

**TILL THE WELLS RUN DRY? CONTROLLING GROUNDWATER DEPLETION
IN CALIFORNIA, USA AND VICTORIA, AUSTRALIA**

A THESIS

SUBMITTED TO THE
STANFORD PROGRAM IN INTERNATIONAL LEGAL STUDIES
STANFORD LAW SCHOOL, STANFORD UNIVERSITY

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF THE SCIENCE OF LAW
STANFORD PROGRAM IN INTERNATIONAL LEGAL STUDIES

Advised under the faculty supervision of
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May 26, 2010

ABSTRACT

California, USA and Victoria, Australia share similarities in historical legal roots, climate, increasing groundwater use, and increasingly severe groundwater depletion. This study asks how these jurisdictions use State written laws to control groundwater depletion, and how these laws are implemented through local rules and plans. To the author's knowledge, this is the first academic study to collate and analyze the complex array of State laws and local regulatory materials to control groundwater depletion in either jurisdiction, individually or comparatively.

The study analyzes over 130 State laws and local regulatory documents in both jurisdictions to investigate four key aspects of legal approaches to controlling groundwater depletion:

(a) governance structures for groundwater management; (b) groundwater monitoring to support management; (c) planning issues and processes; and (d) different mandatory, economic and voluntary approaches to dealing with groundwater depletion (for example, mandatory restrictions on pumping, fees for extraction, and education about water conservation, respectively). The methodology used is the social science-derived technique of content analysis, which involves systematically recording elements of documents according to a coding scheme, then analyzing patterns and trends. The four aspects of legal approaches to controlling groundwater depletion form the basis of the coding scheme.

Despite having very similar legal "toolboxes" and facing very similar depletion problems (though different governance structures), the study finds that Californian and Victorian agencies take very different approaches to controlling groundwater depletion. Most of the former rarely use their powers to institute mandatory and economic measures to control the adverse effects of groundwater depletion. Most use only voluntary approaches or infrastructure to attempt to reduce

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depletion, regardless of whether they have more severe groundwater problems, or problems which are more likely to have irreversible adverse effects. By contrast, all Victorian agencies apply mandatory groundwater controls over a portion of their area, though the formulation of these controls has not kept pace with the development of environmental values. There is also greater scope in Victoria to explore conjunctive management and groundwater banking, as practiced in California.

Bearing in mind jurisdictional differences, the study makes suggestions for specific legal reforms in California, drawing upon the study's empirical findings to build upon California's present institutional and planning structures for dealing with groundwater depletion.

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