## TECHNICAL VIABILITY STUDY OF BLOCK ROAD

## TABLE OF CONTENTS

CHA	APTER – 1: INTRODUCTION AND BACKGROUND	
1.1	Introduction	1
1.2	OBJECTIVES OF THE STUDY	2
Сн	APTER – 2: SCOPE AND METHODOLOGY OF THE STUDY PROPOSED	
2.1	STUDY TEAM AND THE APPROACH	3
2.2	Data Collection	3
Сн	APTER – 3: FIELD OBSERVATIONS ON BLOCK PAVEMENT ROADS	
3.1	Introduction	5
3.2	GENERAL OBSERVATIONS	5
	3.2.1 Steps Involved in Block Based Road	5
	3.2.2 Construction Period	5
	3.2.3 Ingredients	6
	3.2.4 CONCRETE MIX PREPARATION AND BLOCK MAKING OPERATION	7
	3.2.5 RIGID PAVEMENT VS. BLOCK PAVEMENT	9
	3.2.6 BLOCK PAVEMENT VS. HERRING BONE BRICK (HBB)	10
	3.2.7 OTHER IMPORTANT OBSERVATIONS	11
	3.2.8 Advantages and Disadvantages of Block Pavements	12
3.3	NDT and DT Tests of Blocks	13
3.4	STABILITY OF BLOCK ROADS	15
3.5	COST COMPARISON	16
3.5	SUMMARY	17
Сн	APTER – 4: SOCIO-ECONOMIC STUDY OF BLOCK PAVED ROAD	
4.1	Introduction	18
4.2	DESCRIPTION OF THE SURVEY	18
	4.2.1 QUESTIONNAIRE DESIGN	18
	4.2.2 Survey Process	19
4.3	DESCRIPTION OF THE SAMPLE	21
4.4	Survey Results	23
	4.4.1 ALL HOUSEHOLDS	23
	4.4.2 BLOCK VS. RIGID PAVEMENTS	30
	4.4.3 IMPACT OF TIME SINCE COMPLETION	34
	4.4.4 RECOMMENDATIONS FROM THE RESPONDENTS	32
4.5	SUMMARY	34

5.6 ANALYSIS OF LOCKING MECHANISM 5.7 DEVELOPMENT OF A DESIGN PROCEDURE 5.8 SUMMARY 46  CHAPTER - 6: ROAD SAFETY ASPECTS OF BLOCK PAVEMENT ROADS 6.1 INTRODUCTION 47 6.2 DEGREE OF EXPOSURES OF VILLAGE ROADS 4.3 COMPARISON OF BLOCK AND RIGID PAVEMENTS 4.4 CASE STUDY 5.5 OTHER SAFETY CONCERNS 5.2 OTHER SAFETY CONCERNS 5.3 LINTRODUCTION 5.5 AUMMARY 5.3  CHAPTER - 7: CONCLUSIONS AND RECOMMENDATIONS 7.1 INTRODUCTION 5.5 7.2.1 BASED OF FIELD OBSERVATIONS 7.2.2 BASED OF SOCIO-ECONOMIC STUDY 7.2.3 BASED OF GEOTECHNICAL STUDY 7.2.4 BASED OF ROAD SAFETY STUDY 7.2.5 RECOMMENDATIONS 5.9  APPENDIX-A: LETTER OF INVITATION APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS APPENDIX-D: SAMPLE QUESTIONNAIRE	CHAPTER - 5: GEOTECHNICAL STUDY OF BLOCK PAVED ROA	AD	
5.3       LABORATORY INVESTIGATION       36         5.4       NUMERICAL ANALYSIS OF SINGLE BLOCK       37         5.4.1       RESULTS OF THE ANALYSIS OF SINGLE BLOCK       38         5.5       ANALYSIS OF A ROAD SECTION       42         5.6       ANALYSIS OF LOCKING MECHANISM       43         5.7       DEVELOPMENT OF A DESIGN PROCEDURE       45         5.8       SUMMARY       46         CHAPTER – 6: ROAD SAFETY ASPECTS OF BLOCK PAVEMENT ROADS         6.1       INTRODUCTION       47         6.2       DEGREE OF EXPOSURES OF VILLAGE ROADS       47         6.1       INTRODUCTION       