

**ANALYSIS ON RESETTLEMENT PROCESS:
LANDSLIDE DISASTER**

Pulhiriyalage Anuruddha Vijekumara

(118442E)



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Degree of Master of Science in Project Management

Department of Building Economics

University of Moratuwa

Sri Lanka

February 2016

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Thesis/Dissertation submitted in partial fulfillment of the requirements for the degree
Master of Science in Project Management

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February 2016

DECLARATION

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.....

Dr. Gayani Karunasena

Dissertation Supervisor

.....

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Abstract

The landslide is one of the major disaster event in Sri Lanka, which has increased its frequency and after it strikes leave people homeless than any other disaster event. However, setting of pre and post disaster activities like mitigation, preparedness, response, recovery and development have very important roles in reducing the future hazard risks in disaster prone areas. Resettlement has been a major policy in post-disaster reconstructions in developing countries. However, resettlement can result and has resulted in significant adverse impacts on the resettled population.

In this study, factors affecting to failure in landslide resettlements in Sri Lanka and related issues are addressed while proposing a suitable framework for landslide disaster resettlement for the future resilience in Sri Lanka. Data was gathered through structured interviews with implementing agencies and affected communities of selected four landslide resettlement cases of Sri Lanka.

The findings reveal that, there is no systematic procedure/approached is used in any of selected landslide resettlement programs. Limited studies on climate and history of natural hazards, participation by different institutions in sectors, need and capacity assessment, socio-economic and cultural studies, coordination among the stakeholders, prevent the settlement in affected and at-risk areas, rational decision making on resettlement alternatives and options, safety assessment, accessibility to existing public and social infrastructure and livelihood opportunities, community involvement in house designing and consideration of socio-cultural values of the affected community are the main factors affecting landslide resettlement programs in Sri Lanka.

Keywords: *Disasters, Landslide Disaster, Landslide Resettlement*



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DEDICATION

I dedicate this piece of research

To

The public of Sri Lanka,

Who

Gave me the free education to stand up with my own feet.



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TABLE OF CONTENTS

DECLARATION	i
ABSTRACT	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENTS	v
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF ABBREVIATIONS	x
CHAPTER – 01	1
INTRODUCTION.....	1
1.0. Background	1
1.1. Research Problem	3
1.2. Aim of the Study	4
1.3. Objectives	4
1.4. Methodology	4
1.5. Scope of the Study.....	4
1.6. Chapter Breakdown.....	5
1.7. Summary	5
CHAPTER – 02	6
LITERATURE REVIEW.....	6
2.1. Introduction	6
2.2. Overview of Disaster.....	6

2.3. Landslide	7
2.4. Landslide Disaster in Sri Lanka	11
2.5. Landslide Disaster Management	13
2.6. What is Resettlement?	14
2.7. Post Disaster Resettlement	15
2.8. Resettlement Process	16
2.9. Summary	29
CHAPTER – 03	30
RESEARCH METHODOLOGY	30
3.1. Introduction	30
3.2. Research Approach.....	30
3.3. Case Study Design.....	31
3.3.1. Design Parameters	31
3.3.2. Data Collection	33
3.3.3. Data Analysis	35
3.4. Summary	35
CHAPTER – 04	36
RESEARCH FINDINGS	36
4.1. Introduction	36
4.2. Background of Cases.....	36
4.3. Case Analysis	38
4.4. Cross Case Analysis	41
4.4.1. Contextual Study.....	42
4.4.2. Institutional Arrangement.....	46

4.4.3. Forming Work Team	47
4.4.4. Assessment and Studies	49
4.4.5. Establish Mechanisms	51
4.4.6. Resettlement Alternatives and Options.....	57
4.4.7. Land Component.....	59
4.4.8. Physical Planning.....	62
4.4.9. Housing and Infrastructure	63
4.4.10. Post resettlement Stage Activities.....	64
4.5. Landslide Resettlement Planning Framework.....	69
4.6. Summary	69
CHAPTER – 05	75
CONCLUSION.....	75
5.1. Introduction	75
5.2. Summary of Research Findings.....	75
5.3. Conclusion about Overall Research Problem.....	76
5.4. Contribution to the Industry and Knowledge	77
5.5. Limitations of the Research.....	77
5.6. Further Research.....	77
LIST OF REFERENCES	79
APPENDIX A: LANDSLIDE RESETTLEMENT CASES	85
APPENDIX B: INTERVIEW GUIDELINE	89
APPENDIX C: INTERVIEW GUIDELINE	92
APPENDIX D: INTERVIEW TRANSCRIPT	94
APPENDIX E: INTERVIEW TRANSCRIPT.....	98

LIST OF TABLES

Table 2.1. Landslides Categories	9
Table 2.2: Landslide Resettlement Cases - Lesson Learnt	18
Table 2.3: Factors Affecting for Success/Failure.....	26
Table 3.1: Selected Cases.....	32
Table 3.2: Interview Profile	34
Table 4.1. Details of Selected Cases	37
Table 4.2. Issues Identified	45
Table 4.3. Issues Identified	47
Table 4.4. Issues Identified	48
Table 4.5. Issues Identified	50
Table 4.6. Issues Identified	56
Table 4.7. Issues Identified	58
Table 4.8. Issues Identified	61
Table 4.9. Issues Identified	63
Table 4.10. Issues Identified	64
Table 4.11. Issues Identified	65
Table 4.12: Summary of Resettlement Process – Problems and Causes	66
Table 4.13. Identified New Attributes in Resettlement Framework	71
Table 4.14. Factors Directly Affected by the Failure of Most Landslide Resettlement Cases and Suggestions to Overcome.....	71



LIST OF FIGURES

Figure 2.1. Total Number of reported Hydrological Disasters (1900–2015).....	7
Figure 2.2. Parts of a Landslide	8
Figure 2.3. Landslides Deaths in Sri Lanka	13
Figure 2.4: Conceptual Framework for Landslide Resettlement Planning	28
Figure 3.1: Case Study Design.....	31
Figure 4.1. : Updated Landslide Resettlement Planning Framework	70



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LIST OF ABBREVIATIONS

Abbreviation		Description
IFRC	-	International Federation of Red Cross and Red Crescent Societies
DM	-	Disaster Management
NBRO	-	National Building Research Organization
EM-DAT	-	Emergency Events Database
UNDP	-	United Nations Development Programme
DRR	-	Disaster Risk Reduction
EIA	-	Environmental Impact Assessment
CBO	-	Community Based Organization
NGO	-	Non-Government Origination



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CHAPTER – 01

INTRODUCTION

1.0. Background

A Disaster is a phenomenon that can cause damage to life and property and destroy the economic, social and cultural life of people. Recent statistics show that the number of global disasters rose sharply during the last few decades. According to the International Federation of Red Cross and Red Crescent Societies (IFRC) (2013) reported natural disasters between 2003 and 2012 is about 3899. The reported number of people killed by natural disasters is 1,066,346 during the above period. Sri Lanka is also facing various types of natural disasters throughout the year. Over the past few decades, disaster losses in Sri Lanka have increased substantially. The country is prone to natural disasters caused by floods, cyclones, landslides, droughts and coastal erosion with increasing instances of environmental pollution related hazards. The total number of people reported affected by disasters between 2003 and 2012 is 81 million. Therefore, the governments are trying to cope with disasters by enhancing the coping capacity of both the government institutions and community.



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Sri Lanka Disaster Management Act, No. 13 of 2005, provides the legal framework for Disaster Risk Management and addresses Disaster Management (DM) holistically. Considering the disaster as a repetitive event, disaster management forms a cycle by connecting a series of interlinked activities of mitigation, preparedness, response and recovery (B Hidayat, 2010), (Ozden, 2010). After a disaster strikes and leaves people homeless, whether to build in the same area or to resettle is an important decision to be taken under the disaster recovery phase. Resettlement decision is considered in cases where in situ adaptation or build in the same area is impossible (A. de Sherbinin *et al.* 2011). Only a well-planned and managed resettlement process can produce positive long-term development outcomes (S. Ali Badri *et al.* 2006).

Post disaster resettlement projects have been implemented at several times for different types of disaster affected communities in both the local and global context.

