Fiona Gibson
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Fiona completed a Bachelor of Science, in Natural Resource Management at UWA in 2004. Fiona’s honours project investigated the economic cost of poor catchment management to dependent downstream businesses in Albany, Western Australia. After completing her Bachelor degree, Fiona took an environmental planning position within WA’s Department of Planning (formerly Department of Planning and Infrastructure). She stayed for 3 years, working in coastal planning and more recently land use and water planning, whilst studying a Masters in Natural Resources part time. In 2008 Fiona upgraded to a PhD and continued her research full-time. Fiona’s PhD combines her passions: understanding human behaviour and water resource planning. She expects to submit in September this year.
What motivates choice?

A case study of community willingness to pay for recycled water in Perth

By Fiona Gibson

Supervisors:
Prof Michael Burton (ARE) and Dr James Fogarty (ARE),
and Dr Sorada Tapsuwan (CSIRO)
Perth’s water shortage

- Rainfall in the south west expected to decrease by 10% by 2030
- 40% yield reduction from dams and groundwater by 2030
- Increase in population and industry growth
- Significant issues with future water allocation
Allocation issues north of Perth

- Gnangara Mound supplies 60% of drinking water
- Over allocated
- Competition between water users
- Implications for:
  - location of horticulture
  - dependent ecological systems
Climate independent water sources

• Desalination and recycled water
  – Treated to national standards
Desalination

- Removal of salt from water
- Used in several countries worldwide
- Large quantities of high quality water
- Environmental issues
Recycled water: groundwater replenishment
Climate independent water sources

• Environmental benefits and costs
• Social benefits and costs
  – Community response to each scheme could be different
Community values

• Limited investigation for desalination

• Recycled water:
  – Numerous social research studies
  – Perceived benefits and costs:
    i.e. risk and sustainability
  – Some may never accept recycled water:
    psychological repugnance

• Limited economic research
  – Negative WTP
Research agenda

• Survey of community preferences for desalination and groundwater replenishment

1. Attitudes towards both schemes
2. Economic value of groundwater replenishment?
3. Do attitudes inform economic choices?
Implementation

• Administered via an online panel in September 2007
• 470 useable responses
• Representative sample
Economic values

- Contingent valuation
- Annual payment/discount via the water service fee
<table>
<thead>
<tr>
<th>Current situation</th>
<th>Alternative</th>
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<tbody>
<tr>
<td>• WA government builds a second desalination plant in</td>
<td>• WA government will reverse its decision on desalination and implement a</td>
</tr>
<tr>
<td>Perth</td>
<td>groundwater replenishment scheme using recycled water.</td>
</tr>
<tr>
<td>• Your standard service charge for water will be the</td>
<td>• Your standard service charge for water will be $70 MORE per household per</td>
</tr>
<tr>
<td>same per household per year.</td>
<td>year.</td>
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</tbody>
</table>

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Economic values

- Multiple valuation questions
- Bid amounts ranged from a $130 discount to a $150 payment
Attitudes

• Specific attitudes and emotions towards each scheme, generic attitudes
• Tradeoff between schemes, we use relative attitudes and emotions
Results

• Economic theory predicts individuals respond to monetary incentives

• 70% respond to incentives
  – Positive values (willing to pay)
  – Negative values (need discount)
Motivators of choice

• Relative fairness
  – High fairness = more willing to accept GWR

• Relative emotion
  – Less emotive = more willing to accept GWR

• General trust
  – Lower trust = more willing to accept GWR
Price insensitive

• 30% are price insensitive

• Relative fairness
  – Highly unfair = 75% probability
  – Highly fair = 4% probability

• Relative emotion
  – Highly emotive = 60% probability
  – Low emotion = 12% probability
Are people willing to pay?

• Overall, respondents with average characteristics are not WTP for GWR

• Respondents with relative low fairness need $58 discount

• Respondents with relative high fairness will pay $32

• Respondents with relative low emotion will pay $13
Conclusions...

• Price, emotion and fairness are strong motivators
• Significant proportion are price insensitive
• Issues for implementing recycled water schemes
Acknowledgements:

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• UWA and CSIRO
• The UWA Institute of Agriculture

Questions and comments welcome
Conclusions...

• Price, emotion and fairness are strong motivators
• Significant proportion are price insensitive
• Issues for implementing recycled water schemes