

# **DROUGHT RISK, SCIENCE AND MANAGEMENT: WATER GOVERNANCE: AUSTRALIAN EXPERIENCE**

---

**Marius Drought Symposium  
September 26 2016**

**Lee Godden, Centre for Resources, Energy and  
Environmental Law, Melbourne Law School**

# Framing drought as risk in an uncertain future

## Hazard studies in Australia

- Heathcote 'Perception of drought'
- Farmers' perceptions of drought risk and adaptation

## Climate Change

'For each degree of global warming, approximately 7% of the global population is projected to be exposed to a decrease of renewable water resources of at least 20%'.

- **World Economic Forum 2011**
  - water crises third greatest risk facing the world.
- Australian 'Millennium' drought and western USA drought



# Science, Law, decision-making and drought risk

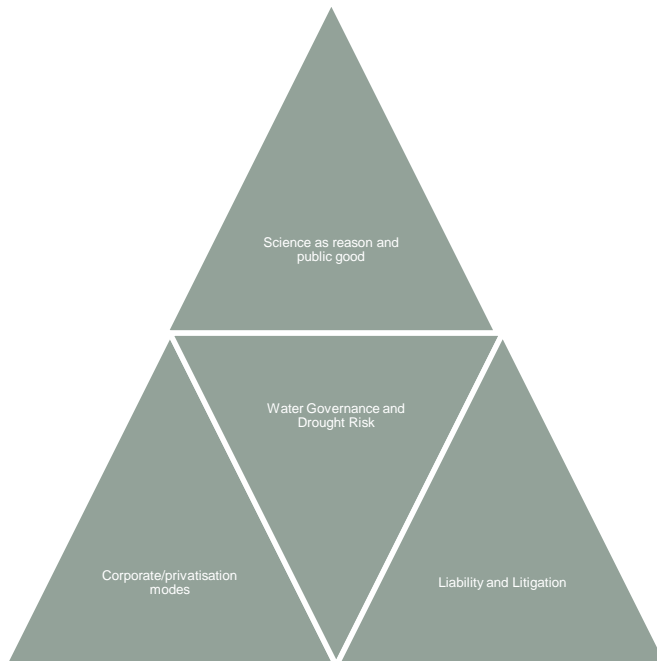
## 'Modern' Science

- Identifies characteristics of natural phenomena and probabilities of harm.
- Systems need to be adaptive and resilient; deal with uncertainty.
- Legal systems provide policy tools for wicked problems.
- Typically, water governance and water supply decisions framed within risk assessment /management paradigm.

## Compound Approach

- Contested governance where role of experts and expert knowledge is a determinant of policy/legal outcomes.
- Expertise includes scientific, political, economic, legal, and local-traditional knowledge.
- Addressing divergent perceptions in contested water governance
  - crucial for addressing the challenges of drought risk and environmental change.

# 3 Intersecting models for drought risk



- Long tradition of empiricism in science providing ‘indisputable facts’ as basis for decision-making
  - evidence based policy and statutory reforms.
- Decentring the State
  - resurgence of corporate forms of authority and privatisation of water sector.
  - negligence: common law’s risk management model.

# 'Public Good' Science and Law

- Enlightenment and progress; pursued by application of empirical science.
- Risk as the antithesis, but risk made calculable & 'manageable' according to defined process.

## Water Governance

- Identification of problems – drought and variability; climate change impacts
- Modelling
- Setting baselines
- Expert advice-increasing coproduction of knowledge
- Best available science/practice

# Public Reason in Australian Water Law

- Early public utility model
  - Phase of dam-building and water storages for drought risk (and floods)

## Water Law reforms NWI

- Improve security for consumptive users; establish cap and trade to drive efficiency and structural adjustment; and
- Address over-allocation and provide for environmental water needs to remedy highly degraded river systems.
- NWI reforms blend of scientism/market.

### **Water Act 2007:**

The Authority and the Minister must, in exercising their powers and performing their functions under this Division:

- (a) take into account the principles of ecologically sustainable development; and
- (b) act on the basis of the best available scientific knowledge and socio-economic analysis; and
- (c) have regard to the following:
  - (i) the National Water Initiative;
  - (ii) the consumptive and other economic uses of Basin water resources;
  - (iii) the diversity and variability of the Basin water resources and the need to adapt management approaches to that diversity and variability;
  - (iv) the management objectives of the Basin States for particular water resources; ...

# Water Act 2007 C'th

## Basin planning

### Murray Darling Basin 'cap and trade'



- **Water Act 2007 (C'th)**
- Implement coordinate water planning to share water and to implement a Sustainable Diversion Limit (SDL).

