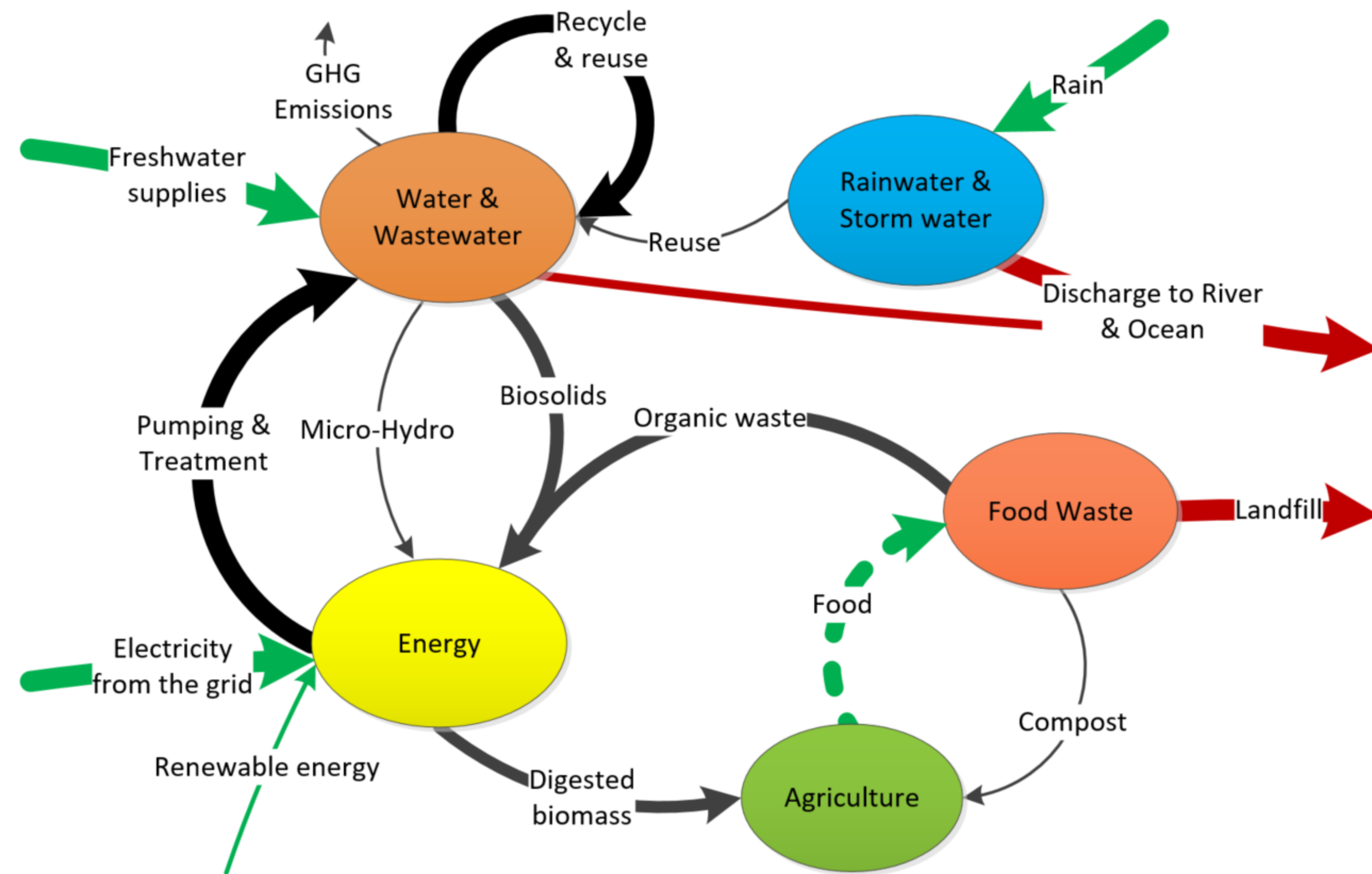


## MOTIVATIONS FOR A CIRCULAR ECONOMY APPROACH

Water utilities moving towards a vision of integrated resource recovery due to a combination of expanding sustainability and liveability aspirations, operational challenges, network constraints and emerging contextual factors. Rising energy costs, as well as increases in energy intensity due to alternate water supplies such as desalination, and greenhouse gas emissions reduction efforts are also pushing new ways of thinking for water and sewage services. A circular economy approach provides resilience to resource shocks and constraints, and also reduces the impact on the environment when responding to carbon reduction and zero wastewater to ocean requirements.

