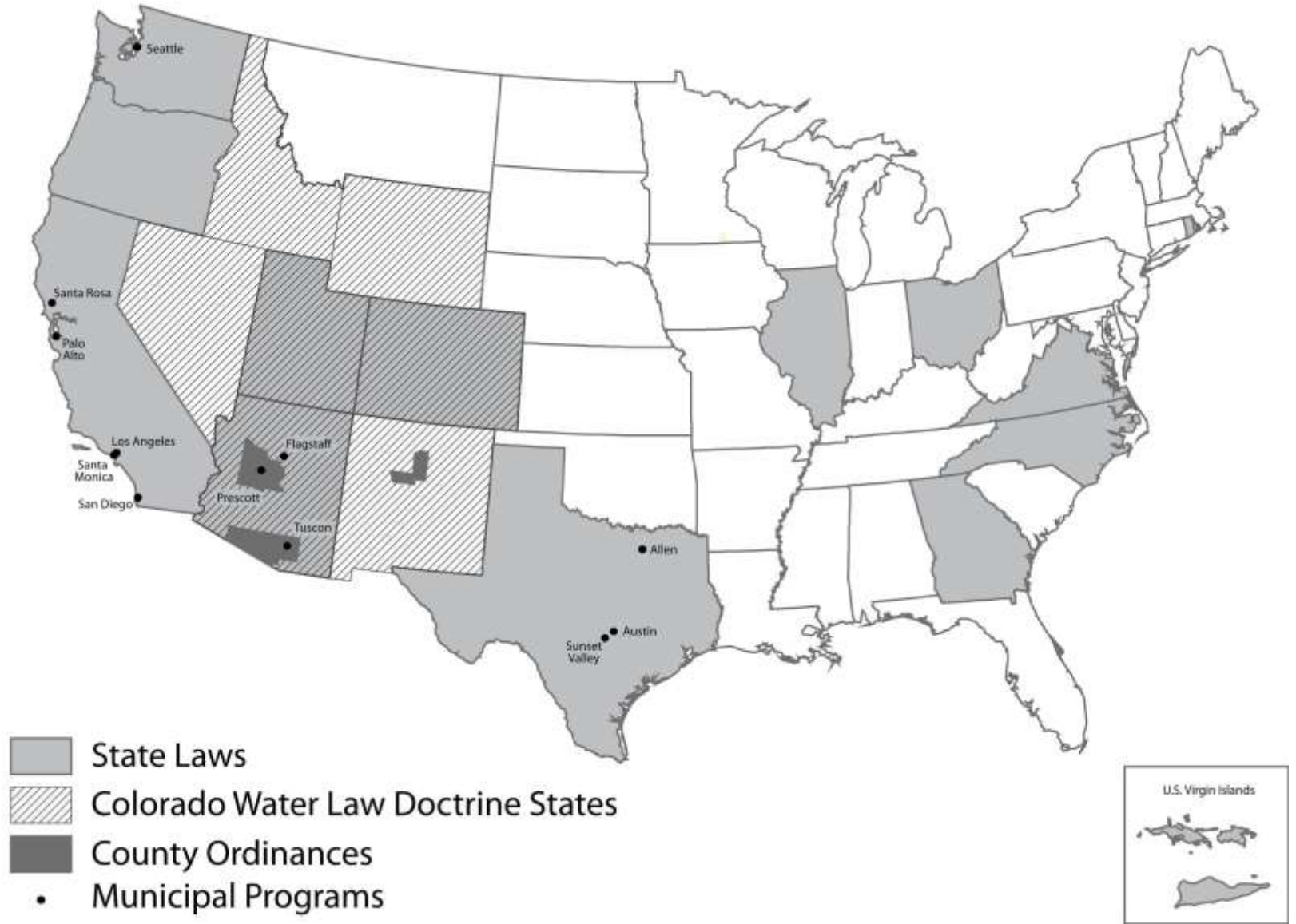


Active



Passive

Legal geographies of rainwater harvesting



1. The Codification of Water Supply

2. Formalization through Marketization

3. Scalar Politics of Regulation

Table 1. Regulation of rainwater harvesting in the United States

TYPE	NO.	SCALE	LOCATION
Revised building, planning, landscaping codes	34 (state) 4 (municipal)	State and municipal	Arizona, California, Colorado, Georgia, Illinois, North Carolina, Oregon, Texas, Utah, Virginia, Washington, U.S. Virgin Islands
Rebates	15	Municipality or utility district	Arizona, California, Texas, New Mexico
Laws	7	State	Arizona, Colorado, Illinois, Oklahoma, Oregon, Texas, Utah
Non-binding guidelines	6	County, state	Arizona, Georgia, Oregon, Texas, Virginia, Washington
Committees	2	State	Arizona, Ohio
Revised tax codes	2	State	Arizona, Texas
Ordinance	1	County	County of Santa Fe, NM
Income tax credit (corporate and individual)	1	State	Virginia, Arizona (expired)

