

Project Title: Optimising Activated Sludge Wastewater Treatment Plant Efficiency

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Project Overview:

Activated sludge wastewater treatment plants (AS WwTPs) are the most common method of treating wastewater from municipal and industrial sources nationally and internationally. This research project has involved the development and implementation of structured operational and management regimes to current AS WwTPs with a view to optimising their overall efficiency in terms of economic, environmental and operational factors.

Utilising the practical research findings from the optimisation stage and the expertise of the research team, the PhD research phase will involve the development and testing of Sustainable Optimisation Indicators (SOI's) for a range of AS WwTPs. These indicators would give each plant its own unique rating to categorise its performance efficiency and the identification of plant optimisation over time. The development of a rating system will allow comparisons to be made between AS WwTPs and the identification of relative plant performance.

SOI's will be developed using questionnaires and focus groups with the relevant stakeholders, findings from on-going plant performance analysis and development of unique optimisation parameters through modelling of processes. The relevant importance of each indicator selected will be influenced by stakeholders ranking the relevance of each one to obtain the key SOI set.

SOI systems have yet to be formulated for assessing AS WwTP performance on a widespread basis. The development of an appropriate indicator system for AS WwTPs could prove highly beneficial and should potentially lead to optimisation becoming a prerequisite for the targeting of funding and resources to improve plant operational capacity and efficiency.