Choke or Bottleneck on Development

Dr Mark Bailey
Goulburn-Murray Water
Contents

• The changing landscape
• The nature of the risk
• Mitigation options
• Options to control risk
"Another area where all jurisdictions should redouble their efforts is to work together to manage the ongoing risk of water delivery shortfall in the River Murray system.

"A water delivery shortfall can happen when demand exceeds the physical capacity of rivers to carry the water, or when demands for water spike and there's not enough time to release more.

"Factors like changes in land use, changes in climate and extreme heat, and changes in water use can all effect the risk.

"The Authority urges all water users along the River Murray, especially downstream of the Barmah Choke, to understand the risk of water delivery shortfall and take it into account in their business planning and investment decisions."

Neil Andrew AO, Chair, Murray-Darling Basin Authority
A Changing Landscape

• Change across the Southern Connected Basin
  – Growing demand
  – Changing ownership
  – Changing climate
  – Changing river conditions

• Two main changes for river operations
  – Environmental water use
  – Horticulture growth
Increasing Horticulture Demand

- Actual horticulture demand
- Estimated forecast horticulture demand
- Expected future consumptive water availability - near average year
- Expected future consumptive water availability - drought year

<table>
<thead>
<tr>
<th>Year</th>
<th>Actual Demand</th>
<th>Forecast Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>1,000 Gt/year</td>
<td>800 Gt/year</td>
</tr>
<tr>
<td>2009</td>
<td>1,100 Gt/year</td>
<td>700 Gt/year</td>
</tr>
<tr>
<td>2012</td>
<td>1,200 Gt/year</td>
<td>600 Gt/year</td>
</tr>
<tr>
<td>2015</td>
<td>1,300 Gt/year</td>
<td>500 Gt/year</td>
</tr>
<tr>
<td>2023</td>
<td>1,400 Gt/year</td>
<td></td>
</tr>
<tr>
<td>2025</td>
<td>1,500 Gt/year</td>
<td></td>
</tr>
<tr>
<td>2027</td>
<td>1,600 Gt/year</td>
<td></td>
</tr>
</tbody>
</table>
The Location is the Risk
Imagery of the Barmah Choke
The Risks

- Barmah Choke capacity – 9,500 ML/day (and decreasing)
- Tributary capacity (eg lower Goulburn River)
- Concentration of demand timing
  - Summer
- Concentration of demand location
  - Downstream of the Goulburn Murray Irrigation District
  - Further away from the major storages
- Operational levers exist
Risk Mitigation Options
What Else is Happening?

• Information provision
  – Water availability
  – Operations
  – Fact sheets (eg delivery shortfall risks, future water availability)

• System planning
  – MDBA Annual Operating Plan, including inter-valley trade resources
  – Managing water orders

• Rules reviews
  – Victorian trading rules (eg inter-valley trade limits)
Conclusion

• Risks are difficult to quantify
  – Many variables
  – Continually evolving
  – Short-term temperature peaks are the greatest threat

• Agencies are planning collaboratively
  – Communications to water users
  – Policies
  – Sharing arrangements
• Murray-Darling Basin Authority
  – www.mdba.gov.au
• Northern Victorian Resource Manager
  – www.nvrm.net.au
• Victorian Water Register
  – www.waterregister.vic.gov.au