47         6.2       DEGREE OF EXPOSURES OF VILLAGE ROADS       47         6.3       COMPARISON OF BLOCK AND RIGID PAVEMENTS       49         6.4       CASE STUDY       51         6.5       OTHER SAFETY CONCERNS       52         6.6       SUMMARY       53         CHAPTER – 7: CONCLUSIONS AND RECOMMENDATIONS         7.1       INTRODUCTION       55         7.2.1       BASED OF FIELD OBSERVATIONS       55         7.2.2       BASED OF GEOTECHNICAL STUDY       56         7.2.3       BASED OF ROAD SAFETY STUDY       58 <tr< th=""><th>5.1 Introduction</th><th>36</th></tr<>	5.1 Introduction	36	
5.4       Numerical Analysis of Single Block       37         5.4.1       Results of the Analysis of Single Block       38         5.5       Analysis of a Road Section       42         5.6       Analysis of Locking Mechanism       43         5.7       Development of a Design Procedure       45         5.8       Summary       46         CHAPTER – 6: Road Safety Aspects of Block Pavement Roads         6.1       Introduction       47         6.2       Degree of Exposures of Village Roads       47         6.3       Comparison of Block and Rigid Pavements       49         6.4       Case Study       51         6.5       Other Safety Concerns       52         6.6       Summary       53         CHAPTER – 7: Conclusions and Recommendations         7.2.1 Based of Field Observations         7.2.2 Based of Focio-Economic Study       55         7.2.2 Based of Focio-Economic Study       56         7.2.3 Based of Geotechnical Study       57         7.2.4 Based of Road Safety Study       58         7.3 Recommendations       59         APPENDIX-A: Letter of Invitation       APPENDIX-B: Test Results of Soil and Block Samples         APPENDIX-D: Sample Questionnai	5.2 Objectives	36	
5.4.1 RESULTS OF THE ANALYSIS OF SINGLE BLOCK  5.5 ANALYSIS OF A ROAD SECTION  42 5.6 ANALYSIS OF A ROAD SECTION  43 5.7 DEVELOPMENT OF A DESIGN PROCEDURE  5.8 SUMMARY  46  CHAPTER - 6: ROAD SAFETY ASPECTS OF BLOCK PAVEMENT ROADS  6.1 INTRODUCTION  47 6.2 DEGREE OF EXPOSURES OF VILLAGE ROADS  47 6.3 COMPARISON OF BLOCK AND RIGID PAVEMENTS  49 6.4 CASE STUDY  51 6.5 OTHER SAFETY CONCERNS  52 6.6 SUMMARY  53  CHAPTER - 7: CONCLUSIONS AND RECOMMENDATIONS  7.1 INTRODUCTION  55 7.2.1 BASED OF FIELD OBSERVATIONS  7.2.2 BASED OF SOCIO-ECONOMIC STUDY  7.2.3 BASED OF GEOTECHNICAL STUDY  7.2.4 BASED OF ROAD SAFETY STUDY  57 7.2.4 BASED OF ROAD SAFETY STUDY  58 7.3 RECOMMENDATIONS  59  APPENDIX-A: LETTER OF INVITATION  APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES  APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS  APPENDIX-D: SAMPLE QUESTIONNAIRE	5.3 LABORATORY INVESTIGATION	36	
