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Wastewater treatment for the desiccated coconut industry by using an up flow anaerobic filter and a facultative pond

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Desiccated coconut is a dried kernel product which is prepared from coconuts for direct human consumption. There are about 60 desiccated coconut mills spread over six districts of the country which produce 33,375 metric tons of desiccated coconut per month. Most of the desiccated coconut mills are located in rural areas. These mills generally discharge wastewater into nearby streams or paddy fields without prior treatment. As a result, the surface water in these areas becomes unsuitable for drinking due to the presence of oily substances in the discharged wastewater. Crop damage could also occur due to discharge of wastewater into paddy fields. Hence, it is necessary to introduce proper wastewater treatment systems for the desiccated coconut industry to maintain standards in wastewater characteristics. This study was carried out to propose such a system.

The causes of the problem were identified through a questionnaire survey, conducted in five selected mills. They indicated that the mills do not treat wastewater before discharging into surface water sources. The desiccated coconut mill at Lunuwila was selected for the pilot survey and the total wastewater flow of this mill was recorded as 46 m^3/d. Judging by the wastewater characteristics of the selected mills, it is recommended that screening, oil skimming tanks, and up flow anaerobic filters with facultative ponds, be introduced for the maintenance of wastewater quality within the recommended standards stipulated by the Central Environmental Authority. It was found that oil skimming tanks should consist of four compartments to maintain the required retention time. Also 3 units of up flow anaerobic filters with 2 sets of facultative ponds should be used to further clean the water. The cost for the proposed treatment system will be approximately 3 million rupees as per the rates given by the National Water Supply and Drainage Board.

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