

Grey Cycle: Water Unwasted



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Description

Over one quarter of a modern households' water is consumed by the washing machine only to be needlessly discarded after a single use. The Grey Cycle reimagines this by allowing the water to be safely reused.

The garden of an Australian property is the pride of each homeowner, though there is a growing desire and need to maintain it sustainably. With reduced rainfall here in Australia, the tap water required to maintain a garden increases, putting strain on our water reserves and infrastructure. Capitalising on the wasted water expelled from a washing machine, the Grey Cycle can filter and store this manageable quantity for reuse in non-potable applications. This affords its users a greener, healthier environment all year long.

Grey Cycle takes aesthetic cues from other products in its class, such as washing machines and clothes dryers. Utilising self-cleaning filter technology and advances in ultraviolet light to clean and process water for use around the home. Many existing grey water solutions are unsightly, require professional installation and offer low incentives for adoption, often failing to return on financial investment and resulting in a sub-par user experience. The Grey Cycle incentivises use with low upfront cost and simple installation which allows a household to maintain a greener environment without the cost or reliance on utility water.

Widespread adoption of the Grey Cycle will significantly reduce water consumption and due to the reduced waste water volume we will see decreasing power consumption and infrastructure investment for sewerage processing.

We believe the Grey Cycle offers simple yet profound benefits not only to the individual user but the community at large.





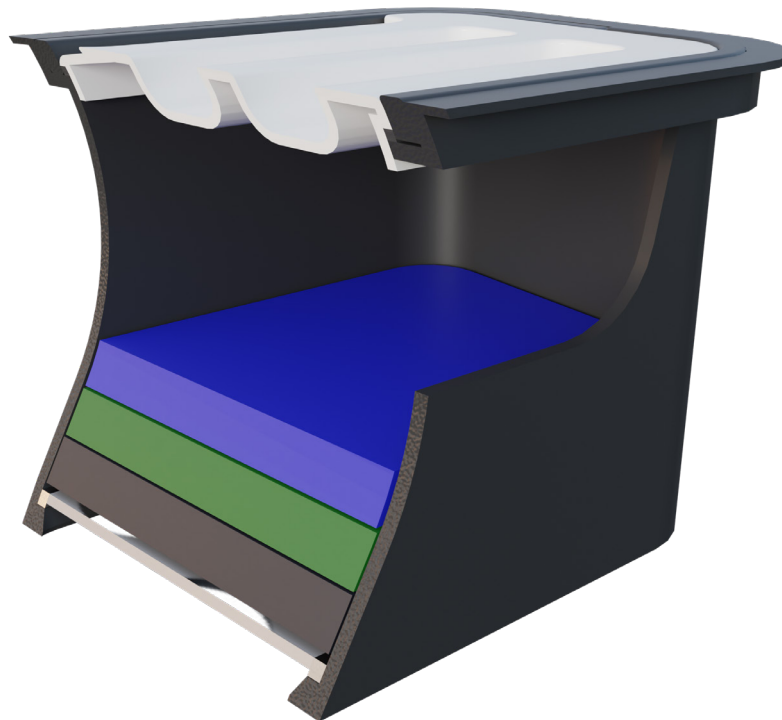
Lifestyle

Designed for the home, the Grey Cycle fits seamlessly into any environment. Achieved with replaceable panels that allow a user to have any finish they like to match their other fixtures. A benefit of this modular design also includes ease of maintenance of the machine itself. By allowing simple and quick access to parts of the machine typically hidden from a user.



Simple Maintenance

The Grey Cycle features a user replaceable filter that can be easily cleaned in the laundry sink. With a three layered filtration system, we expect the Grey Cycle to produce safe non-potable water that can be used on the garden and to wash your car. In combination with medical grade UV lamps, the filtered water can be kept up to 48 hours before the machine will automatically flush the system. This is done to reduce the chances of contamination inside the vessel.



Development



Presentations to our cohort allowed us a team to develop and hone our ideas. Being able to discuss in a forum with our peers enabled effective ideas. Our first sessions involved just the existing system, the first diamond in the double diamond design strategy.