Among those, landslide resettlement is important due to its complex nature. Resettlement of families living in high-risk areas and environmental rehabilitation of “Altos de la Estancia” in Bogotá, the southern Leyte landslide resettlement program and Ban Nam Ko – post-debris flow disaster resettlement is some landslide resettlement program found in global context. Out of the 65,000 sq km of land extent of Sri Lanka, an area of nearly 20,000 sq km encompassing 10 districts is prone to landslides. It is about 30% of Sri Lanka's land area and spread into several districts, namely, Badulla, Nuwara Eliya, Kegalle, Ratnapura, Kandy, Matale, Kaluthara, Mathara, Galle and Hambantota (Bandara, 2005). Landslides had been traditionally considered as a minor type of disaster and not a common occurrence in Sri Lanka. Until the year 2002, the annual average number of landslide records did not exceed 50. However, the data show a sudden increase in the occurrence of landslides during the period from 2003 to 2008 (Sri Lanka National Report on Disaster Risk, Poverty and Human Development Relationship, 2009). These landslides cause much damage to both human lives and built environments. Therefore, the affected people have to be resettled by government and non-government organizations. This kind of resettlement projects have been implemented in several areas in the local context.

On 17 May 2003, Ratnapura had extremely heavy rainfall 347.2 mm, which resulted in flood and landslide disaster. Due to the landslide disaster, 3,811 houses were fully damaged and 9,809 houses were partially damaged in the Ratnapura district. The government decided to relocate and resettle most of the 34,478 families affected in May 2003 under the subsequent recovery initiatives to reduce the future risks (Hewawasam, 2005).

Over 450 families in the Hanguranketha and Walapane divisions were displaced due to a series of landslides caused in January 2007. The respective divisional secretaries resettled these affected communities in six locations. However, studies shows that, it has created several considerable issues to the affected community due to poor planning and management in the resettlement program (Ganepola, 2009).

Another resettlement project is being implemented in the Galawatta and Hanthana areas for people who have been affected due to the landslide disaster in the Kandy

district. According to the National Building Research Organization (NBRO) inspection, there are several identified issues related to the resettlement site and housing constructions. For example; resettlement site is located in a wind tunneling location, the site is subject to winds with a much higher speed, and it lacks access to basic infrastructure.

1.1. Research Problem

As mentioned, disaster resettlement is a part of the disaster cycle, which falls under the phase of recovery. Therefore, resettlement that takes place in the recovery phase after a disaster is a key for mitigation and preparedness for the next disaster by applying structural and non-structural measures. Resettlement after a disaster should take place where there is better accessibility to infrastructure, free from disaster and access to community services and social network. The quality of constructed houses and infrastructure during the resettlement process will influence vulnerability for the next disaster (B Hidayat, 2010). Therefore, adopted the resettlement process can totally affect the success/failure of the resettlement program. However, studies show that, objectives of disaster resettlements are often not met and opportunities for community development are lost due to non-effective resettlement process. As mentioned previously, the houses constructed under the resettlement program that took place in the Hanthana area, were again affected by the high wind that caused severe damaged to newly constructed houses. Similarly, the Hanguranketha resettlement project, has created several adverse impacts on the resettled community. According to Barakat (2003), the choice of location, site selection and settlement planning, the choice of construction method and materials, and the choice of design are the considerations that must be addressed when planning new settlements. Thus, this study tries to identify the attributes that should be considered in the process of resettlement planning in landslide prone areas, to be a successful disaster resettlement practice.

1.2. Aim of the Study

The aim of this study is to analyze prevailing resettlement projects to identify major problems in resettlement planning and to propose a suitable resettlement planning framework for landslide disaster for future resilience.

1.3. Objectives

To achieve the above aim following objectives were formulated;

- To identify prevailing practices for effectiveness in terms of the landslide disaster resettlement planning.
- To examine and analysis prevailing landslide resettlement planning approaches used in a local context.
- To identify the problems of landslide resettlement projects in Sri Lanka with respect to planning approaches
- To propose a suitable resettlement framework for successful landslide disaster resettlement planning

1.4. Methodology



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Locally and globally used best practices in disaster resettlement planning were identified through a comprehensive literature review and field study. Then, a conceptual framework for disaster resettlement planning based on secondary data was formed. Case study approach was used to evaluate the selected cases based on the conceptual framework. Four landslide resettlement cases in the Sri Lankan context were selected. Data collection was done using semi structured interviews. Data was analyzed using the cross case analysis, which comes under the content analysis.

1.5. Scope of the Study

Four major local landslide resettlement cases were selected to evaluate the process of landslide resettlement, which is heavily affected during the recent decade (from 2003 – 2014). Three of those projects were completed and the other project is an ongoing resettlement project.

1.6. Chapter Breakdown

Chapter 01

- Provide background and an overview of the study.
- Clarify the aim, objectives and scope of the study.

Chapter 02

- Enclose theoretical status of the concept of disaster, landslide, landslide in Sri Lanka, landslide management, resettlement.
- Develop a conceptual resettlement planning framework to evaluate the existing resettlement planning process of resettlement projects in Sri Lanka.

Chapter 03

- Discuss the research methodology of the study.
- Enclose the significance of the study, research design, and process of data analysis.

Chapter 04

- Conducted a cross case analysis to identify the prevailing resettlement planning process and problems of Sri Lanka.
- Proposed a framework for successful landslide resettlement planning for Sri Lanka.

Chapter 05

- Conclude the dissertation with key findings and recommendations.

1.7. Summary

This chapter was provided as a background to the study and discusses the research problem with its aim and objectives. Moreover, the methodology used in overall research is discussed. Finally, the scope of the study and summary of chapter breakdown is provided in the latter part of the chapter.

The next chapter will be focused on literature related to this study.

CHAPTER – 02

LITERATURE REVIEW

2.1. Introduction

The aim of this study is to propose a suitable resettlement planning framework for landslide disaster for future resilience. This chapter presents the concepts of landslide, disaster resettlement and related landslide resettlement case studies in national and international context.

2.2. Overview of Disaster

A disaster is a term describing a whole range of distress situations, both individual and communal (Moe & Pathranarakul, 2006). It can be any incident which threatens human safety and/or damages, or threatens to damage [or destroy] buildings, collections, contents, facilities or services (Disaster Management in Archives), Matthews and Eden (1996). Yonetani (2011); Thanurjan; Seneviratne, (2009), (as cited in Keraminiyage & Piyatadsananon, 2013) define disasters as serious disruptions to the functioning of a community, causing wide spread human, material, economic or environmental losses. These losses exceed the ability of the affected community or society to cope using existing resources.

A Landslide, is considered as a natural phenomenon, but it becomes a disaster when it affects human lives and properties. Haphazard and unplanned land uses, inappropriate construction methods and wanton human intervention have made reasons for landslides to be an increasing disaster.

Emergency Events Database (EM-DAT) statistics shows that, the number of disasters triggered by the occurrence of natural hazards has accelerated worldwide (see Table 2.1) (Correa, 2011a). It also revealed that the landslide disaster is also continuously increasing by decade to decade. This increasing trend of disaster situation has caused due to increase of world population and physical infrastructure development.

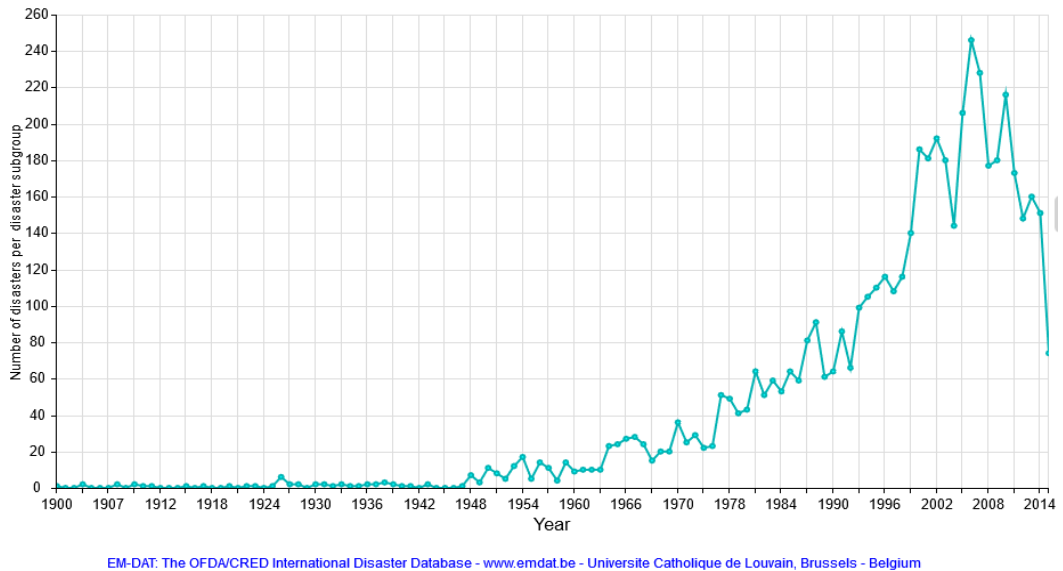


Figure 2.1. Total Number of reported Hydrological Disasters (1900–2015)

Source: EM-DAT.