5.5 ANALYSIS OF A ROAD SECTION 42 5.6 ANALYSIS OF LOCKING MECHANISM 43 5.7 DEVELOPMENT OF A DESIGN PROCEDURE 5.8 SUMMARY 46 CHAPTER - 6: ROAD SAFETY ASPECTS OF BLOCK PAVEMENT ROADS 6.1 INTRODUCTION 47 6.2 DEGREE OF EXPOSURES OF VILLAGE ROADS 47 6.3 COMPARISON OF BLOCK AND RIGID PAVEMENTS 49 6.4 CASE STUDY 51 6.5 OTHER SAFETY CONCERNS 52 6.6 SUMMARY 53 CHAPTER - 7: CONCLUSIONS AND RECOMMENDATIONS 7.1 INTRODUCTION 55 7.2.1 BASED OF FIELD OBSERVATIONS 7.2.2 BASED OF SOCIO-ECONOMIC STUDY 7.2.3 BASED OF GEOTECHNICAL STUDY 7.2.4 BASED OF ROAD SAFETY STUDY 7.2.5 RECOMMENDATIONS 59 APPENDIX-A: LETTER OF INVITATION APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS APPENDIX-D: SAMPLE QUESTIONNAIRE	5.4 NUMERICAL ANALYSIS OF SINGLE BLOCK	37	
5.6 ANALYSIS OF LOCKING MECHANISM 5.7 DEVELOPMENT OF A DESIGN PROCEDURE 5.8 SUMMARY 46  CHAPTER - 6: ROAD SAFETY ASPECTS OF BLOCK PAVEMENT ROADS 6.1 INTRODUCTION 47 6.2 DEGREE OF EXPOSURES OF VILLAGE ROADS 4.3 COMPARISON OF BLOCK AND RIGID PAVEMENTS 4.4 CASE STUDY 5.5 OTHER SAFETY CONCERNS 5.2 OTHER SAFETY CONCERNS 5.3 LINTRODUCTION 5.5 AUMMARY 5.3  CHAPTER - 7: CONCLUSIONS AND RECOMMENDATIONS 7.1 INTRODUCTION 5.5 7.2.1 BASED OF FIELD OBSERVATIONS 7.2.2 BASED OF SOCIO-ECONOMIC STUDY 7.2.3 BASED OF GEOTECHNICAL STUDY 7.2.4 BASED OF ROAD SAFETY STUDY 7.2.5 RECOMMENDATIONS 5.9  APPENDIX-A: LETTER OF INVITATION APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS APPENDIX-D: SAMPLE QUESTIONNAIRE	5.4.1 RESULTS OF THE ANALYSIS OF SINGLE BLOCK	38	
5.7 DEVELOPMENT OF A DESIGN PROCEDURE 5.8 SUMMARY 46  CHAPTER - 6: ROAD SAFETY ASPECTS OF BLOCK PAVEMENT ROADS 6.1 INTRODUCTION 47 6.2 DEGREE OF EXPOSURES OF VILLAGE ROADS 47 6.3 COMPARISON OF BLOCK AND RIGID PAVEMENTS 49 6.4 CASE STUDY 51 6.5 OTHER SAFETY CONCERNS 52 6.6 SUMMARY 53  CHAPTER - 7: CONCLUSIONS AND RECOMMENDATIONS 7.1 INTRODUCTION 55 7.2.1 BASED OF FIELD OBSERVATIONS 7.2.2 BASED OF FIELD OBSERVATIONS 55 7.2.3 BASED OF GEOTECHNICAL STUDY 7.2.4 BASED OF ROAD SAFETY STUDY 57 7.2.4 BASED OF ROAD SAFETY STUDY 57 7.2.5 RECOMMENDATIONS 59  APPENDIX-A: LETTER OF INVITATION APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS APPENDIX-D: SAMPLE QUESTIONNAIRE	5.5 Analysis of a Road Section	42	
