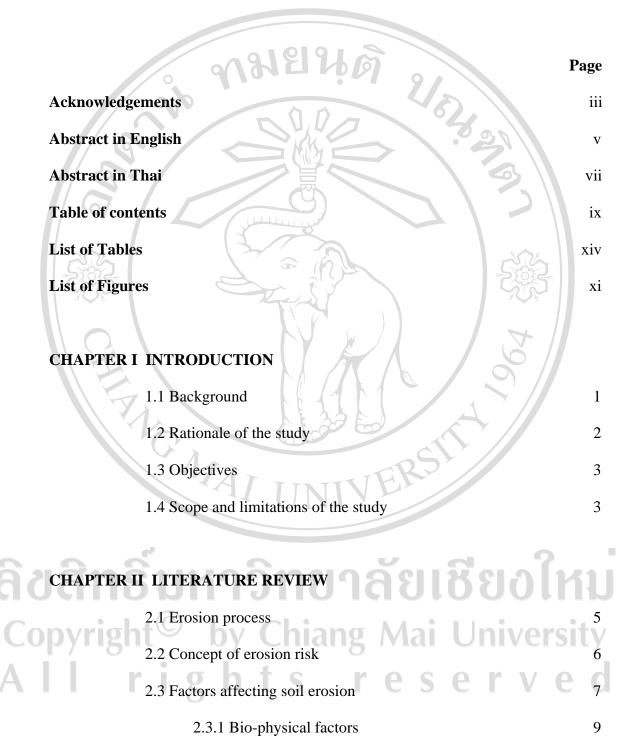
TABLE OF CONTENTS



		Page
	2.3.2 Land use practice	10
	2.3.3 Socio-economic factors	11
8	2.4 Cause-effect chains linked to soil erosion	11
8	2.5 Consequence of erosion	14
6	2.6 Assessment of erosion risk	14
-SIZA	2.7 Soil erosion in Myanmar	16
305	2.7.1 Current status	16
	2.7.2 Research on soil erosion	19
Ĩ	2.8 Land degradation	20
5	2.8.1 Effect of land degradation	20
	2.8.2 Problems of land degradation	21
	2.9 Roles of GIS technologies in soil erosion studies	22

9

CHAPTER III PROFILE OF THE STUDY AREA J

adans 3.1	and characteristics and bioph	ysical conc	litions	24
Copyright [©]	3.1.2 Climate		Unive	27
	3.1.3 Topography	es	erv	e ₃₀
	3.1.4 Soils			32

	Page
3.1.5 Land cover and land use	34
3.2 Socio-economic conditions	38
3.2.1 Demography	38
3.2.2 Infrastructure	40
3.2.3 Cropping system	42
3.2.4 Livestock production	43
3.2.5 Shifting cultivation and agriculture	44
3.2.6 Environmental problems	45
E S	
CHAPTER IV RESEARCH METHODS	
4.1 Field survey	49
4.1.1 Household survey	49
4.1.2 Sampling techniques	50
adans U 4.1.3 Data collection Taylog Boll	50
Copyright ^C 4.1.3.1 Primary data collection Univers	50
4.1.3.2 Secondary data collection 4.1.4 Data analysis	50 51
4.1.4.1 Multinomial Logit Model for erosion risk	51

	Page
4.2 GIS analysis	54
4.2.1 ICONA model	54
4.3 Comparing field survey and ICONA	55

CHAPTER V FARMERS' PERCEPTION, KNOWLEDGE AND MANAGEMENT

5.1 In	ntroduction	57
5.2 F	armers' perception	58
5.3 F	armer knowledge and management	59
	5.3.1 Types of soil by farmers	59
	5.3.2 Soil fertility status	60
	5.3.3 Fertilizer classification	60
	5.3.4 Benefits and limitations of fertilizer application	61
	5.3.5 Effects of fertilizer on soil	62
ຄີບສີກອິ່ມ	5.3.6 Crop residue management5.3.7 Tillage operation	62 63
Copyright [©]	5.3.8 Farming systems g Mai Universi	63
A I I 5 .4 S	oil erosion issues reserve	65
	5.4.1 Farmers' ranking factors on causes of erosion	65
	5.4.2 The effects of soil erosion	65
	5.4.3 Soil enhancement	66