According to the figure 2.1, it is clearly visible that, occurrence of Hydrological disasters category (which includes Landslide disaster) has increased continuously from 1950s to 2009 period. Although, it has shown decreasing pattern, it is still high in numbers. However, it can be assumed that, with the increase of human intervention and rapid development, occurrence of landslide will further increase in the future as well.

Next session of the chapter is discussed about the landslides in detail.

2.3. Landslide

Landslides (mass wasting) are a recurring natural phenomenon and an integral part of any geological/geomorphological cycle of landform development through sequential development on slopes in any elevated region (Singh, 2010). Simply a landslide can be defined as a downward or outward movement of soil, rock or vegetation, under the influence of gravity (Ministry of Education, 2006). These landslides consist of three parts, namely, the crown, the body and the toe or foot of the landslide (Figure 2.2). The "Crown" is the uppermost part of the sliding terrain from where it is originated. This region is usually subjected to subsidence and cracks. The "Body" of the landslide is the middle part of the sliding mass below the crown. This zone is

usually wide and contains most of the sliding matter, which collects material and swell, causing cracks in the lower area of the landslide body. "Toe" is the lowermost part of a slide. When a landslide occurs, debris, that it carries flow down, spreading over the lower terrain area with a forward motion of the toe. Often, the toe consists of a moist mixture of soil and strewn stone (Bandara, 2005).

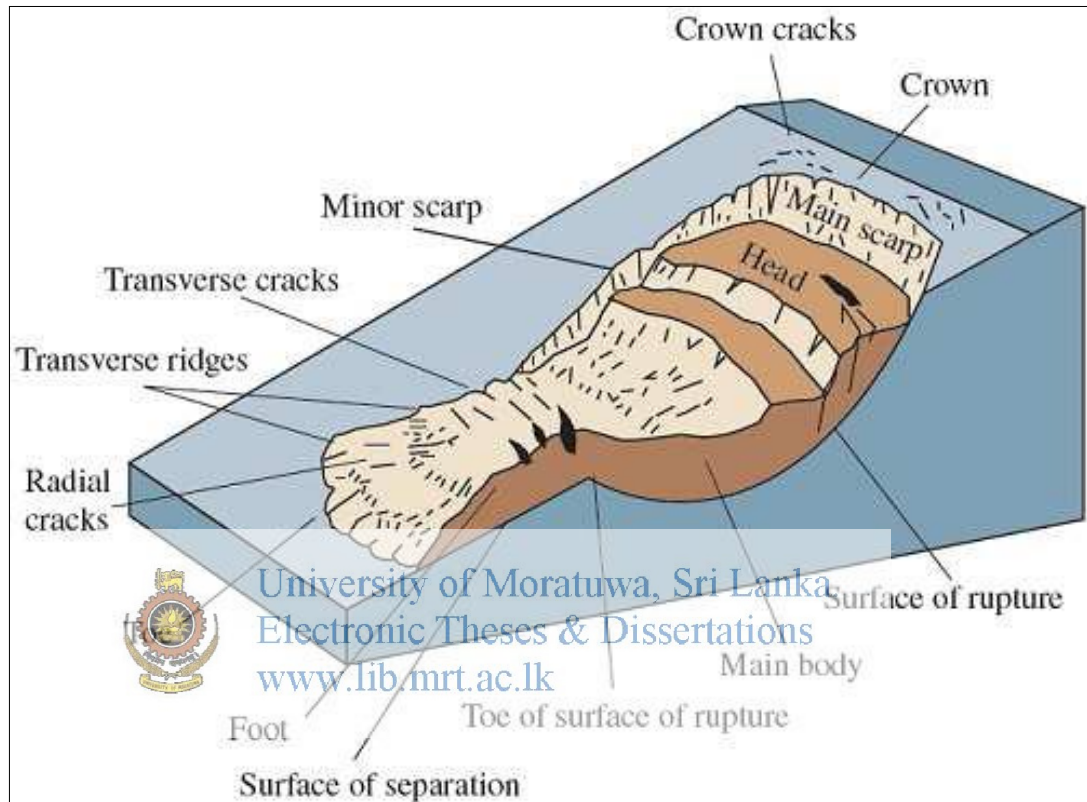
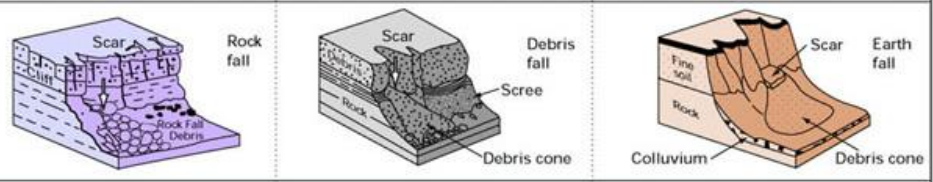
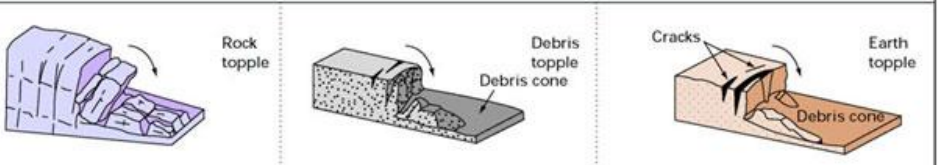

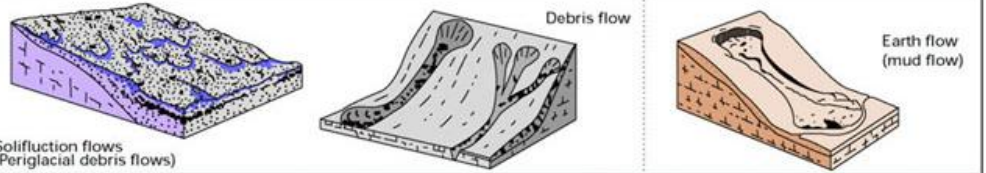


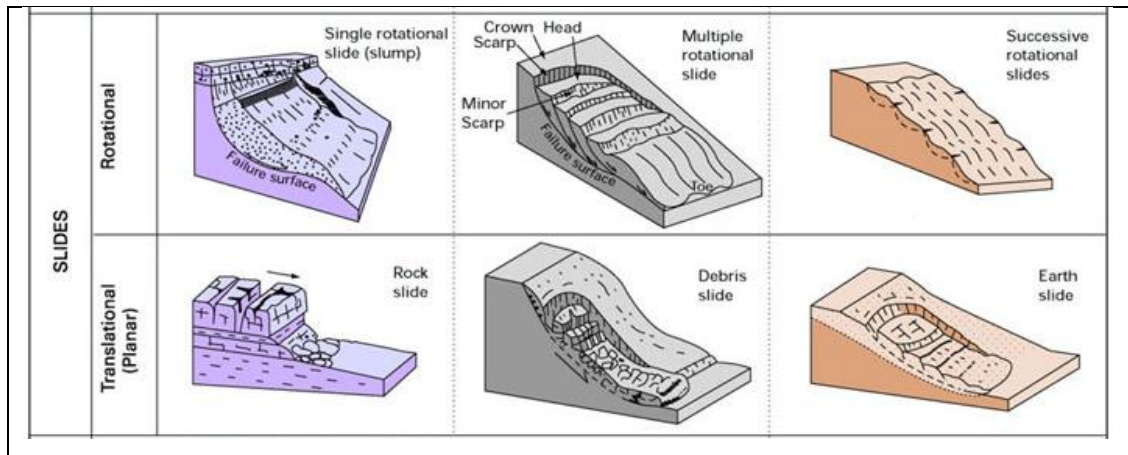
Figure 2.2. Parts of a Landslide

Source: (Bandara, 2005)

As described by the Bandara (2005) landslides can be categorized as in table 2.1.

