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Peer Review

Review of: "Phosphorus Recovery Potential from Decentralised Wastewater Treatment Systems in India: A Constrained Mass-Balance Study of Auroville"

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The manuscript

"Phosphorus Recovery Potential from Decentralised Wastewater Treatment Systems in India: A Constrained Mass-Balance Study of Auroville"

The authors in this study addressed a timely and relevant topic in environmental engineering and circular resource management. It effectively highlights the potential of DEWATS for phosphorus recovery, particularly in developing regions. The integration of mass-balance modelling with field data, the identification of a "tropical advantage," and the comparison of recovery scenarios with a techno-economic perspective represent valuable conceptual contributions.

However, the study is fundamentally limited by the absence of experimental validation, which significantly undermines its scientific robustness. The analysis relies entirely on modelling and literature-derived coefficients, treating the system as a "black box," with internal phosphorus distribution inferred rather than measured. None of the proposed recovery scenarios are experimentally tested, rendering conclusions on recovery efficiency, product quality, and feasibility largely speculative.

my recommendation

The manuscript is not suitable for publication in its current form. Major revisions are required, including experimental validation (e.g., lab or pilot-scale struvite precipitation), direct measurement of phosphorus

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partitioning, and basic product characterisation to substantiate the modelling results and strengthen the study's credibility.

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Declarations

Potential competing interests: No potential competing interests to declare.