

# ANDELLING ON MON-RELEVE MATER

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#### ABSTRACT

Non-Revenue Water (NON-REVENUE WATER RATIO) refers to the treated water that has produced from water plant which did not reach to the customer. It becomes one the challenges for commercial water system management. It is because the water company have to fulfill the demand from the society which keep increasing day by day. This wasted water could cause the company face losses and hence, burdens the people with increasing water tariff. This study focused on identifying the significant factors that influencing the Non-Revenue Water and modelling the data using Multiple Linear Regression Model and Artificial Neural Network. The sample size used in this study were 234 observations and the variables involved were Length of Connection, Number of Connection, Production Quantity, Consumption Quantity and Non-Revenue Water Ratio. The result of Multiple Linear Regression imply that Consumption Quantity and Production Quantity were significant to Non-Revenue Water Ratio whereas the variables of Length of Connection and Number of Connection were not significant. Apart from that, Artificial Neural Network also had been used to analyze the data in order to build the best model for predicting Non-Revenue Water Ratio. In comparison of Multiple Linear Regression and Artificial Neural Network, higher value of R-square ( $R^2 = 0.99$ ) and lower of Mean Square Error (MSE = 2.09) of Artificial Neural Network concluded that Artificial Neural Network model more accurate and better to predict Non-Revenue Water Ratio as compared to Multiple Linear Regression. It is hoped that the result from this study can be used by the water authority company in improving the water distribution and thus reduce water losses and cost.

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20

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90

## **TABLE OF CONTENTS**

## TOPIC

ABSTRACT	i
ACKNOWLEDGEMENT	ii
TABLE OF CONTENTS	iii
LIST OF TABLES	v
LIST OF FIGURES	vi

## CHAPTER 1: INTRODUCTION

1.1	Background of Study	1
1.2	Problem Statement	3
1.3	Research Objectives	4
1.4	Research Questions	4
1.5	Research Hypotheses	4
1.6	Scope and Limitations of the Study	5
1.7	Significance of the Study	5
1.8	Definition of Terms	6
1.9	Research Schedule	7

# **CHAPTER 2:** LITERATURE REVIEW

2.1	Introduction		8
2.2	Labour Cost		8
2.3	Length of Connection		9
2.4	Number of Connection		9
2.5	Consumption Quantity	X	10
2.6	Production Quantity		11
2.7	Number of Population Served		11
2.8	Metering Level		12
2.9	Operation Unit Cost		13
2.10	Method of Analysis		13

	2.10.1	Multiple Linear Regression	13
	2.10.2	Artificial Neural Network	14
2.11	Summa	ıry	15

## CHAPTER 3: METHODOLOGY

3.1	Introduc	16	
3.2	Sources	16	
3.3	Variable	17	
3.4	Theoret	18	
3.5	Method of Analysis		
	3.5.1	Descriptive Statistics	18
	3.5.2	Multiple Linear Regression	19
	3.5.3	Artificial Neural Network	21
	3.5.4	Mean Square Error	24
	3.5.5	Software	25
3.6	Summa	26	

## CHAPTER 4: RESULT AND ANALYSIS

	4.1	Introduc	ntroduction		
	4.2	Descrip	Descriptive Statistic		
	4.3	Multiple	ultiple Linear Regression		
		4.3.1	Multiple Linear Regression Model	29	
		4.3.2	Model Adequacy Checking	32	
	4.4	Artificia	l Neural Network	37	
	4.5	Compar	ison of ANN and MLR	41	
CHAPTER 5: CONCLUSION AND RECOMMENDAT		ON AND RECOMMENDATIONS			
	5.1	Conclus	ion	43	
	5.2	Recomn	nendations	44	

REFERENCES	45
APPENDICES	50