Table 2.1. Landslides Categories


No	Category	Description
	Fall	Soil or rock material on a higher elevation falls down freely as a fragments, splinters etc.
FALLS		
	Toppling	Rock boulders separated from the bedrock along joint lines of joint systems existing on scarps are subjected to toppling.
TOPPLES		
	Flow	 <p>This is a downward flow of a muddy water and soil, stone, as well as clay and gravel, they occur mostly on escarpments with a very rapid flow causing much destruction. The speed of such a flow can reach 160 km/h.</p>
FLOWS		
	Subsidence	A portion of the terrain subsides or dips from its natural topographic relief level with reference to its surroundings in this process.
	Lateral displacement	A slow, gentle circular movement of a soil mass laterally or downwards along the slip surface can be termed as a lateral or downward displacement.



Source: (Bandara, 2005)

According to the above figures there are four main types of landslides, such as, fall, toppling, flow and slides. However, in Sri Lanka most common type of landslide is “slides”.

Although, landslides are considered as a natural phenomenon, human activities has extensively influence to the increase of its occurrence. As per the Zerube and Mencil (1982), (as cited in Singh, 2010); Landslides occur when:

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- The slope or the angle of repose is increased, e.g. by road cutting, mining and excavation works etc.
 - The pore pressure of water is increased and the soil is saturated by building up of canals, reservoirs, drainage failure etc.
 - The load on the slope (rock/earth material) is increased. E.g. by construction activities, etc.
 - When the rocks and soil layers are weakened and their cohesive forces compactness is reduced. E.g. blasting of rocks with dynamite, mining and excavation, tunneling and building up of sewer lines, deforestation, de-vegetation.

As stated by the Singh (2010) man and his greed have been the greatest agents of change affecting both the processes and the landscape. Further, as mentioned before Singh argue that, the rate of conversion of the natural landscape into the cultural landscape (that created by man, or the part of nature modified by man) is increasing very fast. As Singh noted, since the past few decades, due to increasing population,

increasing physical life quality (materialism), and the ever-improving technological status of man, thereby increasing the human ability to modify and change nature to great extents.

Apart from that above factors, Bandara (2005) described some natural causative factors for landslide as;

- Steepness of hill slope
- Type of rock material
- Deep weathering of rock material and the depth of the weathered rock.
- Density of the joint pattern and the structure of the rock.
- Thickness of colluvium deposits collected down slope due to gravity.
- Poor drainage conditions leading to excessive water seepage in sub strata.
- High intensity of precipitation.
- Earthquake as a triggering factor.
- Flood and reservoirs in hilly areas.

With the above facts and figures, it shows that natural disasters are in increasing trend and the damages caused by these disasters also increasing. Although, there are several factors contributing to landslide disaster, it has been induced by human intervention on the natural environment. This can be considered as negative externalities which has generated over physical development in highly fragile areas in Sri Lanka.

2.4. Landslide Disaster in Sri Lanka

As mentioned in section 1.0 of chapter 01, Sri Lanka has experienced a variety of natural and indirectly human induced disasters that has had a disastrous impact on human well-being as well as the economic welfare of the country. Although, Landslides had been traditionally considered as a minor type of disaster and not a common occurrence in Sri Lanka until the year 2002, the recent data shows a sudden increase in the occurrence of landslides during the years 2003 – 2008 (Disaster Management Centre & UNDP, 2009). According to the inventory of landslide, which is available at the National Building Research Organization (NBRO) official website,

landslides have greater impact on human lives and properties in hill country. Figure 2.3 shows the number of deaths recorded over the last several years due to landslides in Sri Lanka.

Out of 25 administrative districts in Sri Lanka ten (10) districts are prone to landslides. Namely, Nuwara Eliya, Badulla, Kegalle, Kalutara, Kandy, Matale and recent time of Matara, Galle and Hambantota. The above-mentioned landslide prone areas cover approximately 30% of the total land area of the island, and it is occupied by about 35% of the population of Sri Lanka. Landslide density is occurring in these districts are at 1-2 per sq.km. Trend analysis by NBRO researchers reveals an acceleration of landslide occurring in Sri Lanka (Jayaweera, 2009).

As stated by the Bandara (2005) apart from the damage to life and property, several infrastructural as well as economically important facilities have also been affected, especially water distribution pipes, hydro electricity generating centers, and communication systems. At times, social interests such as education and health services are severely disrupted. Moreover, frequent land sliding has threatened the destruction to the environment, including the flora and fauna of the areas concerned. Damage caused to the environment, at times, is irreversible, therefore, cannot be estimated, and perhaps will never be known. In this case landslide disaster has become another major type of natural disaster event with increasing trend and the significant impact caused to both the human life and the natural environment.



Only important events:

❖ 1869, 1903	- 3 deaths
❖ 1964	- (25 +19) deaths
❖ 1977	- 26 deaths
❖ 1982	- (9 +11) deaths
❖ 1984	- 18 deaths
❖ 1985	- 10 deaths
❖ 1986	- 51 deaths & 5000 homeless
❖ 1989	- >225 deaths & 1200 homeless
❖ 1992 & 1993	- Distrupted railway traffic at Watawala
❖ 1993	- 48 deaths
❖ 1997	- 22 deaths
❖ Until 2003	- isolated events with several deaths
❖ 2003	- 150 deaths & 20000 homeless
❖ 2004 -2008	- 99 deaths, 821 houses completely & another 4000 partly damaged. 51997 people were affected.
❖ 2012	- 22 deaths
❖ 2014	- 15 (June) + 37 (Oct) + 12 (Nov., Dec)

Figure 2.3. Landslides Deaths in Sri Lanka

Source: Landslide Research and Risk Management Division, NBRO

2.5. Landslide Disaster Management

As described by Singh (2010) basic components and period of landslide management can be divided into two phases:

(1) Phase I. Pre-landslide measures.

(2) Phase II. During and post-landslide measures.

Pre-landslide measures include disaster assessment; disaster preparedness; and prevention/mitigation. According to the Ramírez and Rubiano (2009) landslide risk management actions are targeted primarily at hazard control (prevention/mitigation), for example, landslide stabilization through engineering works and watershed reclamation plans; where this is not feasible, the aim is to reduce exposure by relocating the vulnerable population and infrastructure. Since human activity (for example, deforestation, stream course alteration, excavation) is another factor triggering landslides, both structural stabilization measures and resettlement

programs should be supplemented by awareness strategies and assumption of responsibility for the uses and new occupation of the at-risk area (Correa, 2011a).

Ramírez and Rubiano (2009) further describe that, in every case, landslides are phenomena for which numerous technical control and mitigation options exist. However, in the case of large, environmentally degraded hillside areas-where differing instability and erosion processes are under way and which are highly urbanized-mitigation options will be severely limited owing to the scale of works required, governmental financial constraints, and the social and cultural dynamics of the population.

Phase II of landslide management deals with the response and recovery (Relief, Rehabilitation and Resettlement) from disaster.

Since landslide management has two identified phases (as Singh stated above), the relevancy of resettlement for landslide disaster also arises in these two phases. According to the Correa, (2011a) explanation, many risk reduction options exist that involve controlling the landslide phenomenon and reducing its vulnerability. However, when other options are not feasible in terms of economic, social, and political feasibility, resettlement option would be relevant as a preventive/mitigation measure.

2.6. What is Resettlement?

As per the literature available for resettlement term, there are two types of resettlement can be found.

