

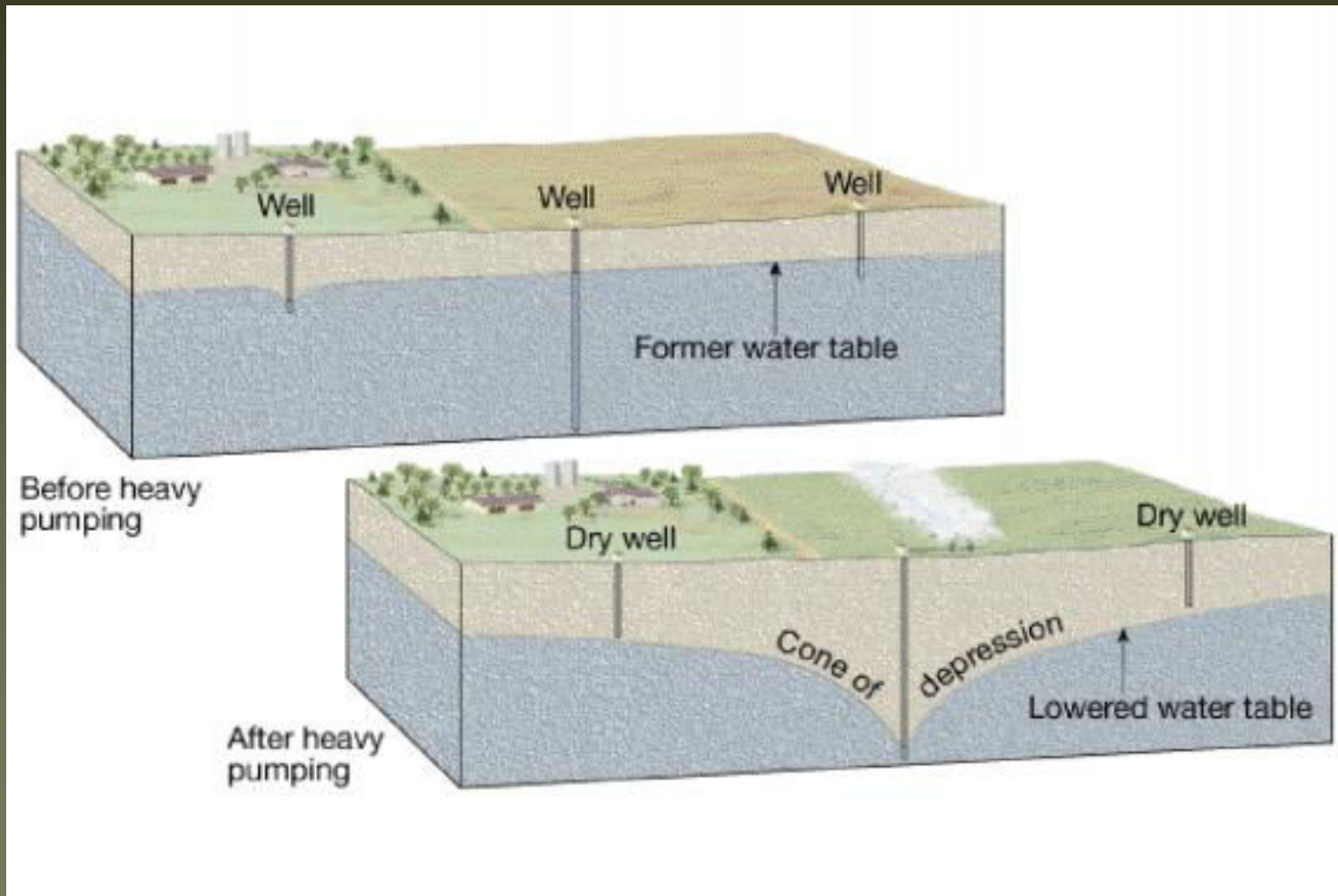
# Who Needs Groundwater Law?