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Table 2. Rebates for rainwater harvesting

LOCATION	TARGET	AMOUNT	NOTES
San Diego, CA	Water	\$1.00 per gallon of water stored, up to 400 gallons	Established in 2013
Santa Rosa, CA	Water	\$0.25 per gallon of water stored	Limited to estimated peak month of water use (gal) per site; cannot exceed cost of materials
Santa Monica, CA	Infrastructure	Up to \$200 each (max 8)	Various types of infrastructure
Palo Alto, CA	Infrastructure	\$50	For purchase and installation of barrel
Los Angeles, CA	n/a	n/a	Recently passed in 2013; guidelines TBA
Prescott, AZ	Infrastructure	\$50-300	For passive & active systems, est. 2009
Flagstaff, AZ	Infrastructure	\$100	For new systems with at least 1000 gallon capacity, etc. 2012
Tucson, AZ (Tucson Water) (AZ MDWI District)	Infrastructure	\$2,000 \$50	Covers half of materials and installation Covers RWH and greywater systems
Allen, TX	Infrastructure	\$26 per barrel, 2 max	Tied to participation in specific program
Austin, TX	Infrastructure	\$30-500	Depends on system capacity
Sunset Valley, TX	Infrastructure	Up to \$2000	Covers 20% system cost
Bernalillo County, NM	Landscape	\$1.50 per square foot	Landscape must be composed of native vegetation and served by RWH system

- **MARKETIZATION:** “the process of creating the economic and policy infrastructure for treating water as a marketed commodity.”
- Marketization involves “a broader set of linked transformations related to prices, property rights, and boundaries between the public and private spheres.”

--Ken Conca, *Governing Water* (2006: 215-216)

1. The Codification of Water Supply
2. Formalization through Marketization
- 3. Scalar Politics of Regulation**

Table 3. Downspout politics: formalization success and failure

	TEXAS	COLORADO
Legal tradition	Mixture of riparian, prior appropriation, and Hispanic law	Prior appropriation (strict)
Precipitation regime	Semi-arid (west) to temperate (east)	Semi-arid; more precipitation in mountains
State-level RWH legislation	<p>TX HB 3391 <i>Considered most comprehensive legislation for RWH in the US</i></p> <p>TX Tax Code Sec. 151.355 <i>Allows exemption for RWH infrastructure</i></p> <p>TX Tax Code Section 11.31 <i>Outlines conservation stipulations</i></p> <p>Also 6 pieces of greywater legislation + <i>Texas Manual on RWH</i></p>	<p>Water Rights Determination and Administration Act (1969, revised 2002) <i>Basic tenets of CO water law</i></p> <p>CO SB 80 (2009) <i>Allows limited quantities for few participants, see DWR policy guidelines</i></p> <p>CO HB 1129 (2009) <i>Authorizes 10 pilot projects</i></p> <p>Also 2 pieces of legislation address greywater reuse</p>
Municipal RWH legislation	Rebate programs in cities of Allen, Austin, and Sunset Valley	None

Colorado Senate Bill 09-080

Allows limited collection and use of precipitation for landowners who meet the following criteria:

1. Property is residential
2. Landowner uses a well for water supply
3. Well is permitted for domestic use
4. No water supply is available from municipality or water district
5. Rainwater is collected from roof only
6. Water is only utilized for uses specified on well permit