1. Preventive Resettlement
2. Post Disaster Resettlement

2.6.1. Preventive Resettlement

Relocation of all or part of a community located in high-risk areas as risk preventive measure/strategy is considered as a preventive resettlement. As Correa (2011b) express, such a measure should be seen as a last resort, when it is impossible to mitigate risk factors associated, for example, with landslides, the likelihood of

volcanic eruptions, or severe flooding that cannot be controlled. Correa has stated that, pertinence and viability of the preventive resettlement depend on how well it is incorporated into a comprehensive risk reduction strategy. Correa further argues that, the decision to resettle must be supported by technical and risk-assessment studies and be built into land-use planning strategies.

According to the Correa (2011b) apart from reducing the risk, preventive resettlement is an opportunity to improve the standard of living of vulnerable group in high-risk areas. At the same time, resettlement may be a land use planning strategy, where communities living at high risk and environmentally sensitive areas may negatively affect the sensitive ecosystems and may be a triggering factor for new natural hazards.

2.7. Post Disaster Resettlement

Post Disaster Resettlement, for example, is a common policy employed in the post of disaster development and planning in urban and rural areas of developed and developing countries (Badri, Asgary, Eftekhari, & Levy, 2006). As stated by Smith (As cited in Perera, Weerasoori, and Karunaratne, 2011) resettlement is a multisided opportunity for the reconstruction of systems of production and human settlements that represent a development in the standard of life of those affected, as well as in the regional economy of which they are a part.

As described by Dikmen (2006) after a disaster strike, when people become homeless, reconstruction projects are undertaken to rebuild the affected community and infrastructure. Among decisions to be made in the reconstruction process, whether to relocate or rebuild in the same area is an upfront decision to be taken. If the in situ adaptation on reconstruction in the same location is not possible, relevancy of resettlement is needed as a post disaster recovery and reconstruction option. With the same idea, Dikmen, (2006); Bayulke (1983) express three situations where relocation takes place after a disaster strike, such as;

- When the old location is subject to a natural hazard,
- When the old location is completely destroyed and to move the debris and to make new plotting in the old settlement is inconvenient for rapid recovery and housing purposes,
- When there is a chance to relocate the settlement of a land, which belongs to the Government since it is generally preferred not to have to pay for the land.

Argument of these scholars, “resettlement”, must also be development oriented and planning must take into account that the social and physical infrastructure, school and health services, access to employment opportunities, housing plot allotments and dwellings will meet expanding needs. This idea of resettlement is more or less same to the idea, which was given by the Correa in preventive resettlement. Although, these two types of resettlement take place in two different situations, process and objectives seem to be similar. This similarity has proven in some resettlement practices where the resettlement project has used as both the post disaster recovery and disaster preventive strategy.

2.8. Resettlement Process



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According to the Smith (1991) the whole process of resettlement is much more complex than it is seen in the approach employed by many reconstruction authorities after disasters. In general, it is fair to say that far more sensitive to the complexities of the resettlement process is needed in post disaster resettlement. It is not, for example, generally recognized by reconstruction authorities that the consequences of resettlement itself may even be more grievous than the impact of the disaster.

As Badri et al. (2006) highlights, well-planned and managed resettlement process can produce positive long-term development outcomes. Conversely, if it is poorly planned, it will create significant adverse impact on affected communities and in some occasions in the host community. As Correa, (2011a) describes, resettlement is a complex, multidimensional process that transcends the housing aspect. It has various dimensions: physical, legal, economic, social, cultural, psychological, environmental, political-administrative, and territorial, each with different attributes.

These dimensions should be suitably incorporated in the resettlement planning and implementation process to ensure its success.

After a landslide disaster, another unstable slope could be created within the surrounding areas with the effect of initial failure. Since then, resettlement programs have to act as both recovery and preventive strategy, in order to recover the affected parties and protect the vulnerable communities living in risk areas. Therefore, the process of resettlement planning should be more specific in landslide disaster resettlement to achieve positive outcomes. In order to identify these processes which have been adopted in landslide disaster resettlement practices, following landslide disaster resettlement cases were examined.

- Case 1: Panabaj and Tz'anchaj, Reconstruction with Transformation, Guatemala 2005 – One of the well planned and implemented resettlement. Resettlement practice has used as the both post disaster recovery and disaster preventive strategy
- Case 2: The Nueva Esperanza Resettlement, Colombia 2004 - 2009 – One of the successful landslide resettlement practice. Resettlement practice has used as a preventive resettlement strategy to recover the people at high risk areas
- Case 3: The Southern Leyte Landslide Resettlement, Philippine 2006 – Post landslide disaster resettlement strategy used in Asian region. One of the least successful major landslide resettlement practice.

More information regarding the resettlement process of each case is presented in appendix A. Following table 2.2 shows the lessons learnt from each of these selected cases.

Table 2.2: Landslide Resettlement Cases - Lesson Learnt

Program	<u>Case 1: Panabaj and Tz'anchaj – Reconstruction with Transformation – Guatemala 2005</u>	<u>Case 2: The Nueva Esperanza Resettlement – Colombia 2004 – 2009</u>	<u>Case 3: The Southern Leyte Landslide Resettlement - Philippine 2006</u>
Disaster	<u>Tropical Storm with a huge debris fall</u>	<u>Bogotá – Landslides hazards</u>	<u>Landslide Disaster</u>
Lesson Learnt	<ul style="list-style-type: none"> → Importance of trust between government and affected communities → The importance of cultural dimension; decision to include ethnical, social and cultural considerations in the design and implementation of the resettlement plans → Accountability and transparency mechanisms for building trust with the communities → Inter-agency mechanisms that help ministries and secretariats cooperate effectively → Resettlement should be a prevention tool, rather than a mechanism for responding to emergencies → Active participation of all stakeholders and respectful of ethical and cultural values, became an opportunity not just to build houses, but also to rebuild community trust in the State, to strengthen the social fabric, forge greater communal cohesion, improve living conditions, reinforce cultural identity and generate opportunities for the economic, social and cultural inclusion of historically excluded groups 	<ul style="list-style-type: none"> → Resettlement incorporated into a comprehensive risk reduction strategy → A long term vision and effective strategies on disaster risk reduction → Effective land use planning → Importance of several resettlement options → The advantages of having an institution that only directs the resettlement of at-risk populations 	<ul style="list-style-type: none"> → Importance of community consultation in community assistance (Introduction of livelihood activities) → Importance of risk consideration in land selection → Danger zones should be regularized to prevent further settlement

As identified in the above cases, different landslide disaster resettlement programs have adopted different planning and implementation processes. With a careful analysis of the above adopted process of successful resettlement cases, following steps can be identified as essential steps for successful resettlement practice.

- Contextual Study
- Institutional Arrangement
- Forming the Work Team
- Assessment and Studies
- Establish Mechanisms
- Resettlement Alternatives and Options
- Land Component/ Land selection
- Physical Planning (DRR, EIA)
- Housing, Infrastructure and Access to Services Component
- Post resettlement Activities

Success or failures of a resettlement program depend upon the effective resettlement planning and implementation process. In order to make more effective resettlement process, factors determining the success and failures of a resettlement program were further examined. Therefore, scholarly work on success and failure of resettlement programs are examined at local and international context to determine the best approach, which is most compatible with successive factors.

Disaster Resettlement Projects in Sri Lanka

Disaster resettlements in Sri Lanka were widely implemented after the deadliest Tsunami hit on December 26, 2004. After the Tsunami disaster, the government of Sri Lanka started the rebuilding of affected building with the support of non-governmental organizations. According to the Nissanka, Karunasena, and Rameezdeen (2008) there were two types of resettlement/reconstruction programs in tsunami reconstruction process in Sri Lanka. They are; Home Owner-driven housing reconstruction (In-Situ) and Donor-driven housing reconstruction (Relocation).

According to a study conducted by Nissanka et al. (2008) on Post disaster recovery challenges in Sri Lanka, it has been identified several factors of failure in Tsunami resettlement project such as; inconsistencies in housing policies, conflicts on land titles, Ineffectiveness in monitoring funds, Insufficient capacity of the construction industry, affected community's crappy behavior, government's lack of planning and recovery strategies for post Tsunami reconstruction, lack of communication and coordination among stakeholders, existence of hostilities. Moreover, Ismail, Majid, Roosli, and Samah (2014) also has pointed several factors such as, issues of delay, resourcing, community participation, poorly funded reconstruction, preliminary assessment, lack of coordination, corruption and Build back better/safer, policies, quality of works, land issues, cost overruns and a shortage of technical staff as the main factors affecting to the failure of disaster resettlement/reconstructions in Sri Lanka.