5.8 SUMMARY  CHAPTER - 6: ROAD SAFETY ASPECTS OF BLOCK PAVEMENT ROADS  6.1 INTRODUCTION  47  6.2 DEGREE OF EXPOSURES OF VILLAGE ROADS  4.3 COMPARISON OF BLOCK AND RIGID PAVEMENTS  49  6.4 CASE STUDY  51  6.5 OTHER SAFETY CONCERNS  52  6.6 SUMMARY  53  CHAPTER - 7: CONCLUSIONS AND RECOMMENDATIONS  7.1 INTRODUCTION  55  7.2.1 BASED OF FIELD OBSERVATIONS  7.2.2 BASED OF SOCIO-ECONOMIC STUDY  7.2.3 BASED OF GEOTECHNICAL STUDY  7.2.4 BASED OF ROAD SAFETY STUDY  7.2.5 RECOMMENDATIONS  59  APPENDIX-A: LETTER OF INVITATION  APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES  APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS  APPENDIX-D: SAMPLE QUESTIONNAIRE	5.6 Analysis of Locking Mechanism	43	
CHAPTER – 6: ROAD SAFETY ASPECTS OF BLOCK PAVEMENT ROADS  6.1 INTRODUCTION 47 6.2 DEGREE OF EXPOSURES OF VILLAGE ROADS 47 6.3 COMPARISON OF BLOCK AND RIGID PAVEMENTS 49 6.4 CASE STUDY 51 6.5 OTHER SAFETY CONCERNS 52 6.6 SUMMARY 53  CHAPTER – 7: CONCLUSIONS AND RECOMMENDATIONS 7.1 INTRODUCTION 55 7.2 MAJOR FINDINGS 55 7.2.1 BASED OF FIELD OBSERVATIONS 55 7.2.2 BASED OF SOCIO-ECONOMIC STUDY 56 7.2.3 BASED OF GEOTECHNICAL STUDY 57 7.2.4 BASED OF ROAD SAFETY STUDY 58 7.3 RECOMMENDATIONS 59  APPENDIX-A: LETTER OF INVITATION APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS APPENDIX-D: SAMPLE QUESTIONNAIRE	5.7 Development of a Design Procedure	45	
6.1 INTRODUCTION 47 6.2 DEGREE OF EXPOSURES OF VILLAGE ROADS 47 6.3 COMPARISON OF BLOCK AND RIGID PAVEMENTS 49 6.4 CASE STUDY 51 6.5 OTHER SAFETY CONCERNS 52 6.6 SUMMARY 53  CHAPTER - 7: CONCLUSIONS AND RECOMMENDATIONS 7.1 INTRODUCTION 7.2 MAJOR FINDINGS 7.2.1 BASED OF FIELD OBSERVATIONS 7.2.2 BASED OF FOOCIO-ECONOMIC STUDY 7.2.3 BASED OF GOTECHNICAL STUDY 7.2.4 BASED OF ROAD SAFETY STUDY 7.2.4 BASED OF ROAD SAFETY STUDY 7.3 RECOMMENDATIONS 59  APPENDIX-A: LETTER OF INVITATION APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS APPENDIX-D: SAMPLE QUESTIONNAIRE	5.8 SUMMARY	46	
6.2 DEGREE OF EXPOSURES OF VILLAGE ROADS 47 6.3 COMPARISON OF BLOCK AND RIGID PAVEMENTS 49 6.4 CASE STUDY 51 6.5 OTHER SAFETY CONCERNS 52 6.6 SUMMARY 53  CHAPTER - 7: CONCLUSIONS AND RECOMMENDATIONS 7.1 INTRODUCTION 55 7.2 MAJOR FINDINGS 7.2.1 BASED OF FIELD OBSERVATIONS 7.2.2 BASED OF SOCIO-ECONOMIC STUDY 7.2.3 BASED OF GEOTECHNICAL STUDY 7.2.4 BASED OF ROAD SAFETY STUDY 7.2.4 BASED OF ROAD SAFETY STUDY 7.3 RECOMMENDATIONS 59  APPENDIX-A: LETTER OF INVITATION APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS APPENDIX-D: SAMPLE QUESTIONNAIRE	CHAPTER – 6: ROAD SAFETY ASPECTS OF BLOCK PAVEMENT RO	DADS	