## Setting the SDL (allocation cap)

- S 22(1) Item 6 – Basin Plan must include long term average SDL for Basin water resources and water resource manag. areas
- S 23 – SDL must reflect an *environmentally sustainable level of take*

*the level at which water can be taken from a water resource, which if exceeded would compromise: a) key environmental assets; or b) key ecosystem functions; or c) productive base of water resource; or d) key environmental outcomes (s4)*

# Wither the State in water governance?

## Revising the role of the state

- Increasingly, function of the state regarded as limited to 'intervening' only in so far as is necessary to facilitate an efficient market.

AND

- Pervasive risk management model in the governance of modern society.

## Risk Management

- Risk is central to vulnerability and resilience as normative dimensions of managing drought risk and water supply.
- O'Malley - risk as a complex category made up of many ways of governing problems.
- The risk management model not operate neutrally, may relocate risk and consequent loss or liability across sectors and individuals.



## Strategic Policy and Legislation:

- The Victorian Climate Change Adaptation Plan places responsibility on private sector entities to manage risks to their private assets and activities 'on the basis they are best placed to do so'.
- S 14 *Climate Change Act 2010 Vic* - requires decisions made under certain scheduled Acts to 'have regard to the potential impacts of climate change.'
  - Consideration of a draft Sustainable Water Strategy by the Minister under section 22G.

# Managing Risk in Collaborative Water Governance

- Confluence - ‘new governance’ and ‘risk management’ in managing extreme events exacerbated by climate change, e.g. drought & flood.
- Legal responses operate in multifaceted ways
  - across public–private law spectrum, from tortious liability and insurance laws to public law regimes, such as statutory planning.
- Water governance becomes ‘shared’ through a process of negotiated relationships over public and private realms.

# Corporate Models

## Managing risk & responsibilities

- Earlier public interest model rendered ambivalent.
- New policy imperative - the task of the public sector is strategic planning and information provision.
- While private sector is the main realm of agency and action – and risk management

## Climate Risk

- Climate change analogy for drought risk
- Corporate social licence to operate
    - quasi 'utility' status
  - Litigation – class actions
  - Contractual models and disclosure of risk strategies
  - Role of third party advisors?
  - Shareholder activism?

# Drought Risk and Urban Water Supply

## Public

- **Demand-side restrictions**
  - implemented by water utilities in collaboration with state governments; initially highly effective at reducing demand.
- **Voluntary**
  - water savings and rebates; target high users
- **As drought intensified - supply side**
  - Inter-catchment transfer pipelines
  - Desalination - A 'rainfall independent supply source'
  - + Use of groundwater
  - Recycling (variable)

## Corporate

- Business water efficiency management plans.
- Govts. provide 'information' to assist water savings by industry.
- Some 'subsidies' to industries to replace high water use infrastructure.
- Promotion of decentralised systems
  - e.g. water efficiency ratings for buildings.
- **Audit and Disclosure**
  - (e.g. companies in top 100 water use)

# Insurance and risk-spreading

## Insurance

- Insurance as calculus renders even seemingly incalculable risks – manageable – or at least insurable.
- Insurance mobilises its own form of managerial rationality for risk management across govt. and private sector
- Some risks can escape the insurance calculus .

## Is Insurance a panacea?

- It may not be feasible to expect individuals to be fully responsible for risks to assets if insurance is unaffordable.
- Underinsurance means that costs of recovering from an extreme event may ultimately be borne by governments (and thus taxpayers) as the ‘insurer of last resort’.
  - Productivity Commission, *Barriers to Effective Climate Change Adaptation*, 2012 pp 302-304.

# Litigation in Managing Drought Risk?

Wivenhoe dam : Advent of litigation funders challenging 'deep-pocket' respondents.



## Liability as ad hoc change?

- To produce a wholesale change in attitude, a court ruling on the obligations of fiduciary investors to control systemic climate risk will probably be needed. Because of the uncertainties in estimating future climate damage, this will not be an easy case to bring. But we anticipate that such a case will ultimately succeed.
- 'Investors will play a major part, either voluntarily or because they will be forced by the courts to meet their legal obligations to manage climate risk.'
  - Covington et al, Nature 2016.

# Conclusion

- Decision-making– drought risk is framed within 3 intersecting models.
- Organisational restructuring blurs previous understanding of public responsibility and private action.
- Adaptation to climate change
  - Analogy for drought risk - it requires pervasive change to legal structures and governance arrangements across sectors and actors.
- The state offers not simply public goods, such as water supply, but ‘steers’ a complex of factors to create the enabling conditions for continued existence in the face of cascading risks posed by ‘natural’ calamities such as drought.
- Contact details:  
[lsgodden@unimelb.edu.au](mailto:lsgodden@unimelb.edu.au)