Duyne (2012) has identified five major different approaches for reconstruction after a disaster such as; Agency-Driven Reconstruction in Relocated Sites (ADRRS), Agency-Driven Reconstruction In Situ (ADRIS), Community-Driven Reconstruction (CDR), Owner-Driven Reconstruction (ODR) and a Cash Approach (CA).

According to the Duyne (2012) study on the impact of post-tsunami relocation on communities' livelihoods in Sri Lanka, it has been identified that the relocation led to a reduction of earning opportunities, in particular for women and the poor. It further explains that, in their pre-tsunami homes, many families had goats, cattle and poultry; homestead gardens and coconut trees and free access to fish. These were important for food security and constituted critical assets in case of financial emergencies. In addition, many women carried out some home-based income-generating activities. This changed dramatically in relocation sites, where people were not able to keep animals and kitchen gardens and women had no access to markets for their products. Distance from the relocation site to market has affected on most of their incomes generated from micro-business in their homes. As explained by Nissanka et al. (2008) donors were unable to complete the number of units pledged due to challenges of the construction industry, complexity of work, high inflation, raw material and labor rates etc. the absence of a technical quality

control system in the donor driven housing programmes are another major issue. It resulted in inferior quality houses being built and funded by donors. Some of those houses were demolished and reconstructed, wasting both time and money. It also revealed that ADRRS houses were significantly more expensive and of poorer quality (Karunasena, 2010).

Many scholars emphasized, owner driven approach has several advantages over the other approaches in reconstructions and resettlement programs in Sri Lanka. However, success of owner driven approach is contingent upon appropriate enabling mechanisms, such as access to affordable building materials, building codes that reflect local building technologies, building skills of local masons, and the home owners' capacity to supervise construction and to judge its quality (Duyne, 2012). As mentioned by the Nissanka et al. (2008) Owner driven housing reconstruction program in Sri Lanka was affected with gaps mainly due to insufficient grants. In addition, all reconstruction programs were affected by inadequate technical capability and unclear delegation of responsibilities among divisional, district and central government agencies, and a lack of coordination among the community and various other parties such as affected/non-affected communities, INGO, NGOs, private sector, and donors. The absence of a government entity to control grants has caused equity issues all over the country. This has further confirmed by Duyne (2012), according to them, in Sri Lanka, for instance, although there is a consensus that the ODR approach led to higher levels of satisfaction, the enabling mechanisms set in place by the government were not sufficient. As a consequence, in less than two years the material and labor costs almost doubled. In some places, NGOs intervened to top up the financial assistance provided by the government with an additional grant that allowed people to complete their houses. In many places, however, this was not the case, and as a result, the number of incomplete houses was very high in some areas.

According to a study conducted by Ahmed and McEvoy (2014) on post disaster reconstructions, most of the post disaster resettlement projects in Sri Lanka has no or minimal community consultation; most beneficiaries were simply allocated a property for resettlement. According to Ahmed and McEvoy (2014) most of resettled

communities have inherent adaptive skills and are able to maximize them with some support; whereas top-down heavy-handed processes usually undermine such skills. For the many subsistence-level households, there has been little recourse but to continue living in an unsatisfactory state until funds became available. Future agency efforts should begin by conducting a needs assessment of such vulnerable households and build upon the inherent adaptive skills of such communities.

Further, several scholars have conducted studies on disaster reconstruction in Sri Lanka. According to a study conducted by Sadiqi, Coffey, and Trigunarsyah, (2012) in Tsunami relocating site in Trincomalee, it has been identified that The construction work at this site encountered two major problems: 1). the site was perceived to be ready for new construction, but in reality it required major pre-construction preparation work, and 2). there were six different international non-governmental organizations (NGOs) involved in construction programmes, each adopting diverse approaches, varying house designs and different time frames. However, this initiative led to great community anxiety and delays in construction implementation due to lack of community participation. Both the new site and the design of the houses to be placed upon it did not meet the socio-economic and cultural needs of the affected community. Therefore, at the time this research is being conducted these houses still remained unoccupied and the beneficiaries had no desire to return to live in them.

In another case in Sri Lanka reveals that, many construction plans included indoor toilets and kitchens, both of which were considered unhygienic and culturally inappropriate, and thus, in many cases indoor kitchens were transformed into storage facilities. Thus in the cases of Sri Lanka, cultural traditions and norms related to the most acceptable placement of fundamental housing elements such as walls, doors and windows have been ignored (Sadiqi et al., 2012).

According to a study conducted by Vithanagama, Mohideen, Jayatilaka, and Lakshman (2015) in Kananke Watta Tsunami resettlement, in Matara District, Sri Lanka, it has been identified several failure in resettlement. The beneficiary selection process appears to have been flawed, as the government relied heavily on the Grama


Niladhari for information on displaced families and for making decisions about who should be relocated. This over-reliance on a single official created an opportunity for him to play favorites, resulting in an abuse of power. The families who had been engaged in fishing at night were most dissatisfied with the resettlement. These families found it inconvenient to maintain their livelihoods from their resettlement location. They also felt socially excluded in comparison to the way they had lived before the Tsunami. All of the relocated families were unhappy with the low quality of their new houses, which they blamed on shoddy workmanship and sub-optimal material used by the contractors who built the houses. The lack of communication between the displaced families, the government, and The International Federation of Red Cross and Red Crescent Societies (IFRC) was identified as a primary cause of the inferior quality of housing in Kananke Watta.

Overall, the Kananke Watta experience offers many insights into factors that are important to consider when approaching the issue of relocations following disasters. One of these insights is recognition of the importance of communication between different stakeholder groups, not only to ensure better decisions, but also to make everyone feel included in the decision-making process. Consistency in decision-making is important to minimize confusion and resistance to change. The availability of credible data also allows for transparency in decisions about resettlement, and prevents reliance on a single source that may not be accurate and objective. When selection is seen as subjective, the resettlement system is undermined. Most importantly, there should be long-term monitoring mechanisms put in place by the government to support and sustain those families resettled as a consequence of disasters.

According to a study conducted by Arunatilake, Wickramasinghe, Jayawardena, Weerakoon, Steele, and Jayasuriya (2006) in Sri Lanka, most relocated households are worse off now in terms of quality of housing and access to services and employment. As per this study, relocated households have faced several issues. Among them, many relocated households do not have their own sources of water and are worse off in terms of access to roads, pre-schools and health clinics compared to their pre-Tsunami levels of access. About 80 per cent of the relocated claim that

access to employment opportunities has worsened as a result of moving to new places. In addition, almost half of the relocated households are not happy with the construction materials used to build houses in the new locations, people's lifestyles and socio-economic situations were not taken into consideration when designing houses. Majority of relocated households have not been given ownership legally. There are problems of coordination across various donors, especially those who have provided houses without adhering to government plans. Moreover, although there have been numerous disaster preparedness training programs in the affected areas, only few households have actually benefited from these.

As a summary to the above discussion, scholarly works on disaster reconstruction/resettlement programmes in Sri Lanka shows several flaws. Most of the issues has occurred due to the used approach in reconstruction/resettlement process. As per the above literature, donor driven approach shows more issues compare to the owner driven approach. Among the factor of failure for the resettlement programmes, lack of community participation, lack of communication and coordination among stakeholders, lack of long term monitoring mechanisms, ignorance of socio-cultural values, poor quality of constructions and land issues are prominent.




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In global context, many scholars have identified various but mostly common factors for failure and success of the resettlement programs. Smith (2001) based on a study conducted in Bingol Province in Turkey has identified three factors, crucial in determining the success or failure of a resettlement project: the physical environment of the new settlement, the relationship to the old village and the capability of the community to develop itself. As declares by Barakat (2003) the choice of location, site selection and settlement planning; the choice of construction method and materials; and the choice of design are the considerations that must be addressed when planning new settlements. As per the study conducted by Dikmen (2006) in Turkey, new settlements are refused in post-disaster reconstruction projects due to the;

Quick decisions, Lack of user participation in early decision-making process, Inadequate site-selection criteria, Lack of interdisciplinary works during site-selection, Not considering the life style of the users, Lack of guidance to the beneficiaries during the construction phase of the houses.