	Page
5.5 Farmers' problems	68
5.6 Farmers' perception on erosion control measures	68
5.7 Farmers' views of soil erosion and need for conservation	69
5.8 Multinomial regression analysis	70
CHAPTER VI EROSION RISK ASSESSMENT WITH ICONA MODE	L
6.1 Introduction	76
6.2 Indicators for erosion risk assessment	76
6.3 ICONA model for erosion risk	79
6.4 Root Mean Square Error (RMSE)	92
CHAPTER VII CONCLUSIONS AND RECOMMENDATIONS	
7.1 Conclusion	95
7.2 Recommendations	96
ลิขสิทธิมหาวิทยาลัยเชียงไ	์เหม
Copyright [©] by Chiang Mai Unive	.98 104
A Curriculum Vitae ghts reserv	e ₁₂₀

xiii

LIST OF TABLES

	· JAERO	
Table	20 00.00 02	Page
1	Erosion susceptibility in the Central Dry Zone of Myanmar	17
2	Average monthly rainfalls in Magway district of Myanmar	29
3	Type of fertilizers using by farmers in the study area	60
4	Trend of using fertilizers amounts	62
5 20	Trend of changing number of tillage operation from sampled farmers	63
6	Cause of soil erosion perceived by farmers	65
7	Farmers' ranking on adaptable crops	67
8	Farmers' ranking on adaptable cropping systems	68
9	Socio-economic characteristics of sampled farm households	71
10	Definition of variables and variable values	72
11	Statistical analysis for multinomial regression	74
12	Slope classes of the study area	80
	Lithofacies classes of study area	82
14	Soil erodibility classes of the study area	82
15	Erodibility matrix: slope vs. lithofacies	85
A 16	Soil erodibility index of the study area e Se C	85
17	Land use classes of the study area	85
18	NDVI classes of the study area	87

xiv

LIST OF TABLES (Continue)

Table		Page
19	Soil protection index: land use and vegetation cover	87
20	Soil protection levels of the study area	87
21	Erosion status matrix: level of soil protection vs. level of erodibility	90
22	Erosion risk status of the study area	90
23	Comparing farmers' perception erosion risk and ICONA erosion risk	93
1		

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่ Copyright[©] by Chiang Mai University All rights reserved

THE MAI

XV

LIST OF FIGURES

Figure

Figure	ુ ગામાધાર્ભે શાર	Page
1	Vulnerability, hazard and risk scenario	8
2	Rill erosion in the field of study area	18
3	Gully erosion in the filed of study area	19
4	Administrative boundary map of Myanmar	25
5	Location map of the study area	26
6	Rainfall distribution of Magway district, Myanmar	30
7	Bad land topography in Yenanchaung township	31
8	Soil map of Magway district	33
9	Land cover map of Magway district	36
10	Land use map of the study area	37
11	Distribution of household size in the study area	39
12	Trend of livestock population in Magway district	44
	Highly eroded bad lands in Taungdwingyi township of the study area	46
GO ₁₄	Gully erosion in the study area	47
Cop ¹⁵ /ri	Gully erosion by runoff in the study area	48
A ¹⁶	Conceptual framework of erosion risk study	51
17	Steps of ICONA Model	54
18	Type of soil in the study area	59

xvi

LIST OF FIGURES (Continue)

<u>ิ</u>กมยนตั

Figur	e on and a solution of the sol	Page
19	Cropping pattern of Magway district, Myanmar	64
20	Type of soil in the study area	78
21	Steps of ICONA model	80
22	Slope map of the study area	81
23	Lithofacies map of the study area	83
24	Soil erodibility map of the study area	84
25	Land use map of the study area	86
26	Vegetation cover map of the study area	88
27	Soil protection map of the study area	89
28	ICONA erosion risk map of the study area	91

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่ Copyright[©] by Chiang Mai University All rights reserved