Water Governance Research – Queensland

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Water supply ‘crisis’ - major trends

- In most western nations, old water infrastructure is no longer seen as delivering sufficient water supplies in many regions.
- This has been caused by three main pressures:
  - changing patterns of rainfall in catchment areas;
  - depletion of groundwater aquifers; and
  - increased population needs and industrial demands.
- Broader catchment management issues around water quality.
- Water-sharing politics and multi-level governance solutions.
- Is this a genuine ‘water crisis’ or a series of policy and governance crises?
- Are these challenges best addressed by:
  - new technologies? or
  - better designed policies and appropriate sustainability practices?

Queensland rural water policy & research

- **Rural** water research issues have been predominant in last three decades (i.e. until the urban water crisis of recent years). Main examples:
  - Policy responses to the 1994 and 2004 COAG Water Agreements
  - Qld *Water Act 2000* required water resource assessments & allocation plans for every major catchment – this process increased the need for good science, & thorough stakeholder consultation.
  - NRM regional planning studies in 1990s arising from Integrated Catchment Management /Landcare initiatives;
  - NRM regional planning and projects under the NHT2 and NAP programs 2001-2007.

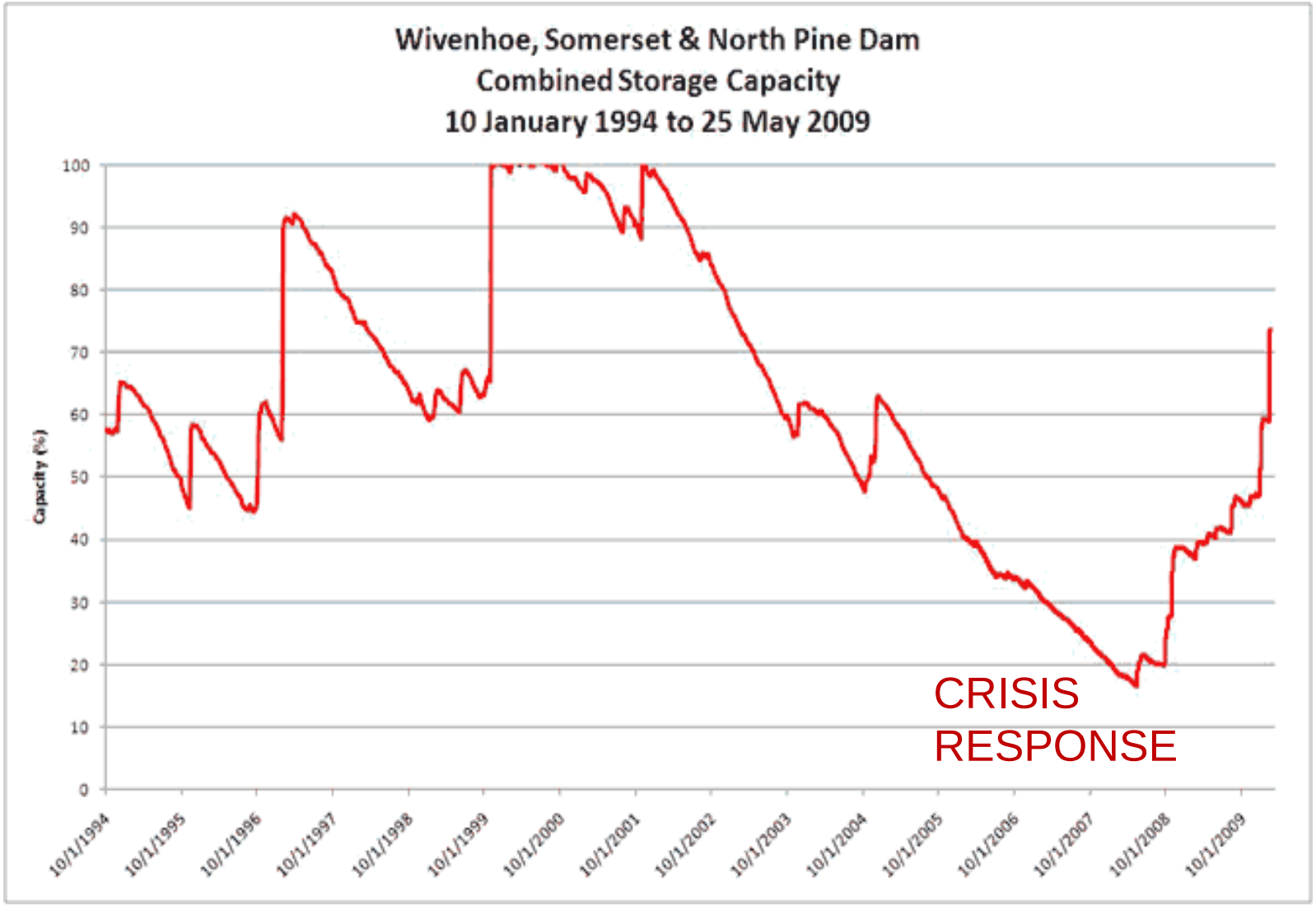
Rural water overview (cont'd)