6.3 COMPARISON OF BLOCK AND RIGID PAVEMENTS 6.4 CASE STUDY 5.5 OTHER SAFETY CONCERNS 6.6 SUMMARY 5.3  CHAPTER - 7: CONCLUSIONS AND RECOMMENDATIONS 7.1 INTRODUCTION 5.5 7.2 MAJOR FINDINGS 7.2.1 BASED OF FIELD OBSERVATIONS 7.2.2 BASED OF SOCIO-ECONOMIC STUDY 7.2.3 BASED OF GEOTECHNICAL STUDY 7.2.4 BASED OF ROAD SAFETY STUDY 5.8  7.3 RECOMMENDATIONS 5.9  APPENDIX-A: LETTER OF INVITATION APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS APPENDIX-D: SAMPLE QUESTIONNAIRE	6.1 Introduction	47	
6.4 CASE STUDY 6.5 OTHER SAFETY CONCERNS 6.6 SUMMARY 53  CHAPTER - 7: CONCLUSIONS AND RECOMMENDATIONS 7.1 INTRODUCTION 7.2 MAJOR FINDINGS 7.2.1 BASED OF FIELD OBSERVATIONS 7.2.2 BASED OF SOCIO-ECONOMIC STUDY 7.2.3 BASED OF GEOTECHNICAL STUDY 7.2.4 BASED OF ROAD SAFETY STUDY 7.3 RECOMMENDATIONS 59  APPENDIX-A: LETTER OF INVITATION APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS APPENDIX-D: SAMPLE QUESTIONNAIRE	6.2 Degree of Exposures of Village Roads	47	
6.5 OTHER SAFETY CONCERNS  6.6 SUMMARY  52 6.6 SUMMARY  53  CHAPTER - 7: CONCLUSIONS AND RECOMMENDATIONS  7.1 INTRODUCTION  55 7.2 MAJOR FINDINGS  7.2.1 BASED OF FIELD OBSERVATIONS  7.2.2 BASED OF SOCIO-ECONOMIC STUDY  7.2.3 BASED OF GEOTECHNICAL STUDY  7.2.4 BASED OF ROAD SAFETY STUDY  7.3 RECOMMENDATIONS  59  APPENDIX-A: LETTER OF INVITATION  APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES  APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS  APPENDIX-D: SAMPLE QUESTIONNAIRE	6.3 COMPARISON OF BLOCK AND RIGID PAVEMENTS	49	
CHAPTER - 7: CONCLUSIONS AND RECOMMENDATIONS  7.1 INTRODUCTION  7.2 MAJOR FINDINGS  7.2.1 BASED OF FIELD OBSERVATIONS  7.2.2 BASED OF SOCIO-ECONOMIC STUDY  7.2.3 BASED OF GEOTECHNICAL STUDY  7.2.4 BASED OF ROAD SAFETY STUDY  7.3 RECOMMENDATIONS  APPENDIX-A: LETTER OF INVITATION  APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES  APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS  APPENDIX-D: SAMPLE QUESTIONNAIRE	6.4 CASE STUDY	51	
CHAPTER – 7: CONCLUSIONS AND RECOMMENDATIONS  7.1 INTRODUCTION 55  7.2 MAJOR FINDINGS 55  7.2.1 BASED OF FIELD OBSERVATIONS 55  7.2.2 BASED OF SOCIO-ECONOMIC STUDY 56  7.2.3 BASED OF GEOTECHNICAL STUDY 57  7.2.4 BASED OF ROAD SAFETY STUDY 58  7.3 RECOMMENDATIONS 59  APPENDIX-A: LETTER OF INVITATION  APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES  APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS  APPENDIX-D: SAMPLE QUESTIONNAIRE	6.5 OTHER SAFETY CONCERNS	52	
7.1 INTRODUCTION 55 7.2 MAJOR FINDINGS 55 7.2.1 BASED OF FIELD OBSERVATIONS 55 7.2.2 BASED OF SOCIO-ECONOMIC STUDY 56 7.2.3 BASED OF GEOTECHNICAL STUDY 57 7.2.4 BASED OF ROAD SAFETY STUDY 58 7.3 RECOMMENDATIONS 59  APPENDIX-A: LETTER OF INVITATION APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS APPENDIX-D: SAMPLE QUESTIONNAIRE	6.6 SUMMARY	53	