As stated by Takesda et al. (as cited in Perera et al. 2011) resettlement schemes conducted in New Gediz, Turkey were successful due to the reason of "transfer of responsibility from settlement agencies to the settlers themselves. As these scholars describe, people were attracted to the new city by the provision of services and alternative forms of employment, which were not made available at old sites. In addition, housing design and construction too were often blamed for the rejection or failure of post-disaster resettlement projects and the loss of privacy was another frequent complaint.

Lack of adequate baseline information, inadequate resettlement planning, lack of consultation and participation of the affected people, budgetary shortfalls for timely compensation payments, insufficient technical expertise and inadequate institutional capacity,  weak monitoring program, are another important factors for failure of resettlement programs which has been identified by the Zaman, (as cited in Perera et al., 2011).

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According to the study conducted at Manjil earthquake resettlement program in Iran, by the Badri et al. (2006) it has been revealed that program has failed to meet its goals due to challenges in finding meaningful employment, limited land and water resources, changing consumption patterns and unequal access to resources and opportunities

In Mirpur resettlement project, Bangladesh had been extremely successful in terms of most aspects of the immediate development process in the resettlement estate. The factors that had contributed to its success were; the self-help housing model based on site-and-services scheme, location, infrastructure provision and security of tenure; good organizational structure that integrated government agencies, NGOs and the community (Perera et al., 2011). In this context, factors for success/failure can summarized as in table 2.3.

Table 2.3: Factors Affecting for Success/Failure

No.	Author	Factors affecting for Success/Failure
01	Smith (2001)	Physical environment of the new settlement Relationship to the old village Capability of the community to develop itself
02	Zaman 2002	Baseline information Resettlement planning Consultation and participation of the affected people Compensation payments Technical expertise Institutional capacity Monitoring program
03	S. Ali Badri et al. (2006)	Better living environment Location of the new settlement, Infrastructure provision Security of tenure Organizational structure that integrated government agencies, NGOs and the community
04	S. Ali Badri et al. (2006)	Meaningful employment Limited land and water resources Changing consumption patterns and Access to resources and opportunities
05	Dikmen (2006)	Quick decisions User participation in early decision-making process Site-selection criteria Interdisciplinary works during site-selection Life style of the users Guidance to the beneficiaries during the construction phase of the houses
06	Takesda et al. (2008)	Transfer of responsibility from settlement agencies to the settlers themselves Availability of alternative forms of employment Provision of services

No.	Author	Factors affecting for Success/Failure
		Choices of site for resettlement Housing design and construction Privacy of settler at new settlement Opportunities available for the future generations Technical Support Administrative and socio-economic support
07	World Bank and the ADB	Political commitment of borrowers in the form of laws, policies, and resources allocations Establishing guidelines and procedures in implementation Sound social analysis Demographic assessments Technical expertise in planning Cost estimate Provision of required financing Agencies that are responsive to local development needs People participation in setting resettlement objectives

As summarized in the above table, factors which affect to the success of disaster resettlement was used with the resettlement process' steps which was identified through cases analysis, to formulate following conceptual landslide resettlement framework (Figure 2.4).

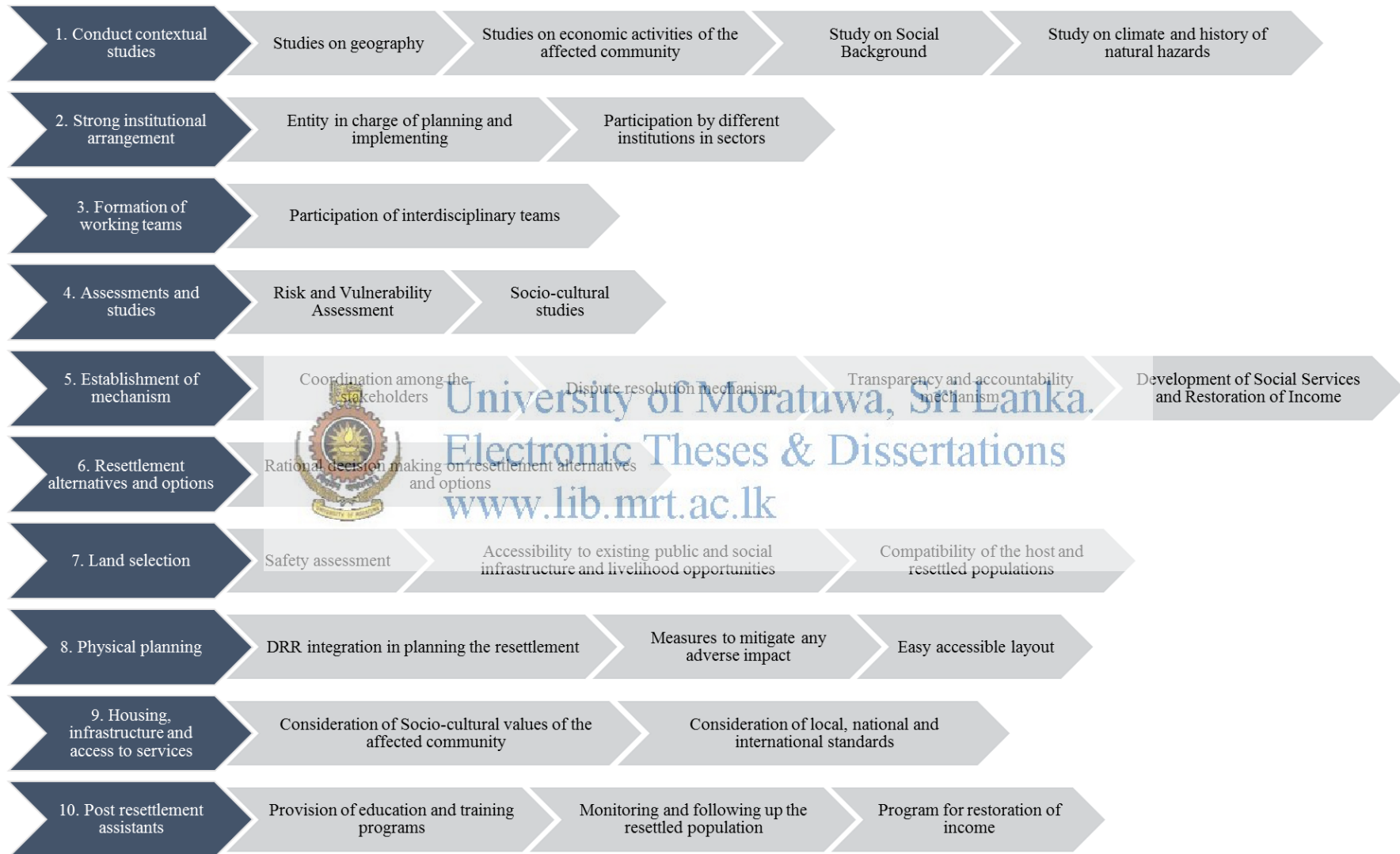


Figure 2.4: Conceptual Framework for Landslide Resettlement Planning

The conceptual landslide resettlement planning frameworks which was illustrated in above figure 2.4 was used as a base to conduct the resettlement case analysis under chapter 04.

2.9. Summary

In summary, the comprehensive literature survey was carried out to identify good practices and reasons for effectiveness in terms of landslide disaster resettlement planning. Finally, best practices and success and failure factors of existing resettlement processes were identified and conceptual landslide resettlement planning framework was developed in order to evaluate the existing resettlement approaches.

The next chapter deals with the research methodology adopted to examine and analysis prevailing landslide resettlement planning approaches used in local context.



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CHAPTER – 03

RESEARCH METHODOLOGY

3.1. Introduction

Previous chapter is contained comprehensive literature survey on this study, which focused to identify a conceptual framework in landslide disaster resettlement process. The purpose of this chapter is to describe the methodological framework used to construct this study.

