circle wash

The 8Rs framework guides application of circular economy principles to achieve safely managed, inclusive, climate resilient water and sanitation services.

The R strategies reflect theory-based principles of circular economy, climate resilience and inclusion.

A circular economy water and sanitation opportunity aligns with one (or more) of the three central Rs: reduce, reuse, restore. The other five Rs relate to critical dimensions of purpose, process and inclusion.

Use the 8Rs framework as a thinking tool and guide for planning.

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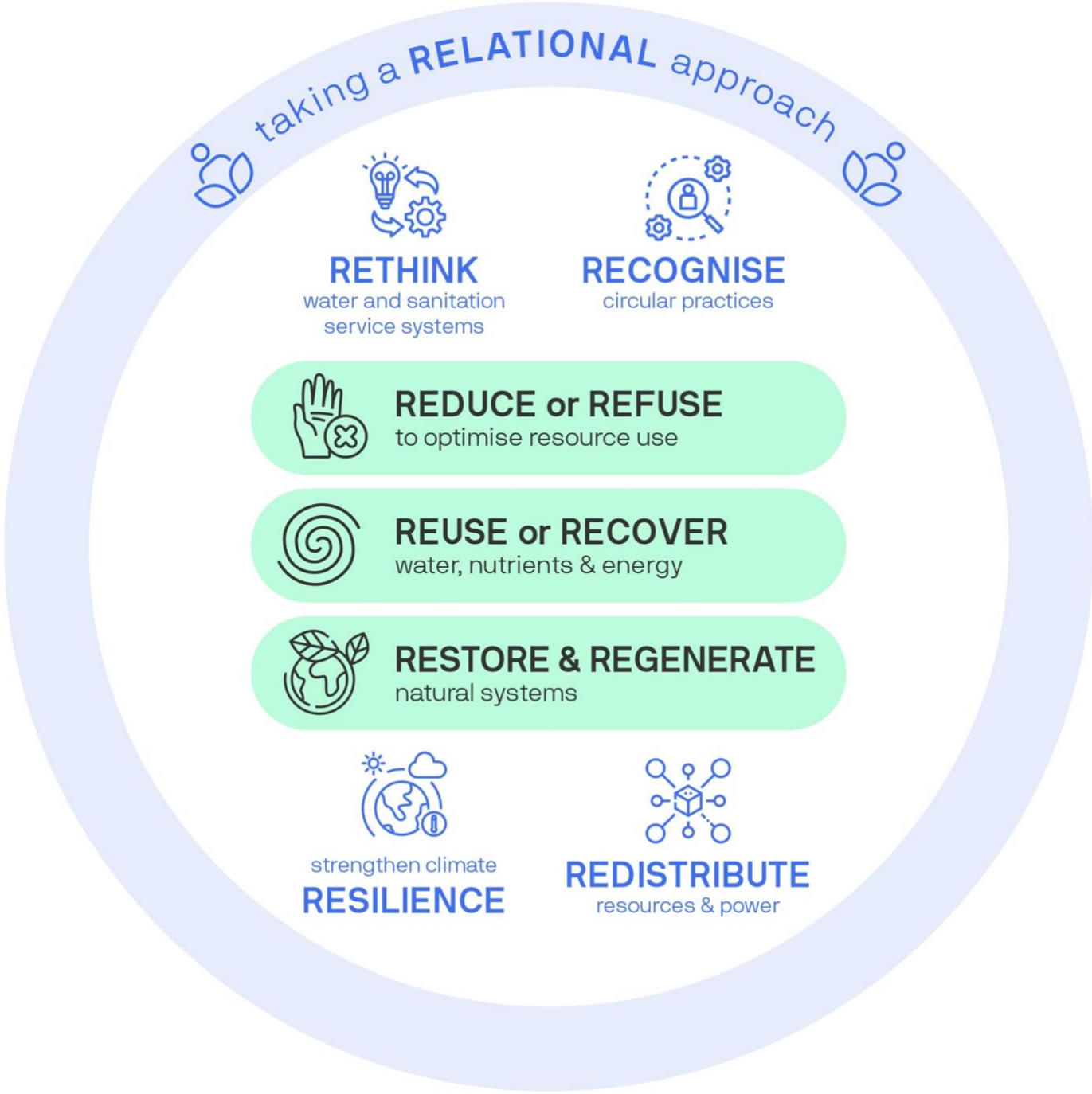

