Groundwater Management in Australia
From National to Local

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Outline

• Tragedy of the Commons
• Property rights
• Australia’s Groundwater Resources
• Sustainable Yield (Limit and Trade)
• National Management
• Regional Management
Tragedy of the Common Resource

• A resource that is commonly owned is termed a common resource

• Where access is uncontrolled, there is no incentive for individual users to conserve the resource
  – In fact there is incentive to use as much of the resource as they are able as someone else pays the degradation cost
  – This is often rational behaviour when viewed in isolation
• The approach to managing long term degradation is to impose some form of limit on the resource to ensure sustainable use
• Invariably this is a Government responsibility
• The main criticism by users of this approach is that their property right to the resource is being curtailed
• This is a false notion in that a property right in an unmanaged common resource is not defined and has no certainty
  – There is no guarantee in perpetuity that the resource will exist in the future
Property Rights

• In a fully managed system where a limit to extraction has been imposed to allow sustainable development, each user has a right in perpetuity to extract

• This right is clearly defined in law and allows certainty by both the individual extractor and Government
  – Governments know that they are able to allow a level of use that generates national wealth on a long term basis
Australia
Australia’s Groundwater Resources

• Australia is a constitutional monarchy where several States are federated into a Commonwealth
  – Federal Government with State (Provincial) Government
• Water is vested in the Crown (owned by Government) at Provincial level
• Government provides an entitlement for use in perpetuity
• Water allocation is governed by State policies and is administered by water allocation plans
Sustainable Yield

• The use of water must be sustainable
  – National legislation that dictates extraction must be “environmentally sustainable level of take”
• Every area must have a plan
• The development of the plan must be based on consideration of the water budget for the area
National Water Management

• National Water Initiative
  – Agreed action plan between Federal and State Governments
  – Administered by National Water Commission – semi independent body not linked to government department
  – Controls major budget ($2Bn over 5 years)
  – Evidence-based policy
• Bureau of Meteorology has been tasked with national data services
  – National Water Accounts
  – AWRIS
  – Water Markets
Regional Management
Regional Level Planning

- Murray Darling Basin Plan
- Great Artesian Basin
- Groundwater Sharing Plans (Water Allocation Plans)
Take Home Messages from 15 years of activity

• Science Politics mix
• Sustainability
• Adaptability
• Engagement
• Capacity
• Science is about getting the right answer; politics is about the art of compromise – the two don’t mix and operate on different time frames
  – Make sure that you keep talking and understanding each others position

• Sustainability
  – Sustainability is an *ex poste* concept
  – You only know when its unsustainable; so how can you predict it
  – We adopted sustainable extraction without being able to properly quantify the term
  – Approach now is to recognise stressed aquifers and manage them back to a previous state
• Adaptability
  – You need to try things – the worst thing to do is nothing
  – We made mistakes, but we recognised those mistakes and learnt from them; the next time you try it will be slightly better

• Engagement
  – In a sense, unsustainable groundwater extraction is not a scientific problem – its a socio-economic problem that will be solved by a political process
  – Science needs to be part of it and their needs to be engagement between the science group and the broader community
• Capacity (institutional and people) is needed to make the system work
  – This particularly is true for the science purchasers and providers
Final Final Message

• What about the environment
  – Safe yield versus environmentally sustainable yield
Thank You

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