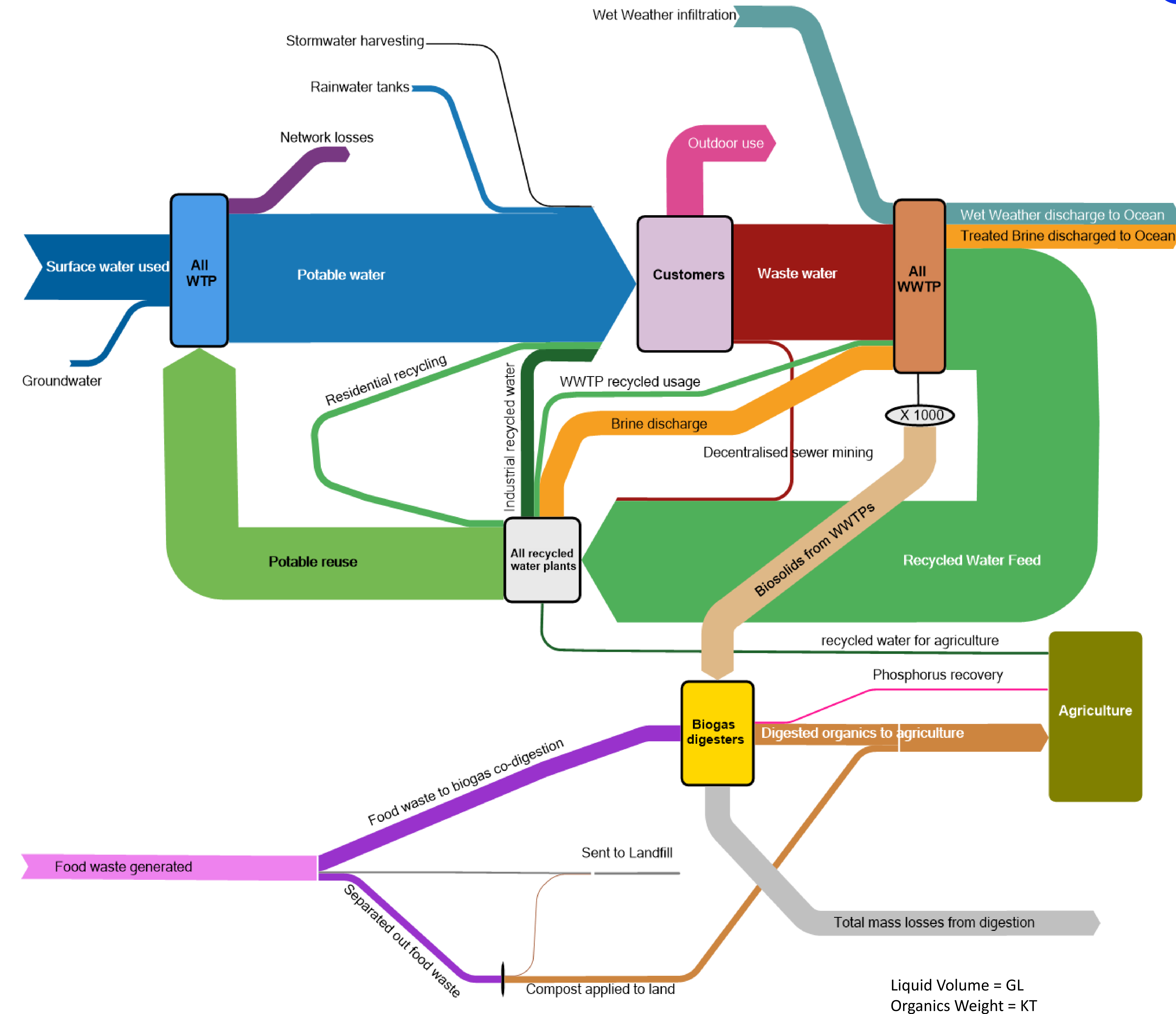


## WHAT CAN BE DONE?

Drawing on the International Water Association document (Water utility pathways in a circular economy), the following opportunities can be investigated:

- Rainwater and stormwater harvesting
- Reuse water for domestic use via a dual pipe system in high density developments
- Potable re-use
- More efficient water use in residential dwellings and in the commercial and industrial sectors
- Recycled water for agriculture irrigation
- Energy reduction at home from the reduction in hot water use in showers
- Biosolids for energy production using the co-digested organic food and sewage waste
- Organic food waste added to waste water biosolids for co-digestion
- Resource recovery e.g. phosphorus
- Digested/composted organics applied to agricultural land

## Circular Economy: Example



## References

- Fane S, Mukheibir P, Prentice E & Chong J. (2017) *External Factors for the Melbourne Sewerage Strategy 2018*, [prepared for the Melbourne water utilities], UTS-ISF
- IWA, 2016. *Water utility pathways in a circular economy*, International Water Association
- Kenway S, Priestley A, Cook S, Seo S, Inman M, Gregory A & Hall M. (2008) *Energy use in the provision and consumption of urban water in Australia and New Zealand*. Water Services Association of Australia
- Mukheibir P. & Howe C. (2015) *Pathways to One Water: A guide for institutional innovation* [prepared for Water Environment Research Foundation], UTS-ISF