- Bilateral agreements with Commonwealth 2003 and 2007 concerning water quality issues to protect Great Barrier Reef; role of GBRMPA and Productivity Commission reports concerning issues and solutions.
- *Wild Rivers* conservation legislation 2009 – declaration of specific catchments (Cape York & Gulf); political debates re indigenous development.
- Emerging issues about groundwater contamination risks arising from Coal Seam Gas industry (central & southwest Qld).

Urban water research issues

- Urban water policy changes in Southeast Queensland after major drought 2004-09.
- This crisis reinforced supply-side emphasis but some broader innovations also emerged.
- Broader questions raised concerning:
  - scientific knowledge & evidence-based planning/policy in the context of uncertainty and climate change;
  - role of participatory processes and stakeholder collaboration in water planning and implementation;
  - what works best with complex or wicked problems;
  - squeezing out ‘water quality’ and ecological issues which had developed over time in a decentralised SEQ framework.

Decline in water stored in three SEQ dams 1994-2009



Responses to urban drought in SEQ

- Context:
  - prolonged low rainfall; major dams at 20%
  - risk of continuing low-rain trend
  - expected major variability in climate.
- Response: urgent Qld Govt consideration of roles, responsibilities and resources:
  - clarify State's strategic policy responsibilities
  - better long-term water planning capabilities
  - centralisation of planning powers
  - centralisation of water asset management
  - tighter demand side measures
  - increased supply side measures
  - new research on water technologies & public opinion.

Responses to the water crisis

Supply-side responses (i.e. establishing alternative and supplementary water supplies)	***Demand-side responses*** (i.e. reducing water consumption through demand management measures)
• desalination plant • wastewater purification plant (recycled water facility) • build new dams • increase capacity of existing dams • 'water grid' pipelines • aquifer recharge if feasible • stormwater capture considered for industrial re-use • incentives for domestic rainwater tanks	• restrictions on certain water uses • installation of water-efficient devices • water metering • higher prices for water • consumption targets for localities or industry sector users • information, education and publicity

Supply-side responses

- 1. establishing alternative and supplementary water supplies: e.g. through
  - new dam announced 2006 (unpopular at local level; over-ridden by federal Minister 2009);
  - increase capacity of existing dams;
  - new pipelines to form a “Water Grid” connecting storages;
  - new facility for desalination and further sites identified;
  - new facilities to purify waste-water for recycled uses (but indefinite delay on potable use); and
  - incentives provided for domestic rainwater tanks.
- These six measures are widely seen as the primary focus of “urban water security” in SEQ.

Demand-side responses

- 2. reducing water consumption through demand management: e.g. through
  - higher prices
  - better metering of water usage
  - restrictions on certain water uses/practices
  - subsidised installation of water-efficient devices into domestic and industrial buildings
  - developing target-driven responses for residential household consumption & various industrial sectors.
- Reduction target (T140) met comfortably through community education. Incentives and restrictions were eased when the 'crisis' eventually passed.
- However, considerable effort to refute a report by ISF suggesting that demand management could largely meet the crisis conditions, and that a dam was unnecessary.

Wicked obstacles to water strategy success

- 1. Hard to define and measure many of the risks and thus calculate the options and trade-offs.
- 2. Complex inter-dependencies of processes and structures need to be analysed & addressed.
- 3. Responsibilities may be vague or may stretch across many organisations.
- 4. Cooperative, coordinated and collaborative responses may be required – but these are very difficult to mobilise.
- 5. There are inherently no clear and correct solutions.
- 6. Proposed measures may have *unpredictable* impacts and consequences.
- 7. Program tools may have *different* impacts across *different* locations.
- 8. Solutions may require behavioural changes by citizens and stakeholder groups (rather than relying on regulation).

Research on adaptive vs crisis management

- Governments often prefer to fund water research aligned to current crisis response or policy/program priorities.
- Critical and/or long-term research generally overlooked.
- Iterative and adaptive approaches seem necessary for dealing with water policy adjustment and the innovation challenges arising from climate change.
- Adaptive frameworks recognise uncertainty by
  - acknowledging the provisional status of knowledge;
  - seeking to “pool” knowledge and encourage “flows”;
  - working simultaneously on connected issues (e.g. climate variability, public health risks & ecological management;
  - recognising the diversity of competing views and interests;
  - acknowledging a mix of instruments may be necessary to address a range of policy and program objectives.

A few references

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