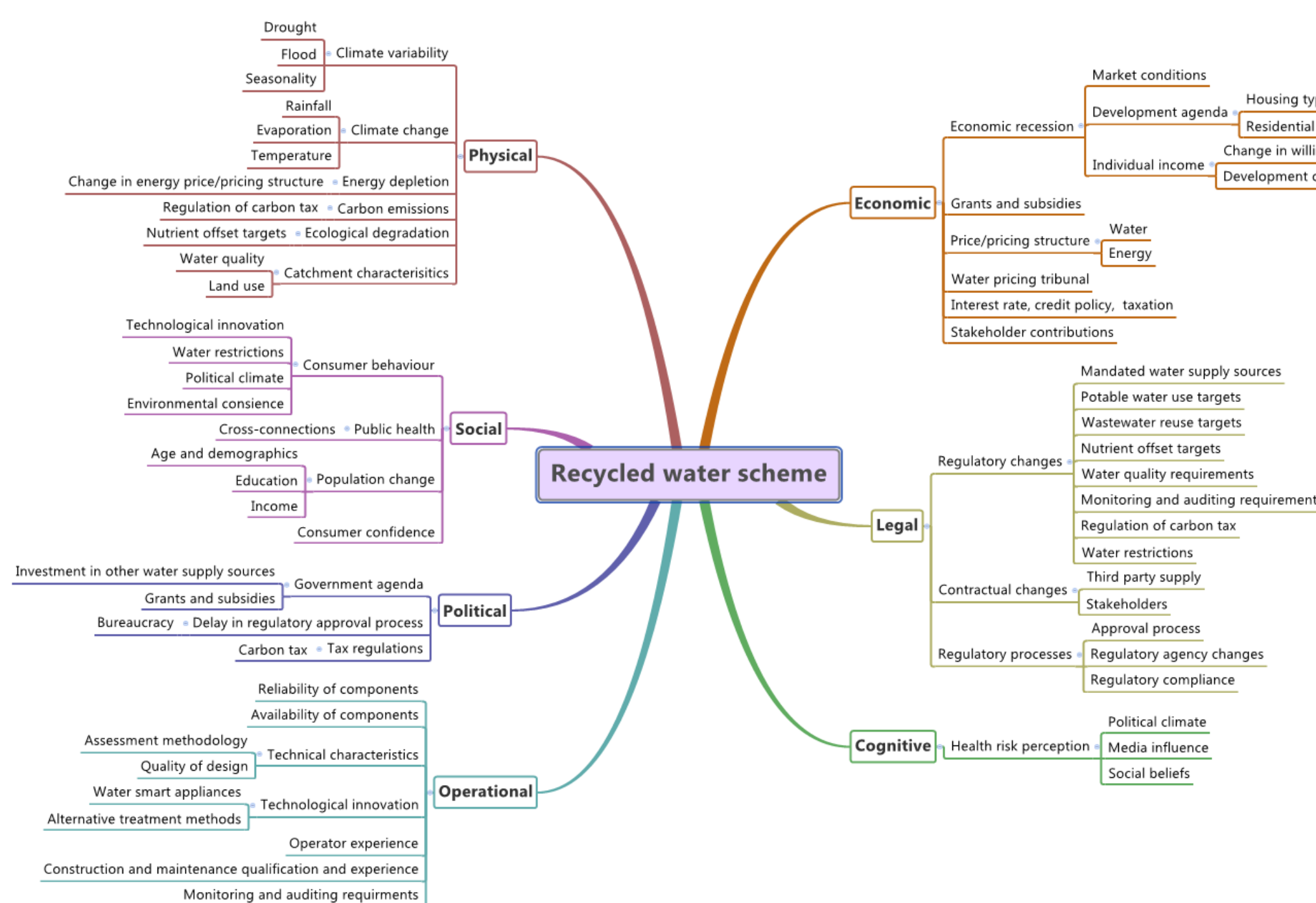




Residential recycled water schemes: Risky business?

Risk management for residential recycled water schemes

Development and implementation of risk management measures is essential for the successful performance of recycled water schemes in residential areas. Comprehensive identification and prioritisation of risks is required to facilitate risk management. To date, risk assessment and management guidelines for recycled water schemes in Australia have focused on environmental and public health risks arising from microbial and chemical hazards. However, few public health impacts have been reported, though a proportion of schemes have been prematurely decommissioned. Consequently, this research project aims to comprehensively and holistically identify and prioritise risk factors which may impact the long-term viability of recycled water schemes in residential areas. A risk management model will be developed based on fuzzy synthetic evaluation techniques to assist decision makers in assessing, managing and allocating risks.



Why do schemes fail?

