

Transforming to a water resilient future: Place-based wastewater innovation pathways

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Hydro Nation Scholars Programme

Introduction

Wastewater treatment works in numbers:

1,843

Public wastewater treatment works¹

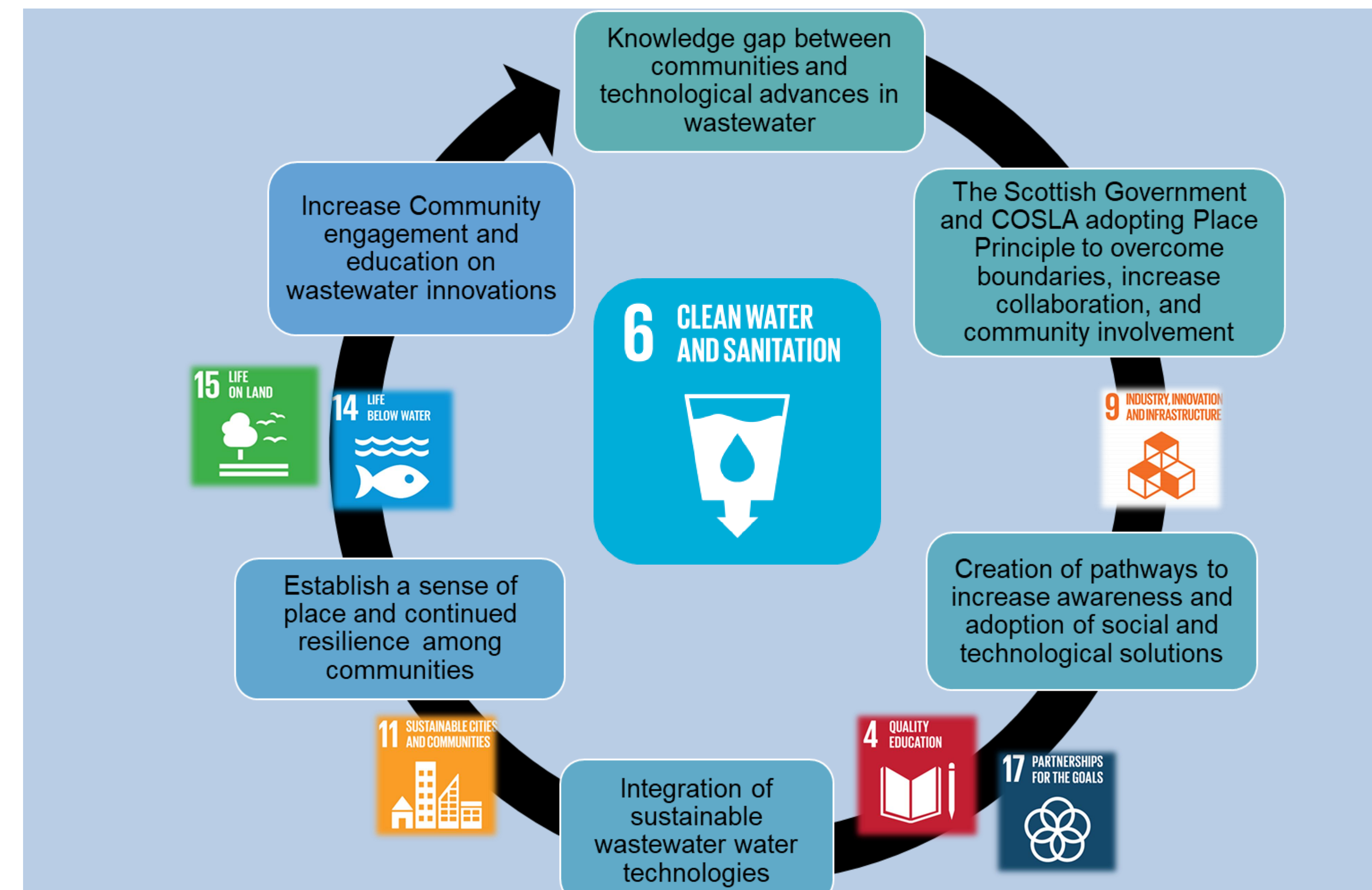
168,635

Private wastewater systems¹

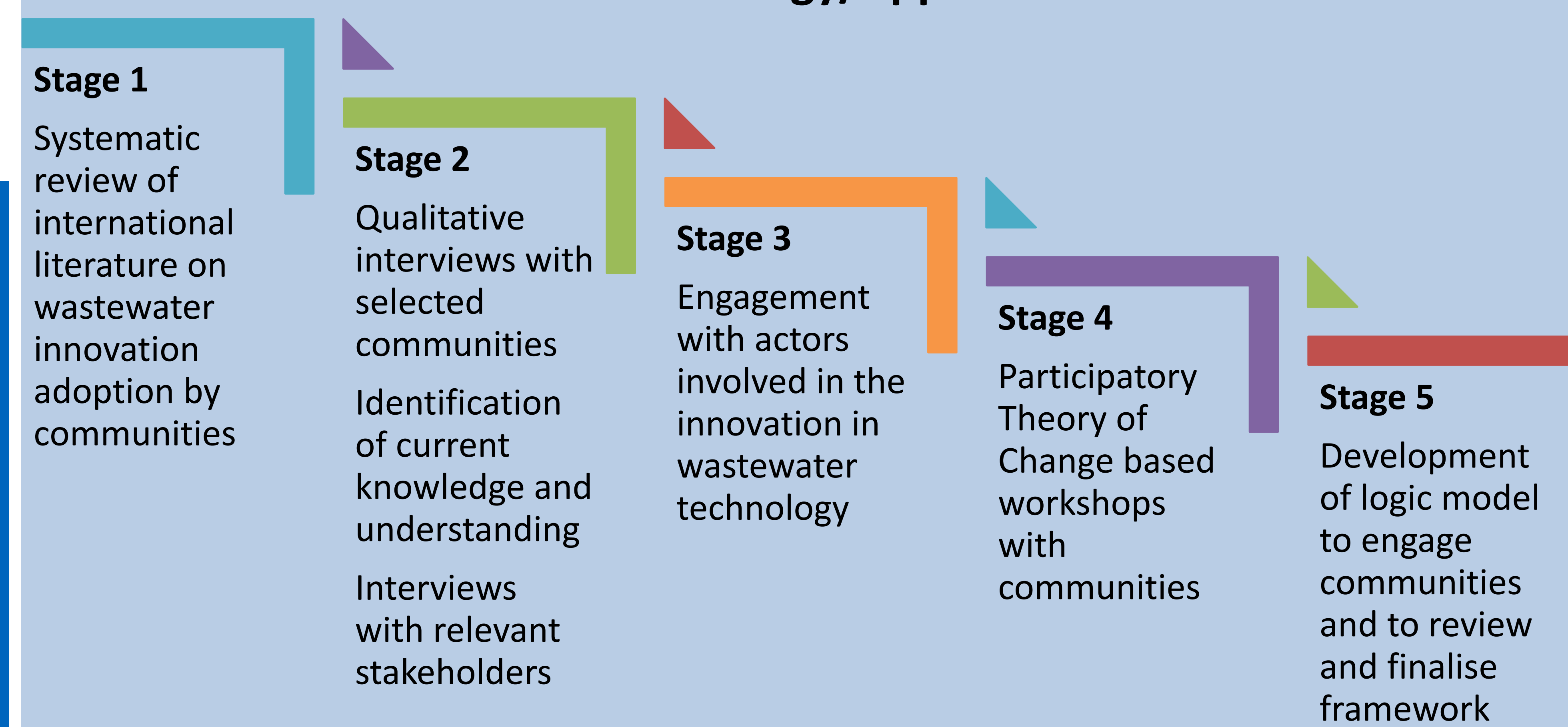
- Scotland has more privately-managed wastewater treatment works than public works, yet individual and community led managers of wastewater treatment systems remain distant from innovative technological solutions that emerge.^{2,3,4,6,8}
- Scotland needs bottom-up approaches to engage and increase place-based community engagement in wastewater management.

Future Contributions

- A Logic Model supporting pathways to change in wastewater management.
- New theoretical insight into the implementation of social and technological innovations in small wastewater systems.
- Increased engagement between communities and the private and public sectors in wastewater management.



Methodology/Approach



Project Aim

To investigate and support the sustainable and local adoption of social and technological innovations through developing new pathways for effective wastewater management.

Project Objectives

- Identify wastewater innovation adoption challenges through evidence-based pathways.
- Develop new pathways and strategies for adaptation in place-based systems to better prepare for future challenges associated with climate change.
- Create an operational framework to increase collaboration, community action, and education.