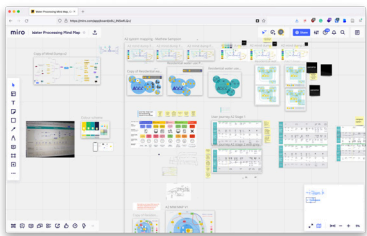


Adapted

As a result of the COVID-19 pandemic, the use of prototyping tools were limited. This pushed us to think differently to what we had been taught in the past. The use of an iPad Pro with Siemens software allowed us to quickly prototype and test our product digitally in AR. This found faults in our design early that helped us improve the final product we present here today.

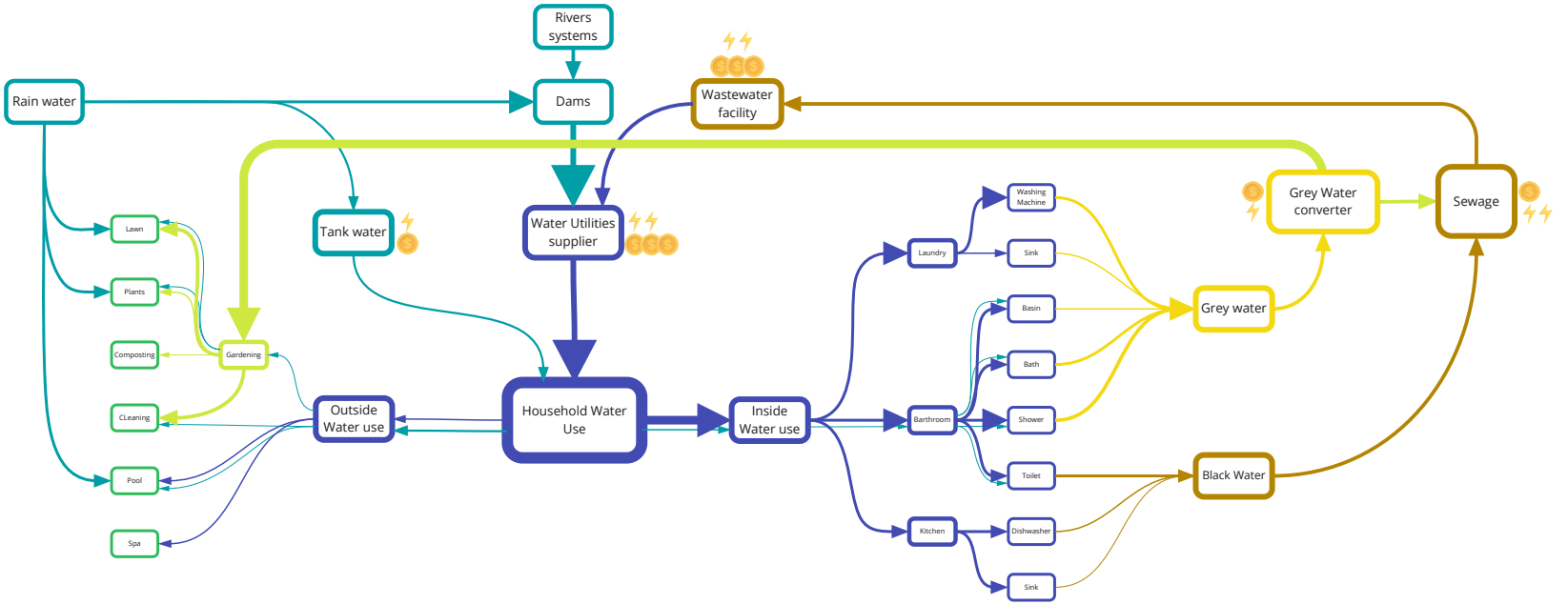
Team Management

Butchers paper and a few pens was the most valuable tool we had as a team. Being able to quickly iterate visually our thoughts and ideas to each other enabled rapid mental prototyping. Later in the project we used digital platforms to refine our system mapping and product interventions.