Major risk factors include:

- *Physical risks*: Climate variance and change in catchment characteristics
- *Social risks*: lack of customer confidence
- *Political risks*: change in Government agenda
- *Operational risks*: construction error, asset condition uncertainty and demand variance
- *Economic risks*: pricing mechanisms including developer charges and water price
- *Legal risks*: contractual arrangements between scheme proponents
- *Cognitive risks*: health risk perception

Figure 1: Risk factors of residential recycled water schemes

What is the impact?

In cases where schemes have been prematurely decommissioned, the objectives of the scheme to enhance water supply security and reduce pollutant discharges to the environment have not been realised. In addition, community expectations have not been met and reputational damage has ensued. Understanding the full range of risks to a scheme will enable better decision making, with risk assessment during the planning phase informing risk management during the operational phase.

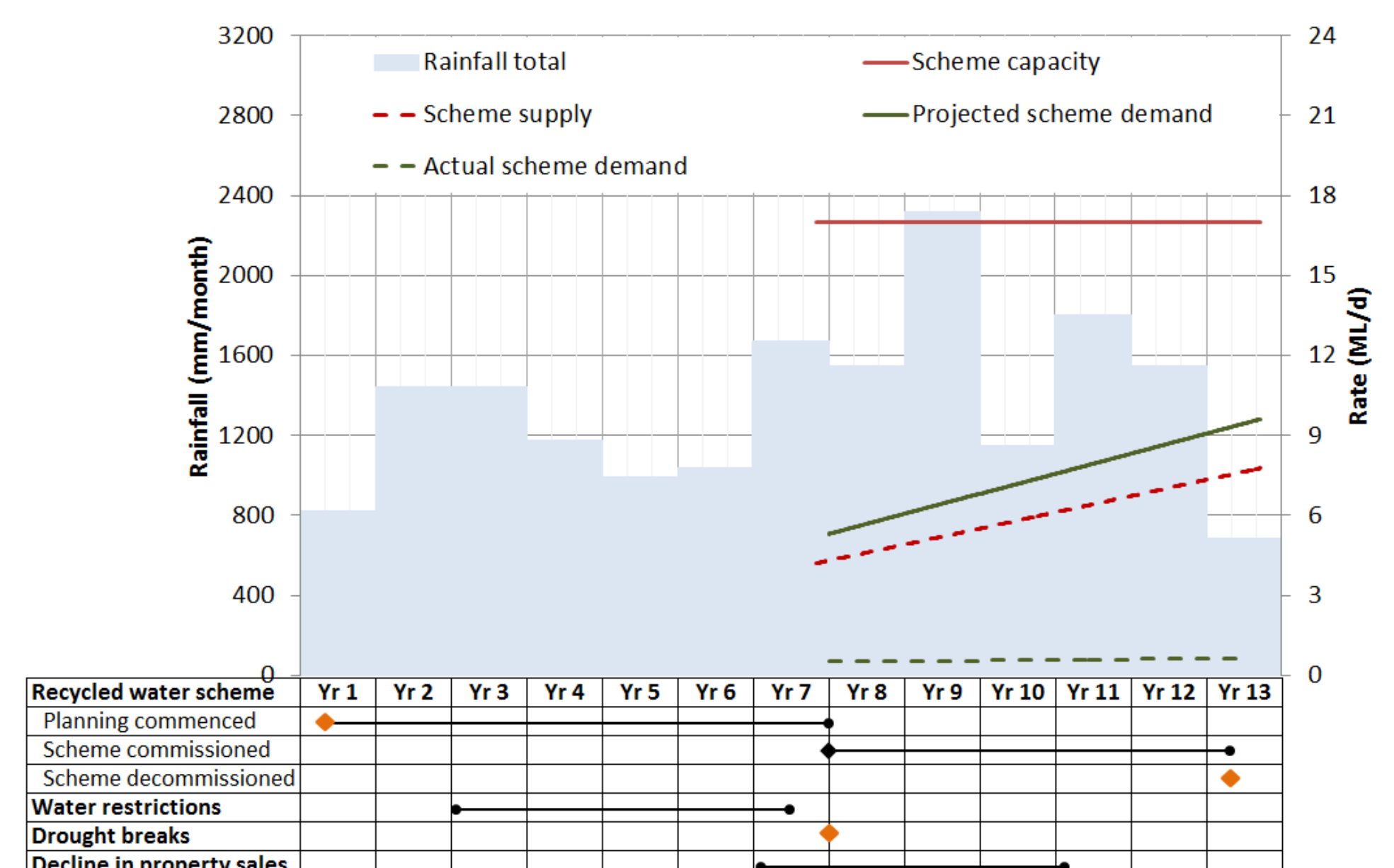


Figure 2: Impact of risk factors on scheme performance