

Abstract

The Greater Colombo canal system has been build during 15th century for the protection of country's capital. Later it had been developed by Dutch rulers and since then, it functions as the main drainage system of Colombo area. With time it became highly polluted and water ways became blocked and stagnated making Colombo city flooded even with slight rain. Then the restoration of this canal started in early 1990's and the restoration of Wellawatta canal of the system was completed in the year 2010. This study aimed to inspect the improvements done to the system by restoration, by comparing the condition of water and Macro-Invertebrates Based Index (M-IBI) with the previous study carried out in 2009 by Perera (2011).

Water samples and macro invertebrate samples were collected for the study from March to August in 2014, from the same sites used by Perera in 2009. Four of these sites; Senanayaka Mawatha, Nawala, Narahenpita and Wellawatta sites were along the Wellawatta canal and Buthgamuwa and Kirimandala Mawatha sites were on other canals connecting to it. Parameters which considered in this study were water and air temperatures, pH, alkalinity, conductivity, chloride ion concentration, hardness, dissolved oxygen (DO), biological oxygen demand (BOD), nitrate, phosphate and number of faecal and total Coliform in sample.

Due to the dredging, clearing and widening of canal under restoration, the water movement of canal has improved very significantly, even to move sea water up to Diyawannawa Lake during dry months. When compared with the previous study it was evident that conductivity and chloride ion concentration have increased in the canal while DO and BOD have decreased. As indicated by M-IBI, although restoration has been able to improve the condition of some site, others have not improved probably due to increased organic pollutants adding. When checked the measured parameters with the proposed water quality standards by Central Environmental Authority of Sri Lanka and Australian and New Zealand Guidelines for Fresh and Marine Water Quality, it was evident that water in the canal could be used for some recreational activities. Canal should be maintained regularly to keep it functioning as a good drainage system. Further,

its water must be checked periodically for important parameters to judge its suitability for public health and to take necessary actions for water quality improvements.