Alternative water resource regulation – an industry perspective
Why alternative water sources?

Almost all urban development in WA is served by a potable water supply system, so why would we need an alternative supply?

- No (or limited) available groundwater allocation for Public Open Space
  - Wungong and Alkimos
  - City of Canning
  - Perry Lakes
- No (or limited or expensive) available scheme water supply
  - Gracetown
  - Point Grey
- No (or expensive) wastewater management scheme available
  - Gracetown
  - Point Grey
  - North Dandalup
Non-potable water uses

Low-hanging fruit is non-potable uses:

- Public Open Space irrigation
- Fire water supply
- Private garden irrigation
- Residential non-potable in-house uses
  - Toilet flushing
  - Laundry
- Hot water supply - controversial

Lower risk, lower value, fit-for-purpose quality
What alternative water sources?

Alternative water sources

- **Rainwater**, unregulated but unreliable…
  - Gracetown
- **Groundwater**, easy but there isn’t enough…
  - Point Grey
- **Stormwater**, seasonal so how do we store it?
  - City of Canning
- **Treated wastewater**, sounds difficult…
  - Gracetown
  - Wungong
  - Point Grey
  - North Dandalup
Approvals framework

- Regulatory framework historically developed separately for each element of the water cycle:
  - water supply (potable water)
  - wastewater management
  - drainage

- Alternative water sources don’t fit the traditional approach

- Our response has been to introduce additional regulation and complexity

- Early proposals blamed regulatory system for delay and failure of proposals
# Approvals framework

<table>
<thead>
<tr>
<th>Agency</th>
<th>Role</th>
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</thead>
<tbody>
<tr>
<td>DER</td>
<td>Regulation of wastewater from prescribed industries, under Part V of the <em>Environmental Protection Act 1986</em>.</td>
</tr>
<tr>
<td>DoH</td>
<td>Regulation of sewage and water supply schemes under the <em>Health Act 1911</em></td>
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<tr>
<td>DoW</td>
<td>Managing the State’s water resources, including groundwater under the <em>RiWI Act 1914</em>; assessment of water management strategies under Better Urban Water Management (WAPC, 2008); advice to the Minister for Water on requests for exemptions from the need to hold a water service provider licence.</td>
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<tr>
<td>ERA</td>
<td>Licensing of water service providers under the <em>Water Services Licensing Act 1995</em></td>
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<tr>
<td>OEPA</td>
<td>Assessment of proposals under Part IV of the <em>Environmental Protection Act 1986</em></td>
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<tr>
<td>WAPC/DoP</td>
<td>Considers non-drinking water proposal through the land planning process</td>
</tr>
<tr>
<td>LGA</td>
<td>Administration of the <em>Health Act 1911</em>, administration of the Building Code of Australia, granting of approvals through the land planning process</td>
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Guideline for the approval of non-drinking water systems in Western Australia, Department of Water 2013

Note: The above diagram depicts the optimal process. In situations where there is existing zoning and a lack of guiding information, a flexible approach to implementation may be required. This is at the discretion of the WAIPC, on advice of the Department of Water.
Some exciting and innovative alternative water supplies have been proposed:

- Wungong: sewer mining for POS and residential non-potable use
- Alkimos: recycled wastewater for POS and residential non-potable use
- City of Canning: stormwater harvesting for POS irrigation
- Perry Lakes: recycled wastewater for environmental uses

…and failed because of a lack of service provider, which usually means the business case failed.

Some successes:

- Point Grey: groundwater and recycled wastewater
- Gracetown: rainwater and recycled wastewater
- North Dandalup: scheme supply and recycled wastewater

**So what have we learned?**
City of Canning ASTR
City of Canning ASTR

- Local Government drainage is not a proclaimed waterway, so they can harvest the stormwater.

- DoW regulation of injection and abstraction.

- ...but once the water is injected into the aquifer, who has rights?
• No reticulation guidelines for non-potable water
  – Service corridor alignment
• No plumbing guidelines for non-potable water
  – Plumbers Licencing Board is for potable water and wastewater
Gracetown connecting existing properties

- Proposed wastewater recycling scheme needs volume from all properties
- Existing properties have septic tanks and no charges
- Power to enforce connection…?
Point Grey ...

- Relatively straightforward path through the licensing system:
  - ERA, DoH, DER
- Difficult and drawn-out planning process
  - DoW and LWMS
  - Planning process asked too many technical questions
Areas for improvement

The system isn’t broken – we’re all still learning

- Ownership of injected/infiltrated water in the case of Managed Aquifer Recharge

- Guidelines and standards for non-potable water supply and plumbing

- Total Water Cycle Management
  - Service providers operate in separate parts of the water cycle
  - Drainage and wastewater aren’t treated as a resource

- Leave the technical issues for technical licences, not the planning process
“The continued impact of climate variability requires a sophisticated management approach to secure water supplies, today and in the future. At GHD, we deliver integrated water solutions that reduce consumption, improve efficiency and optimise systems, in ways that balance the needs of our communities and the environment.”