7.2 Major Findings 7.2.1 Based of Field Observations 5.5 7.2.2 Based of Socio-Economic Study 5.6 7.2.3 Based of Geotechnical Study 7.2.4 Based of Road Safety Study 5.8 7.3 Recommendations 5.9  Appendix-A: Letter of Invitation Appendix-B: Test Results of Soil and Block Samples Appendix-C: Detail Comparative Cost Analysis Appendix-D: Sample Questionnaire	CHAPTER – 7: CONCLUSIONS AND RECOMMENDATIONS		
7.2.1 BASED OF FIELD OBSERVATIONS 55 7.2.2 BASED OF SOCIO-ECONOMIC STUDY 56 7.2.3 BASED OF GEOTECHNICAL STUDY 57 7.2.4 BASED OF ROAD SAFETY STUDY 58 7.3 RECOMMENDATIONS 59  APPENDIX-A: LETTER OF INVITATION APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS APPENDIX-D: SAMPLE QUESTIONNAIRE	7.1 Introduction	55	
7.2.2 BASED OF SOCIO-ECONOMIC STUDY 7.2.3 BASED OF GEOTECHNICAL STUDY 7.2.4 BASED OF ROAD SAFETY STUDY 58 7.3 RECOMMENDATIONS 59  APPENDIX-A: LETTER OF INVITATION APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS APPENDIX-D: SAMPLE QUESTIONNAIRE	7.2 Major Findings	55	
7.2.3 BASED OF GEOTECHNICAL STUDY 7.2.4 BASED OF ROAD SAFETY STUDY 58 7.3 RECOMMENDATIONS 59  APPENDIX-A: LETTER OF INVITATION APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS APPENDIX-D: SAMPLE QUESTIONNAIRE	7.2.1 Based of Field Observations	55	
7.2.4 BASED OF ROAD SAFETY STUDY  7.3 RECOMMENDATIONS  59  APPENDIX-A: LETTER OF INVITATION  APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES  APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS  APPENDIX-D: SAMPLE QUESTIONNAIRE	7.2.2 Based of Socio-Economic Study	56	
7.3 RECOMMENDATIONS  59  APPENDIX-A: LETTER OF INVITATION  APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES  APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS  APPENDIX-D: SAMPLE QUESTIONNAIRE	7.2.3 Based of Geotechnical Study	57	
APPENDIX-A: LETTER OF INVITATION  APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES  APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS  APPENDIX-D: SAMPLE QUESTIONNAIRE	7.2.4 Based of Road Safety Study	58	
APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES  APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS  APPENDIX-D: SAMPLE QUESTIONNAIRE	7.3 RECOMMENDATIONS	59	
APPENDIX-B: TEST RESULTS OF SOIL AND BLOCK SAMPLES  APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS  APPENDIX-D: SAMPLE QUESTIONNAIRE	Appendix A. Letted of Invitation		
APPENDIX-C: DETAIL COMPARATIVE COST ANALYSIS  APPENDIX-D: SAMPLE QUESTIONNAIRE			
Appendix-D: Sample Questionnaire			
	APPENDIX-D. SAMPLE QUESTIONNAIRE  APPENDIX-E: SPECIFIC LOCATIONS OF THE SURVEY		