

**UNIVERSITI TEKNOLOGI MARA**

**THE USE OF TOTAL MAXIMUM  
DAILY LOAD (TMDL) IN  
IMPROVING WATER QUALITY OF  
SEGAMAT RIVER**

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## ABSTRACT

Quality of life reduces from time to time due to un-controlled pollution. Drinking contaminated water, breathing polluted air and suffering from un-wanted noise everyday will affect human health in both short and long term basis. From the studies that had been reviewed, there are ways being introduced by researchers to overcome pollution problem. Total Maximum Daily Load (TMDL) has been introduced in this study as a method in improving the Segamat River water quality. TMDL is indeed one of the methods that is already in use by many countries around the world in controlling effluent discharge into rivers. The objectives of this study included of measurement of water quality indices along the Segamat River due to the surrounding activities, assessment on the most significant water quality parameter and set Total Maximum Daily Load (TMDL) as the target parameter and finally to measure the acceptable discharge amount of Class II for the Segamat River. The observation of the current water quality for the Segamat River has been carried out in both dry and wet condition and it can be concluded that the water quality during the dry condition was slightly better compared to the wet condition. The urban activities at the Segamat town area have deteriorated the quality of water from the town area until its discharged point at the Muar River. During the wet condition the non-point sources were observed to be the reason of this impairment since the major activities in the upstream of Segamat River are agricultural. Outlets from the Segamat Town area somehow worsen the situation when the upstream flow enter the area before being discharged to Muar River. However, the mixing processes at the discharge point between these two rivers has resulted to the improvement of water quality due to the dilution of the contamination in the river. In carrying out TMDL method, Bio-chemical Oxygen Demand (BOD) has been selected as the Total Maximum Daily Load Target Parameter and the load that needs to be reduced at every point of discharge has been determined. By controlling the pollution load according to the requirements of Class II, the water quality along the Segamat River will be maintained to Class II. From this study, it is observed that contaminated effluents will accumulate at locations that have a low flow rate reading and will cause an increase in the concentration of pollutants which typically occurs during the dry condition.

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# TABLE OF CONTENTS

	<b>Page</b>
<b>CONFIRMATION BY PANEL OF EXAMINERS</b>	<b>ii</b>
<b>AUTHOR'S DECLARATION</b>	<b>iii</b>
<b>ABSTRACT</b>	<b>iv</b>
<b>ACKNOWLEDGEMENT</b>	<b>v</b>
<b>TABLE OF CONTENTS</b>	<b>vi</b>
<b>LIST OF TABLES</b>	<b>x</b>
<b>LIST OF FIGURES</b>	<b>xii</b>
<b>LIST OF SYMBOLS</b>	<b>xvi</b>
<b>LIST OF ABBREVIATIONS</b>	<b>xvii</b>
<b>CHAPTER ONE : INTRODUCTION</b>	<b>1</b>
1.1 Background to the Study	1
1.2 Problem Statement	2
1.3 Research Objectives	3
1.4 Significance of Study	4
1.5 Scope and Limitation of Work	4
<b>CHAPTER TWO : LITERATURE REVIEW</b>	<b>7</b>
2.1 Environment	7
2.2 Environment Disruption	8
2.3 Natural Standards of Water Quality and Parameters	10
2.3.1 Ammonical Nitrogen (NH <sub>3</sub> N)	14
2.3.2 Bio-Chemical Oxygen Demand (BOD)	14
2.3.3 Chemical Oxygen Demand (COD)	14
2.3.4 Dissolved Oxygen (DO)	14
2.3.5 Potential of Hydrogen (pH)	15
2.3.6 Total Suspended Solids (TSS)	15

2.4	Water Quality Disturbance	15
2.5	Legislations	17
2.6	River Pollutions	20
2.7	Methods Used to Manage River Pollution	24
2.8	Total Maximum Daily Load (TMDL)	26
2.9	TMDL Target Parameter	29
2.10	General Steps in Developing TMDL	32
2.11	Conclusion	37
 <b>CHAPTER THREE : RESEARCH METHODOLOGY</b>		<b>38</b>
3.1	Catchment Description at Site	38
3.2	Scope of Works at Site	41
3.3	Data Collection	43
3.4	Sampling Schedule	43
3.5	Sampling Locations	44
3.6	Determination Of Water Quality Index for Segamat River	47
3.7	Water Quality Laboratory Analysis	49
3.7.1	Bio-chemical Oxygen Demand (BOD)	49
3.7.2	Chemical Oxygen Demand (COD)	50
3.7.3	Total Suspended Solids (TSS)	50
3.7.4	Ammoniacal Nitrogen (AN)	51
3.8	Data Analysis	51
3.9	Calculating TMDL In Segamat River	52
3.9.1	Waste Load Allocation (WLA)	53
3.9.2	Load Allocation (LA)	53
3.9.3	Margin of Safety (MOS)	53
3.10	Determination of the Amount of Pollutant Discharge	54
 <b>CHAPTER FOUR : RESULTS AND ANALYSIS OF DATA</b>		<b>56</b>
4.1	Introduction	56
4.2	Water Quality Results Based on Each Parameter	56
4.2.1	Water Quality Condition Based on BOD Result	57