SUMMARY

MUHAMMAD ILHAM. Development Strategy of Liquid Waste Treatment in Palm Oil Factory (Case Study of PT. XYZ). Supervised by ARIEF DARYANTO and IDQAN FAHMI.

Palm oil is one of Indonesia’s leading commodities and have a great contribution which can be seen from the dominance of crude palm oil exports (crude palm oil / CPO) in the structure of revenues from non-oil sector. Palm oil processing activities into CPO will produce a material that is not utilized as solid waste such as empty fruit bunches (EFB), fiber, palm shells and liquid waste. Liquid waste is a potential source of contaminants which could seriously impact on the environment if not handled properly. On the contrary, the existence of appropriate wastewater treatment process palm can provide many benefits, both for the company and for the environment. PT. XYZ is a company that own oil palm plantation that has 60 tons/hour capacity of mill. With those production capacity, company has potential wastewater produced 36-48 m³/hour, and when the plant operates 16-18 hours/day, the plant will produce liquid waste of 576-864 m³/day. PT. XYZ has been recently used 45% of waste it generates for organic fertilizers, while 55% is stored in ponds and become unutilized. The liquid waste in a pool of shelter which are potentially in the environmental damage, thus PT. XYZ must to do the development of liquid waste processing to reduce the environmental damage and get the benefits more than the utilization of the liquid waste produced.

Based on the stated backgrounds and problems, the purpose of the study was to 1) Describe the processing of palm oil mill effluent in PT. XYZ; 2) Analyze factors of strengths and weaknesses, opportunities and threats affecting the development of the processing of palm oil mill effluent in PT. XYZ; and 3) Formulate alternative strategies and priority for PT. XYZ in the development processing of palm oil mill effluent. The research was conducted at PT. XYZ, conducted for six months from November 2013 to April 2014. Methods of data collection in this study conducted through literature study, direct interviews with respondents and competent experts in the fields studied, then observation directly on the object, filling out the questionnaire that consisted of three phases and IFE and EFE matrix calculation that with scoring by the respondent to then conducted tabulated the average score to assign weights in internal factors and external factors. Sampling is performed by using non-probability sampling with purposive sampling through expert judgment approach. The processing techniques and data analysis is carried out by descriptive analysis, analysis of external and internal factors, SWOT analysis and Quantitative Strategic Planning Matrix (QSPM).

The results of a descriptive study on the identification process of wastewater treatment in PT. XYZ indicates that there are four stages in the process of wastewater treatment, ie: 1) Fat Pit; 2) Cooling Pond; 3) Aerobic Pond; and 4) Settling Pond. For the identification of strategic internal and external factors, result showed that there are seven internal strategic factor consisting of strengths and weaknesses, including: 1) The assurance of supply of raw materials; 2) Reliable human resources; 3) Economic value and environmentally friendly; 4) Capacity to accommodate an extensive waste; 5) Lack of treatment sewage
treatment plant; 6) Non-availability of the budget in the development of wastewater treatment; and 7) The utilization of waste that have not been maximum. On the identification of external strategic factors, result showed that there are seven external strategic factors which consists of the opportunities and threats, including: 1) The existence of regulations on waste treatment and renewable energy utilization; 2) the existence program of sustainable development of oil palm cultivation (ISPO: Indonesian Sustainable Palm Oil); 3) Increased development of wastewater treatment technologies palm oil mill; 4) Increased energy demand and the tendency of two world reduced availability of fossil energy; 5) Long licensing process of local government; 6) The availability of cheap renewable alternative energy (shell); and 7) The level of awareness of alternative energy use is still low. Based on the results of the internal factor evaluation matrix, from the four factors strength of PT. XYZ, the company's main strength is the prospect of the development of liquid waste economical and environmentally friendly, while the weakness is the lack of budget in the development of sewage treatment. Total weighted score is 3,061 which means the internal position of PT. XYZ is strong enough to be able to compete with companies in similar industries. Based on the evaluation of external factors can be seen that the four factors from the existing opportunities, opportunities that should be prioritized for follow-up is a program of sustainable development of oil palm cultivation (ISPO: Indonesian Sustainable Palm Oil), while the threat from three factors, things that should be prioritized to be addressed is the availability of cheap renewable alternative energy (shell). Total weighted score is 3,000 which means that PT. XYZ is responsive to the issues of external strategic. Based on the SWOT analysis, the results obtained in the form of three SO strategies (Strength - Opportunity), two WO strategy (Weakness - Opportunity), one ST Strategy (Strength - Threat) and one WT strategy (Weakness - Threat). Based on the analysis QSPM, priority best strategy to do now is 1) Develop the concept of elimination of waste; 2) Cooperate with the Directorate of Processing and Utilization of Agricultural Products (PHP) for assistance in the process of wastewater treatment; 3) Budgeted funds for liquid waste treatment development programs; 4) Conduct outreach programs to all stakeholders about the treatment of wastewater into biogas; 5) Building a power plant installation of biogas from wastewater; and 6) Improving waste management system; and 7) Increase awareness of the use of renewable energy from wastewater.

**Keywords:** Liquid waste, Palm Oil, QSPM, Strategy