8Rs for circular water and sanitation

	R strategy	Prompt questions	Examples
	**REDUCE OR REFUSE** to optimise resource use	How can we optimise use of resources in water and sanitation systems? Are there alternatives to water and energy use (refuse)? How can we improve efficiency (reduce)?	Reducing water losses and water demand. Designing low-energy wastewater treatment systems. Waterless toilets. Reusable menstrual health products.
	**REUSE & RECOVER** water, nutrients & energy	How can we close loops in water and sanitation systems? Are there opportunities to reuse water (treated or for lower quality purposes)? Can nutrients or energy be recovered from waste?	Household storage and reuse of water for different uses. Faecal sludge reuse to improve soil condition, nutrient capture and use to benefit food production, wastewater reuse at various scales, use of sludge in biogas systems. Natural reuse systems e.g. irrigation system recharges groundwater where it is naturally treated before reuse.
	**RESTORE & REGENERATE** natural systems	How can water and sanitation systems connect to natural systems? How can they contribute to the regeneration of nature?	Nature based solutions e.g. source water protection, aquifer recharge, wetland restoration or construction as a component of wastewater treatment.
	**RETHINK** service systems	How could water and sanitation systems be different? What ideas come to mind if we think about changing typical approaches and questioning the assumptions that underlie current systems and models?	Changing thinking from ‘wastewater’ to ‘resource-water’. Sanitation as a public service with shared government, service provider and household responsibilities.
	**RECOGNISE** circular practices	What is already circular? This could include traditional practices and coping or adaptation strategies. How can we value existing circular practices and ensure they are safe?	Saving and reusing water in a household, e.g. bathing water for garden. Use of dried faecal sludge as soil conditioner. Use of human urine as fertilizer.
	strengthen climate **RESILIENCE**	What climate change impacts do we need to consider when planning circular water and sanitation systems? How can circular options strengthen resilience? Resilience includes social, institutional, technical and natural dimensions.	Regeneration and reuse activities such as capturing, treating and reusing water supports resilience during times of drought. Soil conditioners from faecal waste (a reuse strategy) can increase water storage capacity of soil.
	**REDISTRIBUTE** resources and power	How can we ensure everyone has equal access to water and sanitation services? How can we include diverse voices when planning circular approaches? How can the benefits of circular approaches be fairly shared?	Sustainable cost recovery approaches that balance what users pay with public investment to ensure affordability. Representation from diverse social groups when planning and implementing circular opportunities.
	taking a **RELATIONAL** approach	Which groups and institutions are implicated in potential circular water and sanitation systems? How can collaboration and trust building be made central to the process? How do the people involved relate to the natural world, and how can circular opportunities strengthen (and not undermine) human-nature connections?	Bringing diverse perspectives together for conversations about circular economy water and sanitation systems. Creating space for connections to emerge and to shape actions. Building new connections and trust to enable new pathways. Re-imagining human–nature connectedness to shift unsustainable patterns.

Stay tuned to read more about the 8Rs framework in a forthcoming journal article: ***The 8Rs framework for circular water and sanitation systems: leveraging circular economy thinking for safe, resilient and inclusive services***. Author team: Naomi Carrard (UTS-ISF), Avni Kumar (UTS-ISF), Dinh Van Dao (IWEM), Jeremy Kohlitz (UTS-ISF), Monique Retamal (UTS-ISF), Avinandan Taron (IWMI), Ngaouea Neemia (UNICEF) and Juliet Willetts (UTS-ISF).

Leveraging circular economy to drive inclusive climate resilient WASH (and wider sustainable development) requires focusing on four sets of principles. A principles-based approach enables us to navigate potential tensions and achieve our multiple interconnected sustainable development objectives.

Sources: circular economy principles drawn from the work of Ellen MacArthur Foundation, safely managed water and safely managed sanitation defined by WHO/UNICEF Joint Monitoring Programme (JMP), human rights to water and sanitation criteria from United Nations Office of the High Commissioner for Human Rights (OHCHR), social inclusion principles adapted from MacArthur et al. (2002), social-ecological systems resilience from Liggs et al. (2015) and engineering resilience properties from Bruneau et al. (2003).