

Humanitarian Innovation Hackathon



War on Plastic

The Issue

During wet seasons, the stormwater and water courses discharge into the sea off Honiara resulting in a floating mass of plastic waste.

While there are many contributing factors to these large quantities of unmanaged waste, a significant factor is the lack of water provision and subsequent consumption of bottled drinks.

Additionally, the fact that the majority of goods consumed in the Solomon's are imported in materials require disposal or recycling, means the inability to introduce a capable Waste Management system is all the more significant.

Hackathon Challenge F

Humanitarian Mentor: David O'Meara

How might we work to reduce, reuse or eliminate single use plastic waste (e.g. bottles and packaging) in the Solomon Islands to prevent pollution of water, land and sea.

Plastic pollution is a global problem, and the Solomon Islands in no exception.

Persona 1

Primula lives with her family beside the Matanika river in Burns Creek, an informal settlement in Honiara.

The pipes for water supply for neighbouring suburbs passes through their village, but no one within her community can access the potable water as they have no land ownership so her family buys bottled water from nearby shops and markets. Her younger siblings often have soft drinks instead, which helps Primula's parents as they are often cheaper than bottled water.

Unlike formal neighbourhoods next door, there is no individual waste collection in Burns Ck, so household waste including the plastic drink bottles have to be dropped at bulk collection sites, or more generally are discarded after use. The litter, predominantly single use plastic bags and drink containers, gets washed into the stormwater drains and creeks and ends up the Guadalcanal with all the other litter washed down during the heavy rains.

Primula has been learning about contamination of reefs and fishing grounds due to the waste discharging to the open waters and is concerned for her and her siblings future. At school, they have also been discussing diet and Non-Communicable Diseases, NCD's, such as Diabetes which is a major health issue in the pacific countries.

Persona 2

Manu works for the Solomon Islands Water Authority (SIWA). Coming from a poor area in Honiara himself, he knows first hand the impact of no access to cheap potable water has on families from a health and financial position.

Working within SIWA, which is supported financially by foreign donors, Manu wants to plan a way of increasing household access to clean piped water for all communities within Honiara, especially in these informal settlements like the one he grew up in. Access to safe drinking water will also help alleviate the occurrence of diarrhoea which is a major health issue in the informal settlements due to lack of access to affordable potable water.



The Warren Centre
& Professor Ron Johnston

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Resources

Clean Water & Sanitation

<https://www.un.org/sustainabledevelopment/water-and-sanitation/>

Responsible Consumption & Production

<https://www.un.org/sustainabledevelopment/sustainable-consumption-production/>

Information on current practices of waste management

<https://solomonislands-data.sprep.org/dataset/national-waste-management-and-pollution-control-strategy-2017-2026>

Great Pacific Garbage Patch

<https://www.wwf.org.au/news/blogs/how-can-we-destroy-the-great-pacific-garbage-patch#gs.z780ve>

First marine litter survey on beaches in Solomon Islands and Vanuatu, South Pacific

<https://www.sciencedirect.com/science/article/pii/S0025326X20309450>

Plastic debris on Pacific Islands: Ecological and health implications (reference)

<https://www.sciencedirect.com/science/article/abs/pii/S0048969719311672>



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Background

The majority of goods consumed in the Solomon's are imported and packaged in materials that require disposal or recycling and whilst there is a waste management division of Honiara Council, it does not service all populated areas, nor does it currently offer recycling opportunities.

The Government introduced the National Solid Waste Management Strategy & Action Plan in 2008 and more recently initiated the national Waste Management and Pollution Control Strategy in 2017. Unfortunately, the reality on the ground doesn't reflect the desired end result.

During wet seasons, the stormwater and water courses discharge into the sea off Honiara and results in a floating mass of plastic waste, made up predominantly of plastic drink bottles.

When these large quantities of unmanaged waste is flushed through river systems and into the sea, it adds to the vast volume of plastic waste in the oceans, in particular the Great Pacific Garbage Patch. According to recent research litter composition and distribution show that the majority of the litter comes from local land-based sources and large quantities of fragments and single use plastics were found by cities and river mouths. Numerous substantial reports (such as this one or this one) have focussed on this issue and there are a number of global initiatives considering solutions to this (and the larger) plastic waste pollution problem. The causes of this ongoing issue in the Solomons include: lack of awareness of the pollution problem, poor access to serviced waste bins, and a lack of potable water services resulting in over 40% of the population of Honiara who live in informal settlements needing to purchase bottled water.

Furthermore, although these families have access to a centralised rubbish collection service, there are limited communal bins. Additionally, despite the Solomon Islands Government (SIG) having a very well-resourced water department, the Solomon Islands Water Authority (SIWA), which receives significant funding from donor countries including Australia, most people do not have access to the reticulated water system. SIWA water is only available via metered services that exclude the informal settlement populations.

The flow on affect from the lack of water provision in the capital of the Solomons, is the high consumption of bottled water as well as of soft drinks and other aerated drinks which are invariably cheaper than water, and are thereby more attractive to those with limited funds. Non-Communicable Diseases, (NCDs), such as diabetes are a major problem in developing countries including the Solomons and increased consumption of sugary beverages and sodas only further serves to increase this risk. According to an FAO report in 2015, 81% of the total population had access to improved water sources (93% and 77% in urban and rural areas respectively), and 30% of the total population had access to improved sanitation (81% 15% in urban and rural areas respectively) (JMP, 2015) To make matters worse, in some instances where reticulated water pipes pass through informal settlements, people are driven to breaking the piped networks to access water and this can lead to losses and contamination of the water supply, thereby increasing the operational costs of SIWA.

The SIG have recognised the need for improved waste handling systems and with the support of donor countries are working to address this need. Unfortunately, these processes take a considerable time. Waste due to single use plastics will therefore continue for some time and action is required now to address the ongoing pollution problem.

There are two key areas to consider for this challenge.

- Plastic waste management and/or reduction. Design a solution to improve management or reduction of waste in Solomon Islands, particularly in areas that have little to no access to waste management systems.
- Water management and access. Design a solution to improve management of and access to clean water in Solomon Islands, particular in areas that have less existing water infrastructure. The solution should improve water access while reducing the incidence of plastic bottled water (or soda) as a primary source.