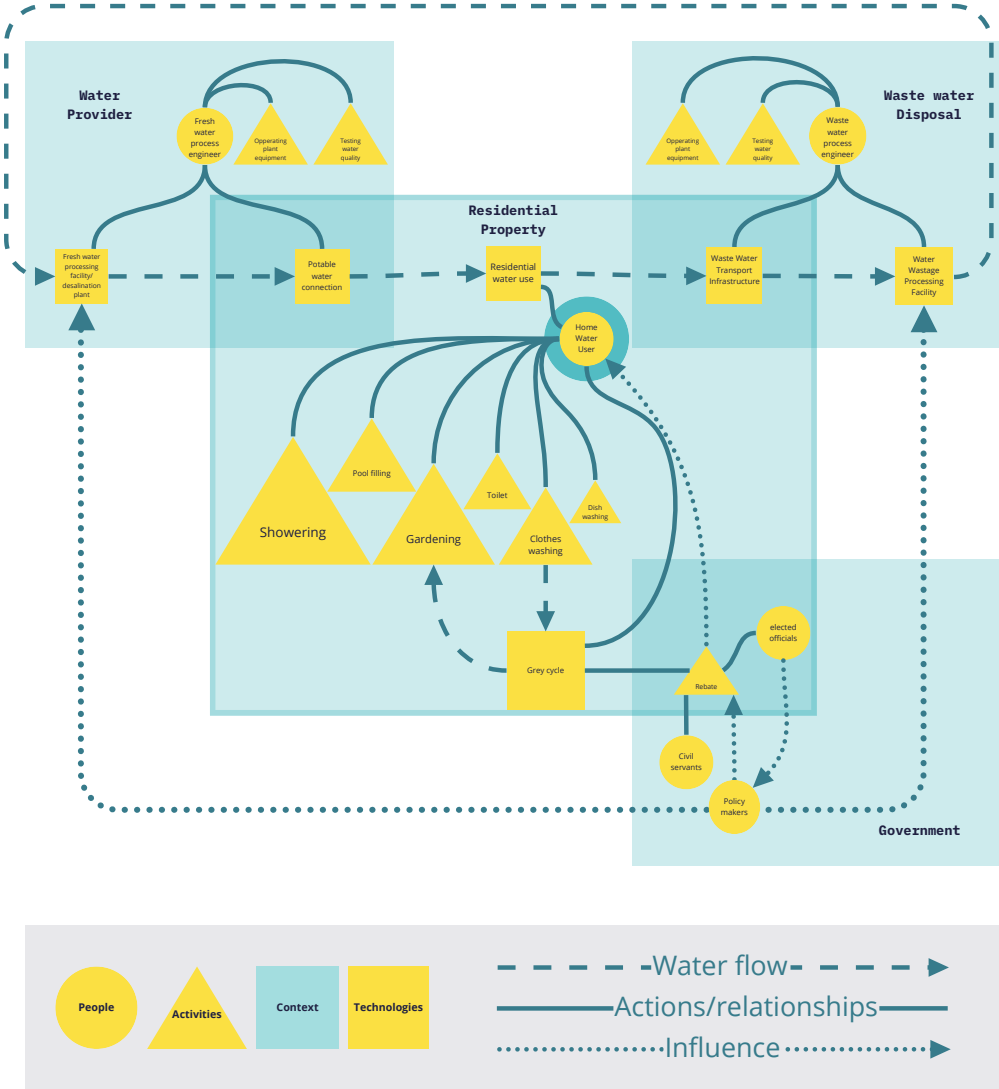
Mind Map

As a part of this project, we were tasked to map out the existing system and then envision what that system would look like with our project intervention. Shown here is a mind map posed for the future. Our “Grey Cycle” and other greywater converters displayed here show the incredible impact machines in its class can have on not only the water utility network, but also the electrical network. By reducing and reusing water, diverting waste to the garden, we can minimize the impact on infrastructure during periods of drought.



PACT Analysis

Early on in our research we found that federal and local governments had little direct interaction with their residents when it came to effective water use. Traditionally, in Australia, water utility companies and hardware stores would be the ones that promote effective water usage. The PACT analysis shown tells us how the Grey Cycle can, with the addition of government rebates, allow federal and local governments to become a part of the water usage discussion.



Journey Map

Through journey maps, we quickly discovered that existing product interventions gave users low incentives. The current system of low flow shower heads and whole home grey water systems leave users wanting. With issues ranging from long term costs savings and poor user experiences with existing products, a need for a solution that gave immediate feedback in a cost effective way was required. Our product intervention of the Grey Cycle, gives users immediate feedback by providing

monetary savings, replacing the need for utility water in a garden. Thus, the product enables a greener backyard 365 days a year, the pride of Australian and American homeowners.