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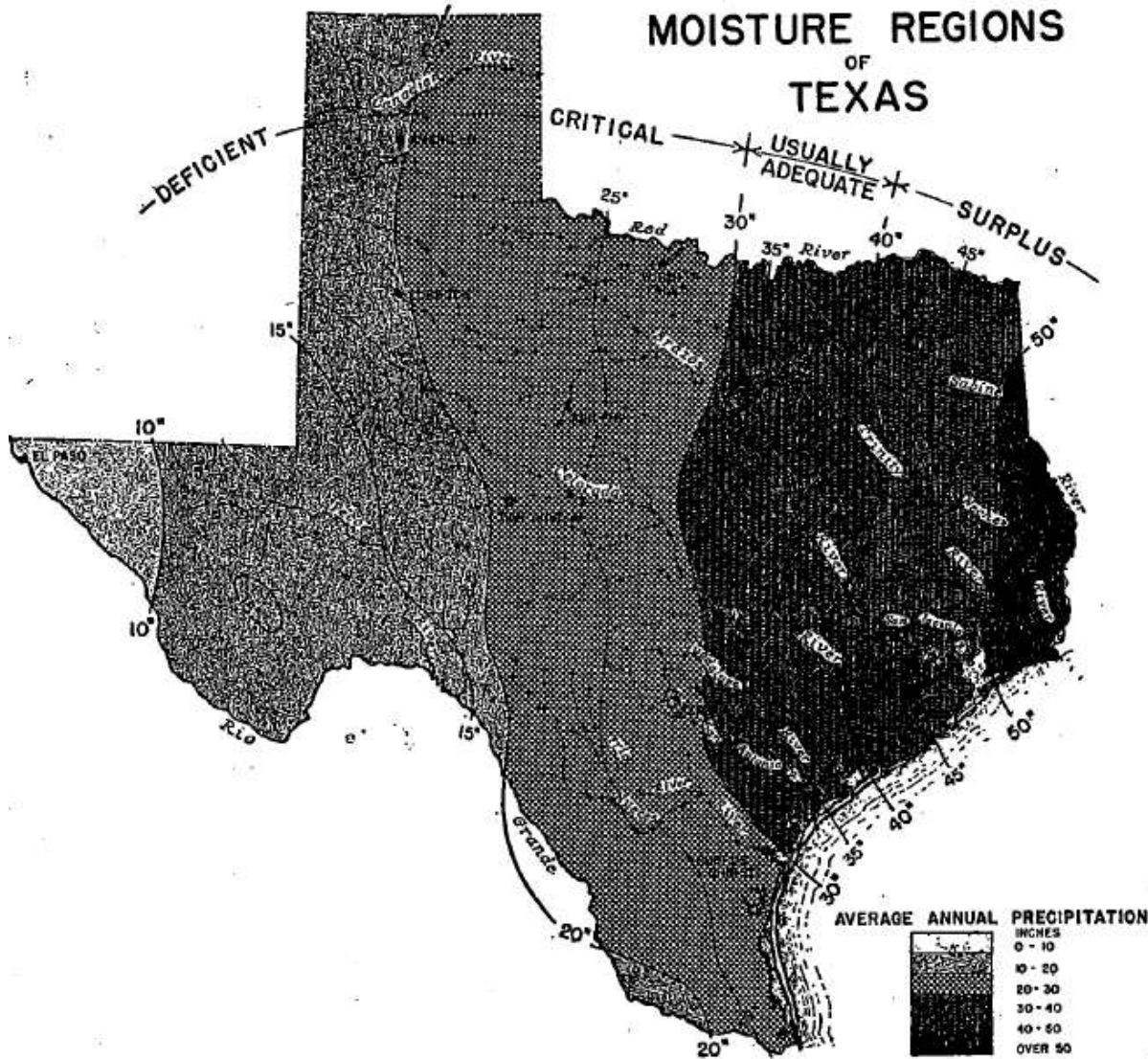
Texas House Bill 3391

“One of the most far-reaching and comprehensive pieces of legislation regarding rainwater harvesting in recent years.”

- Allows potable and non-potable uses;
- Financial institutions may consider granting loans to projects that use rain as sole source of water;
- New state facilities with roofs at least 50,000 square feet (and rainfall > 20 inches/year) MUST incorporate RWH technology;
- Municipalities are encouraged to promote RWH through rebates and discounts, for residential and commercial facilities;
- Texas Water Development Board provides training on RWH for staff in municipalities and counties.

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Texas: Rainwater Radical of the USA?

Fig. 1. Moisture Regions of Texas. Reproduced from *Water Supply and the Texas Economy*.

Image: B. E. Dobkins, *The Spanish Element in Texas Water Law* (1959)

Downspout politics



- The Codification of Water Supply
- Formalization through Marketization
- Scalar Politics of Regulation

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