Kingkamol Sudsingkhon 2010: Performance Evaluation of Night Soil Treatment System using Anaerobic Channel Digester and Constructed Wetland. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Associate Professor Chart Chiemchaisri, D.Eng. 131 pages.

The objective of this research was to study the efficiencies of night soil treatment system using anaerobic channel digester and constructed wetland . The case study of Thong Tawil Service Co.,Ltd, Rayong province is presented. The treatment system consists of 2 set of anaerobic channel digester with 700 m^3 volume each and sand drying bed connected to them, two facultative ponds of 3500 m^3 volume each and constructed wetland connected the facultative pond. *Typha angustifolia* Linn. is used in the constructed wetland unit. Average night soil fed at average feeding rate of 310 m^3/d, has the following characteristics, i.e. BOD, COD, TKN, SS and TDS of 847, 1639, 319, 484 and 998 mg/l. The treatment efficiencies in term of BOD, COD, TKN, SS and TDS were 82, 79, 39, 59 and 21% respectively with average methane content in biogas of 61 %. The result revealed that anaerobic channel digester and constructed wetland had BOD and COD removal efficiencies of 74 and 69%. However facultative ponds had BOD and COD removal efficiencies of 16 % because the plant could not tolerate to high concentration to 2100 mg/l in the night soil. Constructed wetland helps TKN removal efficiency of 16% and *Typha angustifolia* Linn. could survive high salt concentration up to 1900 mg/l.

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