Joseph W. Dellapenna  
Beijing University School of  
Transnational Law

[jwdellapenna@gmail.com](mailto:jwdellapenna@gmail.com)

Rapporteur, Berlin Rules on Water  
Resources

# The Impact of Large Abstractions of Groundwater



# A Conversation about Water from Duckboy.com



# The Origins of Groundwater Law

- ◆ In contrast with surface waters, historically there was a near complete lack of knowledge regarding groundwater
  - [T]he existence, origin, movement and course of such waters, and the causes which govern and direct their movements, are so *secret, occult and concealed*, that an attempt to administer any set of legal rules in respect to them would be involved in hopeless uncertainty, and would be, therefore, practically impossible.—*Frazier v. Brown*, 12 Ohio St. 294 (1861) (emphasis added)
  - Similar expressions common from courts throughout the world in the nineteenth century
- ◆ Courts declined to provide a remedy, allowing whosoever obtained the water to keep it
  - Often described as the absolute ownership or absolute dominion rule
  - Sometimes referred to as the rule of capture

# Technical and Other Developments

- ◆ Groundwater has been exploited on a small scale since prehistory with generally small impact on aquifers or other water users
- ◆ The major transformation: Large scale dewatering
  - Efficient dewatering of mines and construction sites began with Watt's perfection of the steam pump (1776)
  - The invention of high-pressure turbine pumps (1937)
  - Result: Without legal restraint, the most powerful pump wins
- ◆ The need for information generated steady improvements in the ability to gather and analyze groundwater data

# Alternative Approaches to Groundwater Law

- ◆ Often the law applicable to surface water applies to “underground streams”
  - There might be no correlation between the law applied to surface waters and the law applied to groundwater
  - The law applicable to surface waters developed early and is relatively simple to apply (but complex if used in combination)
    - ◆ Riparian integrity (the “natural flow” theory)
    - ◆ Riparian sharing (the “reasonable use” theory)
    - ◆ Temporal priority (“appropriative rights”)
    - ◆ Public management (“regulated riparianism”)
- ◆ Now there are five approaches to groundwater law (sometimes used in combination)
  - Absolute ownership (“absolute dominion” the “rule of capture”)
  - Proportionate sharing (“correlative rights”)
  - Reasonable sharing (“reasonable use”)
  - Temporal priority (“appropriative rights”)
  - Public management (“regulated riparianism”)

# Absolute Ownership

- ◆ In 1900, apparently nearly universal, sometimes under the label “rule of capture”
- ◆ Generally, it means the most powerful pump wins
- ◆ Somewhat attenuated by limiting legal doctrines in some places
  - Liability for malicious injuries to other water users
  - Liability for negligent injures to other water users
  - No right to create a “nuisance” that injures other water users
- ◆ If multiple uses persist, it results in a classic instance of the “tragedy of the commons”
  - Therefore, it is gradually being eliminated
  - But legal change faces stiff resistance based on claims of vested property rights

# Proportionate Sharing

- ◆ Applies a rule of sharing among overlying landowners proportionate to their land holdings
- ◆ In contests between non-agricultural users, other bases of proportionality could be used
  - Such applications are unusual
  - Application of the approach is impossible absent some common denominator of use
- ◆ Called “correlative rights” in the United States, although there is considerable confusion in the caselaw and scholarly commentary over the meaning of that phrase



# Reasonable Sharing

- ◆ While espoused in early times, it was virtually impossible to apply until greater knowledge of groundwater was developed
  - Lack of information limited its early application to such simplistic ideas as orders limiting groundwater use to lands overlying the aquifer
  - Gradually displaced by balancing tests as the necessary knowledge became available
- ◆ Historic limitations on application of the doctrine left disputes that continue today over how it is to be applied
  - Should it only mean limiting the use of groundwater to overlying lands
  - Should it require decision makers to balance the social utility of competing uses to enable the use of groundwater for the most socially beneficial use
- ◆ Despite widespread adoption, it remains difficult to apply because of the time and expense involved in gathering the necessary information

