



# Solve Challenge: Sustainable Wastewater Solutions for Healthcare Facilities



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Developing skills, ideas, futures



# The Challenge

**Develop a climate-resilient and sustainable wastewater management solution for healthcare facilities in Kampong Tralach District.**

Healthcare facilities in this region face severe wastewater management challenges due to inadequate septic systems. Untreated wastewater contaminates groundwater, increases disease risks, and compromises the safety of healthcare workers and patients.





# Background

WaterAid Cambodia, working with Operation Health District and 15 health centres in Kampong Tralach and Sameakki Mean Chey Districts of Kampong Chhnang Province is focused on enhancing climate-resilient and inclusive WASH in healthcare facilities (HCFs). These initiatives directly support the Cambodian Health Care Accreditation Standards (CHCAS) and the National Roadmap for WASH in HCFs, aiming to create safer and more sustainable healthcare environments.

A significant challenge persists in wastewater management, particularly within the Kampong Tralach Operational Health District.

Notably, about five health centres lack adequate septic tanks, leading to untreated wastewater seepage that contaminates groundwater and elevates health risks for both patients and healthcare personnel. The lack of established national technical standards for septic systems further complicates efforts to address this critical issue.



# Background Cont'

Climate change intensifies sanitation and hygiene crises. Increased rainfall and flooding overwhelm wastewater infrastructure, spreading contaminants. Conversely, droughts exacerbate water scarcity and groundwater pollution. Higher temperatures accelerate the breakdown of organic waste, further undermining sanitation and hygiene.

This project aims to develop a climate-resilient septic tank, promote national wastewater management standards, and pilot a model system in Kampong Tralach District. By addressing these critical gaps, the initiative will strengthen healthcare, improve public health, and create a scalable solutions for broader implementation.





# The unique challenges include:

- The absence of national septic tank design guidelines specifically for healthcare facilities.
- The need to integrate climate resilience into wastewater management systems, as current environmental cleaning standards do not address it.
- Increased wastewater disposal challenges due to the growing frequency and intensity of flooding and droughts.
- Limited technical expertise and resources hindering the implementation of sustainable wastewater solutions.
- The lack of costing data, making it difficult to incorporate wastewater management into healthcare facility masterplans.
- Wastewater generation extends beyond toilets to all points of care within healthcare facilities, requiring a holistic approach.
- Solutions must be cost-effective, scalable, and supported by sustainable maintenance strategies despite existing limitations.

**This challenge requires the development of an innovative septic system that not only addresses wastewater treatment but also aligns with climate resilience strategies. The project will also advocate for national standards and pilot a model system to improve wastewater management across healthcare facilities.**



# Key considerations for developing a solution:

- **Tailored septic system design** – Develop a system that meets the specific needs of healthcare facilities, addressing both patient and operational requirements.
- **Climate resilience** – Ensure the system can withstand flooding, drought, and fluctuating water levels, incorporating adaptive design features.
- **Cost-effectiveness & maintenance** – Use affordable materials and simple maintenance processes to support long-term sustainability and ease of operation.
- **Compliance & functionality** – align with healthcare facility standards, improving accessibility and ensuring efficient wastewater treatment.
- **Environmental protection** – minimise contamination risks by properly treating and safely disposing of wastewater, protecting both public health and ecosystems.



# What will you submit

A solution in the form of **one or more** of the following:

- 💧 1,000-word report (excluding appendices, which should not exceed five pages)
- 💧 A3 poster/board
- 💧 5-minute video
- 💧 10-slide PowerPoint

Final submissions are due by Friday 15 August 2025.



# What can you win



**Best Solve – Sustainable wastewater solutions for healthcare facilities**

**Best Solve – Management of sludge from water treatment plants**

For the judging rubric, refer to the 'Final submission instructions and information'



If your team excels in the Solve and Fund Challenges, you will win the title of:

**Winnovators Overall Champion**



WaterAid/ Oliver Dixon



# What are the next steps

- ◆ Start thinking about the framework of your selected 'Solve' challenge. In no more than 500 words, prepare an outline and send to WaterAid at [auswinnovators@wateraid.org.au](mailto:auswinnovators@wateraid.org.au). This is not part of the submission judging but is meant to help you establish a clear framework from the start and allow WaterAid to provide feedback on your initial direction and thinking.
- ◆ Check out the Submission Examples in the Resource Library on the website for ideas on the scope and format of submissions.
- ◆ Don't forget to capture your journey! Remember to take photos during your meetings, discussions, and activities, and share them with WaterAid to document your Winnovators experience.
- ◆ Contact the Winnovators team at WaterAid with questions – we're here to help: [auswinnovators@wateraid.org.au](mailto:auswinnovators@wateraid.org.au).





**Thank you**

