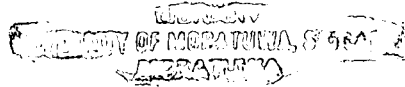


**Assessment and Suggestions for Improvements to the
treatment Process for the Raddolugama water treatment
Plant**

M.Eng in Environmental Engineering and Management



Submitted By

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“The performance of each unit in water treatment process will only be as good as the Designer the builder and especially the Operator allow it be”



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Statement:

“This thesis is submitted to the Department of Civil Engineering of the University of Moratuwa, Sri Lanka, as a partial fulfillment of the requirement for Master of Engineering in Environment Engineering and Management.”



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Declaration:

This thesis has been not been previously presented in whole or part to any University or Institute for a higher degree.

.....05-01-2006.....

Date

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ABSTRACT

Raddolugama Housing Scheme was constructed in 1982, closer to the Seeduwa town in the Gampaha district. The scheme is provided with pipe borne water supply and sewer system.

Raw water for pipe borne water supply is abstracted from Dandugam-Oya and treated by a conventional treatment process to satisfy Sri Lanka standards for potable water. But there have been instances of Colour in treated water being higher than the value stated in the standards, which is attributed to raw water quality.

Quality of raw water abstracted from the stream varies with the weather. During the rainy period raw water has high turbidity and low Colour, whereas dearth of rain for prolonged period changes the raw water quality to low turbidity and high Colour. The contributory factors for such changes are excessive erosion in the upstream during rain, whereas dearth of rain for prolonged period results in increase in evaporation, lower flow in the river, excess abstraction of water for water supply and irrigation and accumulation of organic and inorganic compounds on the river bed.

Objective of this study is to identify the reason for Colour (yellowish brown) in the treated water and suggest mitigatory measures to improve treatment process and assess the cost of production of water.

A detailed study was undertaken on variation of raw water quality, hydraulic design of the plant and chemical dosing arrangements. Improvement in treated water quality was achieved by relocating the point of dosing of chemicals and enhancing coagulation. As a result Colour and Turbidity of treated water was reduced by 49.5% and 47.9% respectively

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LIST OF ABBREVIATION

AAS	-	Atomic Absorption Spectrophotometer
AWWA	-	American Water Works Association
BOD	-	Biological Oxygen Demand
COD	-	Chemical Oxygen Demand
DI	-	Ductile Iron
DO	-	Dissolved Oxygen
EC	-	European Commission
EPA	-	Environmental Protection Agency
MGD	-	Million Gallons per Day
NTU	-	Nephelometric Turbidity Unit
NOM	-	Natural Organic Matter
NWSDB	-	National Water Supply and Drainage Board
PAC	-	Power Activated Carbon
PPM	-	Parts Per Million
Redox	-	Reduction - oxidation
SI	-	Saturation Index
THM	-	Tri-Halo Methane
UV	-	Ultra Violet rays
WHO	-	World Health Organization

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