# Temporal Priority

- ◆ First in time, first in right has intuitive appeal—  
“First to grab it, owns it”
  - Initially created and enforced by social consensus or brute strength
  - In order to legalize the system, it has been necessary to use highly bureaucratic systems to quantify and enforce priority rights
- ◆ Widely adopted in the western United States, first for surface waters and later extended to groundwater
  - This often results to separate priority schemes
  - With uncertainty about the interrelation of the two sets of rights
  - Integrating the two sets of priorities generally favors surface water users
- ◆ Two major problems:
  - Proving temporal priority for the oldest uses, which often predate any formal process, is difficult or impossible
  - Generally, this system effectively freezes uses once capacity usage is reached

# Public Management (Regulation)

- ◆ Found in ancient times and modern times in various forms around the world
- ◆ Sometimes embodied in highly local customary regimes as described in other contexts by Eleanor Ostrom and others
- ◆ Today often found in highly bureaucratic, government-administered regimes
  - Often takes the form of requiring time-limited government permits in order to abstract water—arguably creating uncertainties that could impede investment in developing groundwater, but there is little evidence that this is true in practice
  - Standards for the issuance of permits may be more or less clear
  - Expiration of permits in theory enables the reallocation of water as society's needs change, but this may be difficult to accomplish if permits are held by powerful interests, or more generally if bureaucrats are unwilling to “rock the boat”
- ◆ This system, more than the others, creates real possibilities of considering public and environmental needs

# What about Markets?

- ◆ The third party problem generally precludes true markets
- ◆ Recent so-called markets
  - The California Water Bank
    - ◆ Only one lawful seller and only one lawful buyer
    - ◆ No negotiation over prices
  - The Imperial Valley Irrigation District “sale” to San Diego
    - ◆ Rejected by the District’s board
    - ◆ Imposed by the Secretary of the Interior and the State of California
  - The Chilean Water Code
    - ◆ Water redefined as strictly private property without regard to third party rights during the Pinochet regime
    - ◆ Highly touted as proof that markets work
    - ◆ In fact, almost no market activity resulted except in one small valley and even there it has mostly stopped because of popular resistance—Carl Bauer, *The Siren Song* (Resources for the Future 2004)
    - ◆ Revised in the new Chilean constitution
- ◆ Regulatory intervention masquerading as a market
  - The state chooses to ignore third-party effects for itself and sometimes for private transfers
  - Results in a transfer of wealth from the poor to the rich
- ◆ Economic incentives are critically important, but should not be confused with markets

# Ric Masten, Stark Naked in '69 and '79 (1980)

To Nuke  
or Not to

is it not disturbing to consider  
that everything in and about  
a nuclear power plant  
will be furnished  
by the lowest bidder

# Is Legal Reform Possible?

- ◆ What is the state of groundwater law in your country?
- ◆ Does that legal posture affect the exploitation of groundwater positively or negatively?
  - Gathering data on groundwater use and abuse is time consuming and expensive
  - Determining the impact (if any) of a legal regime on groundwater use and abuse can be difficult
- ◆ What impediments exist to legal reform of groundwater law?
  - Making the necessary funds available will be a challenge
  - Civil society will have to be enlisted in support
  - Existing users of groundwater are likely to insist they have vested rights to continue their uses
    - ◆ If reform starts early enough, existing uses can be protected
    - ◆ Trusted dispute resolution processes will be necessary
- ◆ Is appropriate change feasible?

# Going Forward

- ◆ Integrated (conjunctive) management is necessary, but requires integrated law
- ◆ The same rules should apply to both groundwater and surface water, even allowing that the differing characteristics of the two stages of the hydrologic cycle will require careful application of those rules attuned to the circumstances
- ◆ Two of several possible examples:
  - The two ASCE Model Codes provide models for how this could be done
  - The *Berlin Rules on Water Resources* ch. 8 (ILA 2004) suggests the ways in which certain basic rules applicable to all waters can be adapted to the particular characteristics of groundwater