Water Consumption and Potential Savings in Fabric Dyeing Process: A Case Study in Textured Jersey Lanka PLC, Avissawella

P. G. S. H. Ariyadasa[1], W. M. P. S. B. Wahala[2a] & R. Gunawardene[2b]

Department of Tourism Management, Faculty of Management Studies
Sabaragamuwa University of Sri Lanka.[1,2a]
Envirinmental And Sustanability Division Textured Jersey Lanka PLC, Avissawella[2b]
sampathwahala@yahoo.co.uk[2a]

The survival of the organisms in the earth will depend on three factors, Water, Air & food. Among these three, water is more important. With the increasing of population and industrial activities the demand for the scarce water is increasing rapidly. Those high demands take people to face the scarcity of fresh water. The amount of existing fresh water has high demand from both industrial and human activities. Water conservation in fabric dyeing operations is one of the main concerns in corporate sustainability agendas in such business. The main objective of this study was to assess the actual water consumption in dyeing operations and to quantify the water saving potential of dyeing operations in Textured Jersey. This study was analyzed the actual water usage in the dyeing department and main reasons for the variation between actual water consumption and standard water consumption in dying department. And also compare and contrast the different water consuming patterns & behaviors in the dying department to identify the possibilities for reduce controllable water wastages. Study was conducted for 6 months period in 2015. Data were collected using water sub meter readings, AREL readings. Water flow rates were taken following standard methodologies where applicable. Video sampling and systematic observations were done to investigate water waste streams. For further analysis past water meter readings, water bills, production details, and SAP system records were used. According to the findings, 97.58 liters of waste water are generated through the entire process of processing of 1kg of knitted fabric. The water consumption for the process of 1kg of fabric is 117.8 liters. More than 80% of this water consumption represents overhead water consumption. Mainly considerable amount of water has been used for the production as direct rinse. It is estimated approximately 1.5 liters for 3 minute direct rinse and 3.5 liters for 4 minute direct rinse for rinsing of 1kg of knitted fabric.

The reusable amount of water which relates to direct rinse is estimated as 50.07 m3 per day. According to the findings of the study there is a possible to reduce the water consumption by 18,766.4m3 per year by implementing water saving options identified in the study.

Keywords: Water Consumption; Overhead Water Consumption