References

- Akoumianaki, I. and Ibiyemi, A. (2022). Understanding problems associated with small-scale Private Sewage Systems (PSS) from regulators' perspectives. CRW2020_07. Scotland's Centre of Expertise for Waters (CREW).
- Helwig, K, Christensen, E. Henderson, F., Escudero, A., Ramsay, K. and Frascaroli, G. (2022). International policy review on small sewage systems. Scotland's Centre of Expertise for Waters (CREW). Available here.
- Henderson, F., Steiner, A., Farmer, J. & Whittam, G. (2020). Challenges of community engagement in a rural area: the impact of flood protection and policy. Journal of Rural Studies, 73, pp.225-233.
- Henderson, F., Helwig, K. & Teedon, P. (2022) Effective future communication of flood risk in Scotland. CRW2018_04. Scotland's Centre of Expertise for Waters (CREW). ISBN: 978-0-902701-97-
- 'Scottish Government Place Principle' (2019). Available at: <https://www.gov.scot/publications/place-principle-introduction/>.
- Teedon, P. Hakeem, N., Helwig, K., Henderson, F. & Martinolli, M. (2020). Private water supplies and the local economic impacts in Scotland. CRW2017_11. Scotland's Centre of Expertise for Waters (CREW). ISBN: 978-0-902701-76-2. Available here.
- The 2030 Agenda for Sustainable Development's 17 Sustainable Development Goals (SDGs) (2023) in. United Nations. Available at: <https://sdgs.un.org/goals>.
- Valero, D., Pahl, O., Helwig, K., Holstead, K., Henderson, F. and Gray, R. (2023). Framework of multidimensional engagement for enhancing wastewater stewardship. Wastewatership Deliverable. Available here.