Enhancing Environmental Sustainability in Dambulla Dedicated Economic Centre: Industrial Networking for Waste Management

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Abstract

Dambulla Dedicated Economic Centre (DDEC) at Dambulla, Sri Lanka, is closely connected with the lives of many farmers and agriculturists. DDEC is located in the city and is the hub of all agriculture based economic activities in the region. Almost all vegetables and fruits cultivated in the surrounding provinces are transported to DDEC for marketing. About 170 wholesale dealers, 20 odd rice-processing mills and 20 warehouses are located in and around DDEC. Peak agricultural trade is estimated at 3,800 t/day amounting to LKR 500 million. DDEC has strong linkage to the local economy by creating several employment and business opportunities.

Postharvest losses of vegetables and fruits especially from improper transportation, handling and packaging are estimated between 10-30%. Fruit and vegetable waste resulting from these losses is a serious concern from both economic and environmental dimensions. Farmers lose income from this untradeable fraction. Eventually, waste vegetables and fruits are indiscriminately dumped in nearby areas without any opportunity. Instances of dumping these biodegradable wastes have been reported. Attempts were taken to set up a composting facility targeting these wastes; yet the problem remains unaddressed. Evidently, efforts to ensure economic and social sustainability have been made while environmental sustainability is faint.

This paper attempts to look at industrial clustering and networking to improve the economy of scale and create a new waste-to-energy business within DDEC. A material flow analysis of the region with focus on biodegradable waste is presented. Understandings gained from a stakeholder consultation and Strength, Weakness, Opportunities and Potentials analysis are highlighted. Reflecting experiences elsewhere, the paper recommends anaerobic digestion as a lucrative option. Further, the paper discusses how the new business could be integrated with the existing system and addresses GHG aspects. The paper presents an analysis of available policies and recommends actions to enhance the environmental sustainability of DDEC.