(131)

Economic Feasibility of Reverse Osmosis (RO) Water Treatment Plants: A Case Study from Dimbulagala, Polonnaruwa, Sri Lanka

Bandara T.*, Witharana A.

Department of Zoology and Environment Sciences, University of Colombo, Colombo 03, Sri Lanka
**thilinibandara995@gmail.com*

Abstract

Social wellbeing is strongly linked with economic feasibility when it needs to attain with the technological advancements. Installation of Reverse Osmosis (RO) water treatment plants have been considered as a promising solution to provide clean water for human consumption, especially in the areas where the CKDu (chronic kidney disease of unknown etiology) prevails. At present, over 2,000 RO treatment plants were installed in the dry zone of Sri Lanka, yet economic feasibility for operation and maintenance of RO plants has not been assessed so far. The present study was intended to identify economic feasibility of operation and maintenance of RO plants. Investigations were carried out in six community RO plants which provided drinking water for over 17,000 people which accounts for 20% of total population in Dimbulagala Divisional Secretariat over a period of 12 months. Six in-depth interviews and questionnaire survey were caried out with RO plant operators. The operational cost per production of cubic meter of filtered water was computed by considering electricity consumption bills. The maintenance costs and service charges were also obtained from the records available with RO plant operators. The results found that the average electricity consumption to produce 1 cube of filtered water is approximately 9kWh and cost is LKR 734 (based on 2021 rates). The average water selling price ranged between LKR 1.00-2.50 per liter. The average monthly income generation from one RO plant is approximately between LKR 561-875 per cube of filtered water and it largely depended on the type of water source, climatic conditions. It was found that the income generated from RO plants was sufficient enough to cover the operation cost (monthly electricity bill) and for the subsequent maintenance and service charges whenever required. It can be concluded that the use of RO treated water is an economically viable option to provide portable drinking water.

Keywords: CKDu, Economic sustainability, Drinking water, Purification cost