

A case study on developing an industrial symbiosis using a multi-industrial approach

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Industries in Sri Lanka generate a large amount of wastes which are either dumped or disposed without consideration of the environment. The haphazard disposal of the untreated waste is growing in to a major problem in the country due to the high cost of treatment, lack of infrastructure, ineffective enforcement of environmental regulations and insufficient capacity for waste management of local authorities. This abstract presents a case study conducted to evaluate the potential of applying an Industrial Symbiosis for the Sri Lankan industrial sector to identify the secondary usage of waste, avoiding direct discharge in to the environment. Data were collected using a questionnaire and secondary data bases. The results showed that the textile and apparel, food, ceramic and rubber industries are the major effluent treatment-sludge-producers, totaling 40,900 MT (Metric Tons) per annum amounting to 80% of the ETP-sludge (Effluent Treatment Process) generated. The textile sector generates around 35000 MT of fabric off-cuts including cotton, polyester, Nylon, and mixed materials. In addition, the rubber sector disposes around 37000 MT of annual waste during different manufacturing stages. This kind of concept is applied in between waste generators and waste users considering feasibility to establish under appropriate geographical conditions as well as financial facilities. Resource scarcity, inefficient environmental protocols, time frames and the risks involved in adopting new technologies have been identified as barriers. According to the economic and environmental point of view, the results gained by applying the theories of industrial symbiosis give more benefits. The overall conclusions are that the most of the industries in the country generate wastes which can be used as alternatives and if the government policy supports this effort, private sector could contribute more in increasing the use of process and packing wastes.

Keywords: Alternative raw material, ETP sludge, industrial symbiosis, Sri Lankan manufacturing sector

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