Environmental Impact of Palm and Coconut Oil Processing: A Study at Twifo Praso and Essen in the Central Region

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ABSTRACT

Although, palm oil and coconut oil processing have provided natives of Twifo Praso and Essen with employment and revenue, the negative impact of the processing practices on the environment is a source of concern. These concerns have therefore informed the objectives set out for this research. The study was designed to assess the environmental impact of palm oil and coconut oil processing at Twifo Praso and Essen respectively. The research focused attention on the effect of palm and coconut oil processing on Ayiensu and Kakum Rivers, soil, and human health concerns. Sampling for water quality analyses were taken from five different sampling sites along the course of the Ayiensu and Kakum Rivers at monthly intervals for four months; from January 2014 to April 2014. Soil samples for analyses were taken from the waste dump site, "oil" processing site, 20 meters away from the oil processing site and a control taken at 100 meters away from the palm and coconut oil processing sites. All parameters were analysed using Standard laboratory methods. Results from the ANOV A showed significant differences ($p<0.05$) in Turbidity, Nitrate, Apparent colour, Total Suspended Solid, Dissolved Oxygen and Oil and grease for water samples from the Ayiensu river and that from the Kakum River. There were no significant differences *($p>0.05$)* in available Phosphorus, pH and electrical conductivity between soil samples from palm and coconut oil processing areas. Oil and grease showed significant differences *($p<0.05$)* at the various soil sampling sites. The total solid and liquid wastes generated by palm oil processing ranged between 57.0% and 59.6% of total fresh fruit bunch (FFB) used and 11.3-15.5% respectively whereas 67.6-78.5% and 40.5%- 46.1% of solid and

liquid wastes respectively were generated by coconut oil processing. The study revealed a number of constraints including lack of technical knowhow in waste management, lack of funds for oil processing and waste treatment; health concerns include waist pains, body weakness and frequent fever. With respect to sanitation, it was observed that none of the oil processing mills had lavatory for workers' use. From the study, much emphasis should be paid to monitoring the Total Suspended Solids, Dissolved Oxygen, Biochemical Oxygen Demand, Chemical Oxygen Demand, Phosphate, Total and Faecal coliforms, Turbidity, Apparent colour, oil and grease since the rise in their levels could be detrimental to human and ecosystem health. It is recommended that the edible oil processors must be trained in appropriate waste management technologies (including recycling) so as to reduce the impact of waste on the environment.

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