Driving Innovation in the Water Industry

Peter Cullen
Adelaide Thinker in Residence

Mapping Australian Science & Innovation, 2003

- Australia has a reasonably strong science base, but a poor record of exploiting that science
- Commercialization & IP
- Communication, capacity building & regulation important pathways to utilizing public good research

Australian Innovation

- Weak in Business Expenditure R&D
- Industry type & structure esp service industry
- Lack of entrepreneurial skills in business
- A poor culture of innovation
- Barriers between research & industry

The water industry ?

- Water supply agencies
- Catchment management organizations
- Resource managers
- Engineering companies
- Consultants
- Regulators
- Land developers/planners

Innovation in Water Industry
Research push

- Generally large number of small research providers
- Poorly connected & competing
- Will collaborate when they have to but prefer to capture as much resource as they can
- Largely single discipline based
- Hungry for cash

Innovation in Water Industry
Industry pull

- Small firms in niche areas
- Government agencies/Corporation with defined roles
- Much energy defending boundaries
- Rarely identify priorities to research community –
- Many priorities from different agencies
- Largely risk averse

Gaps

- Urban planners & the land development industry dont see themselves in the water business
- But they have enormous impact
- Risk averse
- Barriers to water sensitive urban development

Barriers

- Regulatory framework
- Need smart regulation that specifies outcomes not means
- Disconnected regulation – health, environment, service provision & price

Cultural barriers between Research & Industry

Water Industry Alliance

- Desire for collaboration but matchmaking the problem
- Putting researchers in contact with those who could develop innovation
- Industry says it cant afford the time & money to bridge the gap & researchers are not funded to do it either

The Gap

- Researchers & industry trade in different currencies
- Commercial Industry wants to develop new products & services to generate funds
- Researchers seek publications, funds & students – no incentives for commercialization & often over value

A Solution

- Water industry alliance suggests developing personal relationships is the first step – after which projects & technology transfer will occur
- Industry working to try & articulate its research needs

Research side

- Focus on issues/problems that need to be solved rather than try to market current capacity
- Help clarify what we do know as well as the areas of uncertainty
- Deliver ideas to agencies, public & politicians as well as exotic overseas journals

Cooperative Research Centres

- Do bring industry & research together & over time builds trust
- Enhanced uptake because of ownership
- Helps researchers see industry needs
- Good funding to lubricate the interface

Scientists & Public Debates

- Scientists have special knowledge
- Funded by public & an obligation to make knowledge accessible
- More than publication in scientific literature
- Must deliver knowledge & take part in debates
- Needs new approaches to taking our messages to the public – the role for media
- Expect any useful contribution to create reactions from those impacted

Wentworth Group of Concerned Scientists

The Message

- You can't drought proof Australia
- We need to learn to live with the landscape not try & fight against it all the time

The Five Point Plan

- Clarify water property rights & obligations.
- Restore environmental flows to stressed rivers,
- End broadscale landclearing of remnant native vegetation
- Pay farmers for environmental service.
- Incorporate into cost of food & fibre the hidden subsidies currently borne by environment

Wentworth Group of Concerned Scientists

Essence of message

- Clear language that all could understand.
- Timeliness – captured the window
- Clear articulation of problem & linked to solutions that could be implemented
- No obvious self-interest - not calling for funds
- The message stayed focused on key points & did not diverge to other interests that authors also feel passionately about.
- Lack of detailed evidence or argument
- Team effort- consensus

The Challenge of Advocacy

- “For every PhD there is an equal & opposite PhD”
- Community often has trouble with the tussle for supremacy of ideas that is the essence of science
- Producing the facts was not enough – must present idea of how to respond
- The role of scientists as advocates in the smoking debates

Wentworth Group of Concerned Scientists

Other Factors ?

- Gridlock with vested interests demanding compensation
- Dearth of workable ideas coming from agencies?
- Deskilling of agencies meant there were few ideas?
- Agency staff frightened to provide alternative to current policy?
- Agencies more interested in power & turf than finding solutions?

Ten Steps to Sustainability

- Protect Sources – ecological study of Coorong
  - Better mgmt of weir pools & lower river
  - Reduce Murray catchment inputs of salt
  - Manage the Hills catchments better
- Demand Management – build water literacy
  - pricing review
  - -10% reduction in per capita use
- Alternative Water – recycling & stormwater
  - Policy on Desalination
- Drive Innovation with smart regulation

Ecological Study of Coorong

- Large & complex study
- Expensive & time consuming
- Requires wide mix of skills
- No champion – in research community or agencies
- Engineering ethos of water agencies & unclear about such a study

Weir Pools

- Ecologists advocating varying height for some time
- Resistance from farmers & community
- Agencies got close to serious trial several times
- Hard to implement if needed so agencies not sure they want to know

Salt in Murray Catchments

- Serious threat to Adelaide's water
- Overwatering moving subsurface salt in groundwater to river
- Well understood
- Now pressure on water use efficiency is reducing overwatering & freeing up water for further irrigation
- Disposal of drainage water

Hills catchments

- Tyranny of small decisions
- No overall vision – water supply or development zone?
- Poor land use planning, poor infrastructure
- Lack of control on dams & bores reducing yield
- Landholder resistance to controls

Demand Management

- Why should a utility seek to reduce sales?
- Who is champion & why
- Opportunities for social scientists – do they know about it & could they get funding?

Alternative water supplies

- Why should a water utility promote competing product
- Hard to make attractive when potable water underpriced
- Needs leadership from land developers but why should they take risks?

Agencies as drivers of innovation?

- Rare
- Aim is to minimize risks to Minister
- Innovation is about taking risks
- Often compartmentalize knowledge rather than look at whole system
- May not have professional staff at the cutting edge of knowledge – more generalists

What can be done?

- Role for professional societies
- Explore issues through meetings
- Hard to get consensus on new ways since many members reflect existing technologies/agencies
- Need for think tank meetings that explore issues & report what is agreed & what should be explored