

KNOWLEDGE, ATTITUDES, AND PRACTICES OF EFFLUENTS MANAGEMENT IN PADDY PROCESSING PLANTS IN DIMBULAGALA GN DIVISION OF POLONNARUWA DISTRICT

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Paddy processing plants (PPP) produce a significant amount of wastewater which can influence the soil properties of disposal sites. This study aimed to assess the perception of effluent management among the owners of PPP and dwellers in *Dimbulagala* GN division, Polonnaruwa and to evaluate the characteristics of wastewater disposed by PPP and its impacts on soil properties. A cross-sectional survey was conducted using a detailed questionnaire. The survey was followed by collecting wastewater samples from PPPs and soil samples from the nearby locations which have been influenced by PPPs wastewater disposal. According to the survey, 80% of PPP in the area treated the wastewater before releasing it into the environment and practised any wastewater treatment methods such as chemical addition, filtering, and screening. The majority of the dwellers (96%) and PPP owners (60%) were aware of adverse impacts of releasing untreated wastewater into the environment. Wastewater and soil samples were analysed to determine pH, EC, NO_3^- -N, NH_4^+ -N, available P, Cd, As, and cations (Na, Ca, Mg, and K). The wastewater analyses revealed a significantly higher ($p < 0.05$) pH, EC, NH_4^+ -N, Ca, K, Na and significantly lower ($p < 0.05$) other tested water quality parameters compared to CEA standards. According to soil analyses significantly higher ($p < 0.05$) pH, EC, NH_4^+ -N, available P, Ca, Na values and, significantly lower ($p < 0.05$) other tested soil quality parameters compared to CEA standards were reported. The results conclude that there is an impact of disposing PPP effluents on soil characters of disposal sites. Thus, implementing a comprehensive wastewater management plan would be vital for preventing environmental degradation occurs through these PPP effluents.

Keywords: Effluent, Paddy processing plant, Pollution, Wastewater, Water quality