UNIVERSITI TEKNOLOGI MARA

ANALYSIS OF LANDSLIDE PREDICTION AS RELATED TO LANDUSE CHANGES IN PERLIS

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Thesis submitted in fulfillment
of the requirements for the degree of
Bachelor of Surveying Science and Geomatics
(Honours)

Faculty of Architecture, Planning and Surveying

January 2018

AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

The increaseness of development and agricultural activities will become a very significant contributor towards landslide and soil loss. The aim of this study is to analyse the landslide prediction and rate of soil loss as related to landuse changes in Perlis. The study area; Perlis is covered with 77.4% agriculture, 18% of forest, 3.2% urbanization and 1.5% water bodies in 1999. However, during the year 2015; the agriculture area and forest decrease to 62% and 15% respectively. Meanwhile, urbanization increase to 19.5% and water bodies 2.03%. These two results from image classification were then simulated using LandslideSim to evaluate potential area of landslide. Based on the evaluation indicates that no area in Perlis potential of landslide. However, the rate of soil loss in Perlis increase from year 1999 to 2015. Where the higher rate of soil loss in Perlis in 1999 is 3.86% and increase to 4.76% in 2015. These show that landuse changes had gave a big impacts towards rate of soil loss. This statement is showed in correlation analysis between forest, agriculture, urbanization and water bodies with rate of soil loss. Forest and agriculture area have a strong negative correlation with soil loss which show high correlation value (R^2= 0.9905 (forest with rate of soil loss) and R^2=0.9778 (agriculture with rate of soil loss). Meanwhile, urbanization and water bodies area have a strong positive correlation with soil loss which show high correlation value (R^2= 0.9973 (urbanization with rate of soil loss and R^2=0.9619 (water bodies with rate of soil loss). These result indicates that changes of land use especially when vegetation area decrease and urbanization area increase are linear with the soil loss in Perlis.

TABLE OF CONTENT

		Page
CONFIRMATION BY PANEL OF EXAMINERS		**ii**
AUTHOR'S DECLARATION		**iii**
ABSTRACT		**iv**
ACKNOWLEDGEMENT		**v**
TABLE OF CONTENT		**vi**
LIST OF TABLES		**x**
LIST OF FIGURES		**xi**
LIST OF SYMBOLS		**xiv**
LIST OF ABBREVIATIONS		**xv**
CHAPTER ONE		**1**
INTRODUCTION		
1.1	Research Background	1
1.2	Research Gap	3
1.3	Problem Statement	7
1.4	Aim and Objectives	8
1.5	Research Question	8
1.6	Methodology	8
	1.6.1 Flow chart	10
1.7	Significant of Study	11
1.8	Structure of Thesis	11
1.9	Summary	12
CHAPTER TWO		**13**
LITERATURE REVIEW		
2.1	Introduction	13
2.2	Type of Landslide	13
	2.2.1 Falls	14
	2.2.2 Topples	15

3.5.3 LandslideSim 37
3.6 Data Processing 38
3.6.1 Landuse classification 38
3.6.1.1 Image Pre-Processing 38
3.6.1.2 Image Processing 40
3.6.2 Landslide Prediction by Using Landslidesim 40
3.6.3 Weighted Overlay Method 43
3.6.4 Derivation Weighted Overlay Factors 45
3.6.4.1 Slope Factor 45
3.6.4.1 Stream Features Factor 46
3.6.4.1 Road Factor 46
3.6.4.1 NDVI (Normalized Difference Vegetation Index) 47
3.6.4.1 NDBI (Normalized Difference Built Index) 47
3.7 Analysis 49
3.7.1 Landuse Matrix Changes 49
3.7.2 Spatial Analyst 49
3.7.3 Correlation Analysis 49
3.8 Summary 50

CHAPTER FOUR **51**

RESULT AND ANALYSIS

4.1 Introduction 51
4.2 Image Classification for Landuse Mapping. 51
4.3 Landuse Matrix Changes 56
4.3.1 Changes between Classes from 1999 and 2008. 56
4.3.2 Changes between Classes from 2008 and 2015 57
4.3.3 Changes between Classes from 1999 to 2015 58
4.4 Prediction of Landslide Potential 59
4.5 Result of Soil Loss Classification for Rate of Soil Loss Mapping. 60
4.6 Spatial Analyst of Rate of Soil Loss Changes 65
4.6.1 Rates of Soil Loss Changes between Years 1999 and 2008. 66
4.6.2 Rates of Soil Loss Changes between Years 2008 and 2015. 67
4.6.3 Rate of Soil Loss Changes between 1999 to 2015 68
4.7 Correlation Analysis 68