

Enhancing the governance of industrial wastewater using cleaner production and water footprint principles: A case study of two dairy companies in Palestine

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Received 11 April 2022; Accepted 18 November 2022

ABSTRACT

Sustainable wastewater management in the agrifood industries relies on pollution control at the source by maintaining Cleaner Production (CP) approaches, and minimizing the Water Footprint (WFP). The challenges for applying CP and WFP call for having effective governance, which will help solidify the networking and enhance communications between all parties. The determined WFP for the Ultra-Heat Temperature (UHT) milk for case study A is 0.239 m³. Case study (A) produces about 20.5 m³/d of UHT milk, which is 3% of the daily dairy needed in Palestine. It consumes about 8.915 m³/d of water, while the consumption of UHT milk in Palestine reaches 550 m³ UHT milk/d, considering case study (A) produces UHT only. This means consuming about 297.158 m³/d (about 108,468 m³/y), assuming that case study (A) applied 5–6 CP approaches and reduced water consumption by 230,000 m³/y. The SWOT analysis used to analyze CP and WFP applications in the dairy industries in Palestine revealed that the best practice to achieve that is by-law enforcement. The willingness of the industrial sector to apply the CP and WFP forms a core governance element to enhance industrial wastewater management in Palestine.

Keywords: Water governance; Industrial wastewater; Wastewater management; Dairy industry; Cleaner production; Water footprint

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Presented at the 1st Palestinian-Dutch Conference on Water, Sanitation and Hygiene (WASH), and Climate Smart Agriculture (CSA), 5–6 September 2022, Nablus, Palestinian Authority

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