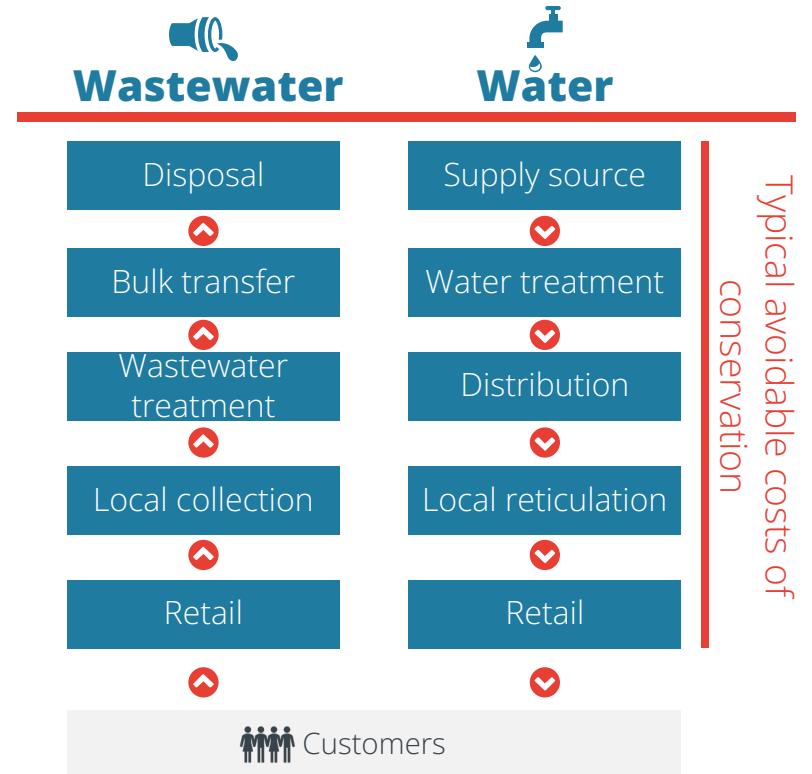


LRMC applied - water & wastewater



- LRMC of water or wastewater is a unitised representation of the additional cost (or saving) of:
 - providing an additional KL of water, or
 - managing an additional KL of wastewater.
- LRMC estimates can be key reference points against which utilities & regulators:
 - **Assess costs:** To set forward looking usage prices;
 - **Assess avoided costs:** To assess potential augmentation &/or recycling and conservation measures.



What is LRMC of water & wastewater?



Water LRMC



LRMC is the sum of marginal capital & operating costs of **expanding capacity or increasing yield** to meet growth in demand.



As water supplied is often sourced from a common bulk water system, there is often **a single catchment-wide bulk water LRMC**.



As water is transported via discrete transfer and distribution assets there are often **multiple non-bulk LRMC estimates**.

Wastewater LRMCs



LRMC is the sum of the marginal operating and capital costs associated with **expanding capacity** to meet growth in demand.



As wastewater is managed via discrete systems, **there are often multiple wastewater LRMCs** (reflecting different capacity constraints in different parts of the distribution and treatment system).

Consistent use of these estimates are critical for a range of decisions...



To make investment planning & funding decisions

- Estimates of LRMC can be used to value the avoided costs (benefits) of recycling and conservation.
- **The higher the LRMC, the higher the avoided costs, and thus the NPV (all else equal).**



To set retail usage prices

- Prices set with reference to LRMC can promote efficient consumption, as consumers face the LT costs, & consumption only occurs where benefits > costs.
- **The higher the estimate of LRMC, the higher the usage price**



To set wholesale prices (retail minus)

- Under retail minus prices, estimates of LRMC can be used to estimate the LT avoided costs of the supply of wholesale services.
- **The higher the LRMC estimate, the higher the avoided cost and lower the wholesale price**

“LRMC estimates ... ideally underpin everything from usage prices, to wholesale & access prices, & to decisions about investment” *



Common challenges in calculating LRMC



For a relatively simple concept that is critical to planning, investment evaluation and pricing, there is considerable diversity in views...



Volume-driven vs population-driven

View that volumes generally only affects the size, and not the need for the investments



Volume-driven vs load-driven

Unclear whether it is pollutant load, rather than wastewater volumes that drives wastewater expenditure



Lack of sufficient information

There may be insufficient information (including wastewater metering data) to generate accurate estimates across so many catchments



Role of other investments

Increasingly, investments are driven by a range of factors (not just growth in demand), e.g., managing drought, improved resilience