

**GROUNDWATER GOVERNANCE – IMPACT OF AWARENESS-RAISING AND CITIZEN PRESSURE ON GROUNDWATER MANAGEMENT AUTHORITY IN THE UNITED STATES**

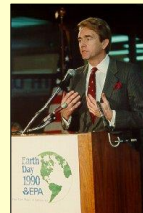
Andrew Stone, Executive Director  
American Ground Water Trust  
Concord, New Hampshire, USA

This presentation is based on a chapter in a forthcoming book, *Advances in Groundwater Governance* edited by Alberto Garrido, Professor of Agricultural and Resource Economics, Complutense University of Madrid, Spain



The increasing importance of groundwater was recognized by Environmental Protection Agency Director, William Reilly

*“Ground Water resources are of vital importance to this country – to the health of our citizens, the integrity of many of our ecosystems, and the vigor of the economy.”*



(US EPA, 1991)



**TARGET GROUPS TO ACHIEVE SCIENCE BASED GROUNDWATER MANAGEMENT:**

- Policy-makers /elected representatives
- Groundwater-user stakeholders
- The public and those organizations and interest groups that have opinions and perspectives
- Journalists & publishers /radio, TV and print media
- Organizations and individuals active with social media via blogs and other postings.



**What defines a groundwater stakeholder?**



**Who has authority over what?**



DAVE GRANLUND © www.davegranlund.com

Groundwater governance does not start from a blank page. Today's governance is built on the **palimpsest** of the past.

pal-imp-sest paləm(p) sest/ noun

A manuscript or piece of writing material on which the original writing has been effaced to make room for later writing but of which traces remain.

*Something reused or altered but still bearing visible traces of its earlier form*





The Codex Ephraemi Rescriptus, a Greek manuscript of the Bible from the 5th century

The Archimedes Palimpsest



**Awareness, information and education are essential for science based decisions about groundwater allocation, protection, and sustainability.**

**Groundwater governance is a dynamic and evolutionary process involving collective influences on policy and water management decisions.**



**Citizens, non-governmental organizations, professional associations, and industry interest groups influence the way in which groundwater resources are managed.**

**Decisions about the use of groundwater are rooted in complex connections of:**

- political structure
- historical precedent
- hydrogeological conditions
- legal rights
- vested interests
- perceptions of future need

**GOVERNANCE OUTCOME STAKEHOLDERS**

- Those directly involved as end-users (water utilities, irrigators).
- Indirect economic beneficiaries such as agricultural suppliers, engineering companies and developers.
- Individuals and organizations with environmental, ecological, health related and socioeconomic priorities that could be affected by decisions about groundwater use and source protection priorities.



**ORGANIZATIONAL INSTITUTIONAL AND CORPORATE ELEMENTS OF GOVERNANCE**



**EXAMPLES OF IMPACTS FROM CITIZEN PRESSURE ON MANAGEMENT POLICY**

- Aquifer overdraft in California
- Buying agricultural water rights in “buy and dry” deals
- Hydraulic fracturing and produce-water disposal
- Aquifer impacts of bottled water companies
- Aquifer Storage Recovery quality issues
- Legacy contaminants from past industrial activities



<https://blog.v-comply.com/governance-styles/>



**EXAMPLES OF IMPACTS FROM CITIZEN PRESSURE ON MANAGEMENT POLICY**

- **Aquifer overdraft in California**



**EXAMPLES OF IMPACTS FROM CITIZEN PRESSURE ON MANAGEMENT POLICY**

- **Buying agricultural water rights in "buy and dry" deals**



**EXAMPLES OF IMPACTS FROM CITIZEN PRESSURE ON MANAGEMENT POLICY**

- **Hydraulic fracturing and produce-water disposal**



**EXAMPLES OF IMPACTS FROM CITIZEN PRESSURE ON MANAGEMENT POLICY**

- **Aquifer impacts of bottled water companies**



**EXAMPLES OF IMPACTS FROM CITIZEN PRESSURE ON MANAGEMENT POLICY**

- **Aquifer Storage Recovery quality issues**



**EXAMPLES OF IMPACTS FROM CITIZEN PRESSURE ON MANAGEMENT POLICY**

- **Legacy contaminants from past industrial activities**



Environmental governance is a concept in political ecology and environmental policy that advocates **sustainability** (sustainable development) as the **supreme consideration** for managing all human activities—political, social and economic.



Andrew Stone, Executive Director  
American Ground Water Trust  
Concord, New Hampshire, USA  
[astone@agwt.org](mailto:astone@agwt.org)



This presentation is based on a chapter in a forthcoming book, *Advances in Groundwater Governance* edited by Alberto Garrido, Professor of Agricultural and Resource Economics, Complutense University of Madrid, Spain