TIME SERIES MODEL OF WATER LEVEL FLUCTUATION IN MAHAKANADARAWA TANK

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Department of Mathematics

University of Moratuwa-Sri Lanka

A.G.S Saranga

Admission Number: 178122E

Supervisor: Dr Panduka Neluwala

Declaration

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Under my direction, the aforementioned applicant conducted research for a Masters/MPhil/Ph.D. thesis.

Supervisor's name: Dr. Panduka Neluwala

Signature of the supervisor: Date:2022-07-01

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ABSTRACT

This research concludes an attempt to forecast water level changes using the best-fitted model of Mahakanadarawa tank by using Box and Jenkins methodology of univariate Auto-Regressive Integrated Moving Average (ARIMA) model. Data from 2010 to 2019 was analyzed and predicted values for the next 12 months were calculated. SARIMA (1, 1, 1) $(1, 1, 1)_{12}$ was identified as the tentative model, and Finally, the best-fitting models (0, 1, 1) (0, 1, 1)12) were discovered of water level fluctuations of Mahakanadarawa tank. Forecasted values were used to decide on the supply of water. Two major purposes were considered. Drinking water requirements and water for cultivation were focused.

Keywords- ARIMA, water level, forecasting

Table of Content

List of Figures

List of Tables

List of Abbreviations

ACF- Auto Correlation Function

PACF- Partial Auto Correlation Function

MA- Moving Average

SMA- Seasonal Moving Average

AR- Auto-Regressive

SAR- Seasonal Auto-Regressive

SARIMA- Seasonal Auto-Regressive Integrated Moving Average Model