

Phanuchai Pramuanl 2011: Economic Analysis of Application of Natural Wastewater Treatment Systems in a Gas Station. Master of Science (Environmental Science), Major Field: Environmental Science, College of Environment. Thesis Advisor: Associate Professor Chucheep Piputsitee, Ph.D. 118 pages.

The objectives of this study are to study general physical condition and wastewater condition in a Gas Station, to analyze cost and benefit of the wastewater treatment systems, and to measure the economic worthiness of the project with lagoon treatment and alternating flooding and drying soil. The data used in this study consist of primary and secondary data from concerned sectors. The study is carried out by comparing the project benefits and costs. The indicators of project worth are Net Present Value (NPV), Benefit-Cost Ratio (BCR), and Internal Rate of Return (IRR).

The results of the study showed that both wastewater treatment systems are economically viable to invest, because at the 12% discount rate, NPV are 368,823.51 Bath and 105,426.96 Bath respectively, which more than 0, BCR are 1.83 and 1.15, that more than 1, and IRR are 65.31% and 18.68% that greater than the discount rate at 12%. Furthermore, in lagoon treatment all sensitivity cases indicated the positive results, but in alternating flooding and drying soil are sensitive ones. Therefore, one should be aware of selecting the waste water treatment systems in a Gas Station.

The application of natural wastewater treatment systems are efficient to the standard. The results of water quality analysis are in standard as well.

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Thesis Advisor's signature