Water and Waste Water: Some Broader Issues

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Context, Ideals, and Current Situation: Water Allocation

- Water is scarce with competing uses:
  - Households
  - Industry, including electricity generation
  - Irrigation
  - Environment
- Allocate water to different uses to equate marginal social benefits across each use
- Current allocation of water is far from efficient

Context, Ideals, and Current Situation: Infrastructure Provision

- Context:
  - Water and sewerage treatment, pipes, etc
  - Subject to economies of scale
  - Average and marginal cost varies by region and location
  - Implies natural monopoly and government intervention
- Ideal:
  - Invest to point where marginal benefits equal marginal cost
- Tasmania has problems

Market Water Price

- Costs of water to society equals

  Opportunity cost of water at source

  +

  Cost of treatment and delivery

  +

  Cost of any externality associated with use and waste disposal

- If set price equal to marginal cost, then price
  - Allocates available supply to most valued uses, and
  - Signals returns to investment

Attraction of Markets

- Efficient allocater if no market failures, both:
  - now, and
  - in response to changing circumstances
- Signals new investment options to adopt
- Effectively captures information held by different users of and investors in water
- Takes much of the story out of politics
- By comparison, regulations on usage are blunt instruments, they are slow to change, and ultimately they become political bad news

A Simple Example of How a Market for Water Works

- Suppose
  - User A values a ML at $30
  - User B values a ML at $50
- It pays A to sell to B, say at $40
  - Both gain $10 each
  - National efficiency gains by $20
- The $40 price signals the return for investment to increase water and to increase the efficiency of water use

Some Limitations with Water Markets

- Markets require clear property rights and a supporting information system
- Important market failures:
  - Public good properties of most environmental amenity benefits
  - Natural monopoly in infrastructure
  - Some water use externalities
- Therefore, need a mixed market and government intervention system

Infrastructure to Treat and Deliver Water: Some Issues

- Scale economies mean natural monopoly and need for regulation
- Relevant costs for efficiency include:
  - Operating costs
  - Repairs and maintenance costs
  - Evaporation, seepage and wastage losses
  - New investment costs
  - Sometimes a scarcity rent to ration limited capacity

Equity Concerns with Markets for Water

- Market transfers are voluntary and mutually beneficial transactions
- Water as a necessity of life
  - There are many “necessities of life”
  - A small share of total expenditure
- A second best political compromise
  - A two block price schedule
  - provide each person with a low price (or zero) “basic quantity”, and then a volumetric charge set at marginal cost
  - “Basic quantity” less than 5% of total use of water