**Izokpu Itohan**

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1. [Waste stabilization ponds](https://www.sciencedirect.com/topics/earth-and-planetary-sciences/waste-stabilization-ponds) (WSPs) have been used extensively to provide [wastewater treatment](https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/wastewater-treatment) throughout the world. However, no rigorous assessment of WSPs that account for cost in addition to hydrodynamics and treatment efficiency has been performed. A study was conducted that utilized [computational fluid dynamics](https://www.sciencedirect.com/topics/earth-and-planetary-sciences/computational-fluid-dynamics) (CFD) coupled with an optimization program to optimize the selection of the best WSP configuration based on cost and treatment efficiency. The results of monitoring the [fecal coliform](https://www.sciencedirect.com/topics/earth-and-planetary-sciences/fecal-coliform) concentration at the reactor outlet showed that the conventional 70% pond-width baffle pond design is not consistently the best pond configuration as previously reported in the literature. The target [effluent](https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/effluents) log reduction can be achieved by reducing the amount of construction material and tolerating some degree of fluid mixing within the pond. As expected, the multi-objective [genetic algorithm](https://www.sciencedirect.com/topics/earth-and-planetary-sciences/genetic-algorithms) optimization did produce a lower-cost WSP design compared to a SIMPLEX optimization algorithm, however, with only a marginal increase in the effluent microbial log reduction. Several other designs generated by the CFD/optimization model showed that both shorter and longer baffles, alternative depths, and reactor length to width ratios could improve the hydraulic efficiency of the ponds at a reduced overall construction cost.

2. Water negineers as well as environmental engineers plan an important role in fighting COVID-19. A major reason for this is that the behaviors and traits of viruses are highly variable—some spread more easily through water, others through air; some are wrapped in layers of fatty molecules that help them avoid their host's immune system, while others are "naked."

We also recognised the skills and knowledge that environmental health professionals have to offer and that could be deployed in a number of key areas to support national efforts to respond to the crisis. Hundreds of environmental health professionals have offered their time and expertise to help with contact tracing in England, Wales, and Northern Ireland, in the hope of getting the covid-19 outbreak in the UK under control.