This chapter is organized in three main topics as; research approach, case study design and research techniques. First part of the chapter is described the selection of research approach and its applicability, while the second part is focused on the case study design in detail. Third part of the chapter is directed towards the explanation of the case selection, data collection and data analyzing techniques which were used in the study.

3.2. Research Approach

According to the Kothari (2004) there are two basic approaches to research as, quantitative approach and the qualitative approach. Quantitative research is based on quantity or amount. It is applicable to phenomena that can be expressed in terms of quantity. Qualitative research, on the other hand, is concerned with qualitative phenomenon, phenomena relating to or involving quality or kind.

The aim of this study is to review prevailing resettlement project and to propose a suitable resettlement planning framework for landslide disaster for the future resilience which needs to identify secondary as well as primary information to answer the research problem. Since, qualitative research can help to interpret and better understand the complex reality of a given situation and the implications of quantitative data, qualitative approach was selected as the research approach.

The research question of this study is “why landslide resettlement programs implemented in Sri Lanka failed and what are the attributes should be considered in the process of resettlement planning in landslide prone areas, to be a successful

disaster resettlement practice”. According to the Ruwanpura (2012); Yin (2014) in contrast, “how” and “why” questions are more explanatory and likely to lead to the use of case studies as a research strategy.

Therefore, among the several types of research methods in qualitative research approach, the case study research method was selected for this study.

3.3. Case Study Design

A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident (Yin, 2014). According to the Kothari (2004) the case study is essentially an intensive investigation of the particular unit under consideration. The objective of the case study method is to locate the factors that account for the behavior-patterns of the given unit as an integrated totality.

Specially, case study involves analysis of real world problems, of which one has experienced or is able to observe.

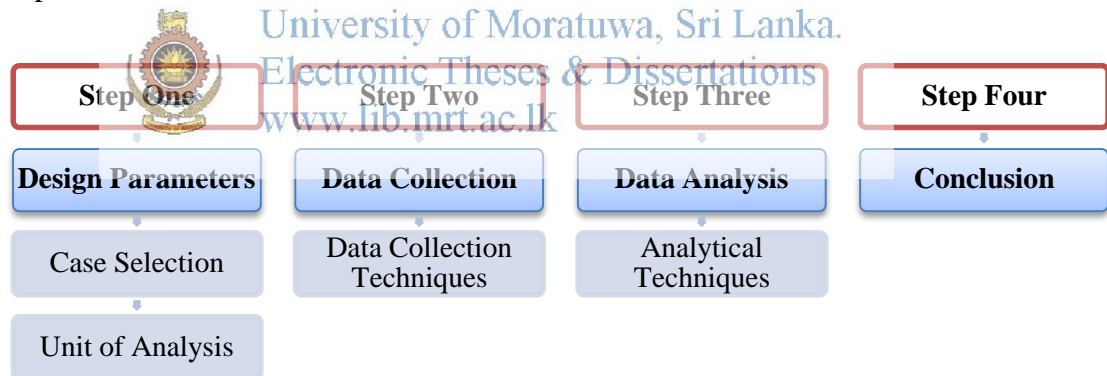


Figure 3.1: Case Study Design

3.3.1. Design Parameters

Case selection

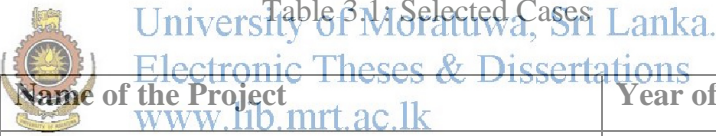
Ruwanpura (2012); Zainal (2007) describe that researchers should have to be careful when doing case selection prior to own study. Further, Zainal has emphasized that researchers can adapt either a single case or multiple cases, depending on the issue in question. A multiple case study enables the researcher to explore differences within

and between cases. The goal is to replicate findings across cases. Because comparisons will be drawn, it is imperative that the cases are chosen carefully so that the researcher can predict similar results across cases, or predict contrasting results based on a theory (Yin, 2014).

Since, the landslide resettlement process is not a rare or single unique case, this study needs to identify and compare the different approaches used in landslide resettlement programs. Hence, multiple case studies should be conducted. Therefore, by using the multiple case study design, it can be collected, data and information on different landslide resettlement programs, which can be compared to suggest an effective landslide resettlement process. Therefore, the multiple case study design was selected for this study.

As mentioned above, to compare different processes used in landslide resettlement programs, four landslide resettlement programs were selected under the multiple case study design with time constraints and convenience.

Table 3.1: Selected Cases



#	Name of the Project	Year of Commenced
01	Farm Garden Resettlement Project	2003
02	Johnston Estate Resettlement Project	2007
03	Galahawatta Resettlement Project	2011
04	Meeriyabedda Landslide Resettlement	2014

Unit of Analysis

Yin (2014) describes that, unit of analysis is related to the way the initial research question is defined. Since then, to propose an effective landslide resettlement process for decision makers in Sri Lanka, “Resettlement Program” is the unit of analysis in this study.

3.3.2. Data Collection

A hallmark of case study research is the use of multiple data sources, a strategy which also enhances data credibility (Yin, 2014). Potential data sources may include, but are not limited to: documentation, archival records, interviews, physical artifacts, direct observations, and participant-observation. Although the opportunity to gather data from various sources is extremely attractive because of the rigor that can be associated with this approach, there are dangers. One of them is the collection of overwhelming amounts of data that require management and analysis. Therefore, in this study, to collect data from landslide resettlement programs, semi-structured interviews were selected as the main data collection tool, while archival records and observations is used where it is necessary.

Interview Process

Kvale (1983) explains that purpose of interviews is to gather descriptions of the real world experiences of the interviewee and not interpretation of the described phenomenon. Further, Cassel and Symon (2005) elaborating in this regard mention that, as a process of constructing and using qualitative research, interviews split into four steps such as defined research question, create the interview guide, select the participants, and finally carry out the interviews. According to the Baiden and Price (2010) a combination strategy of including three approaches such as informal conversation, interview guidelines and standardized open ended should be adopted during the interview, which will increase the richness of the data collected.

Therefore, interview guide was developed to collect the relevant data and information, while more preference was given for open ended questions to enhance the richness of the information collected. (Refer Appendix B to D)

Implementation agency and target community is the key participant in the landslide resettlement program. Therefore, these two parties are a key consideration in this study of interview process. To have a consistency within interviewees of each case and to enhance validity of data, purposive sampling method was used to select

participants from both the parties for data collection. The study profile is illustrated in Table 3.2.

To improve the flexibility of the interview and to obtain more relevant data, a combination approach is used by including informal conversation. While interviewing, note taking and tape recording was made to maintain the accuracy of data collection.

Table 3.2: Interview Profile

Project	Position	Profession
Farm Garden Resettlement Project	Project Director	Geologist
	Director, Planning	Town Planner
	President, CBO	Community Member
	Five Village People	Community Member
Johnston Estate Resettlement Project	Project Engineer	Engineer
	Project Team Leader	Architect
	Project Team Member	Town Planner
	Five village people	Community Member
Galahawatta Resettlement Project	Project Engineer	Engineer
	Project Coordinator	Planning
	Director, Technical Evaluation	Town Planner
	Five village people	Community Member
Meeriyabedda Landslide Resettlement	Director, Planning	Architect/Town Planner
	Director, Technical	Engineering Geologist
	Assistant Planner	Town Planner
	Project Coordinator	Town Planner
	Five Village People	Community Member

3.3.3. Data Analysis

Analysis of data includes the processes followed by each selected landslide resettlement program from start to end of the planning process. After recording data from semi interviews on recorders and notes were utilized to develop the interview transcripts. Case analysis for each cases were done to gain overall understanding of the programs and processes. Next, across a case analysis was used to compare the adopted resettlement processes and identified the specific issues related to each case.

3.4. Summary

This chapter was focused on summarizing the research design and methodology adopted in this study. The qualitative research approach was selected as the research approach of this study while a case study method was selected as the research methodology. Semi structured interview techniques are the main data collection techniques in this study, which will be supported by the informal conversation technique. Content analysis was used here as the main data analysis techniques.

Chapter four will be focused on research findings and analysis of collecting data.



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CHAPTER – 04

RESEARCH FINDINGS

4.1. Introduction

Chapter three was focused on the method of study adapted in the research, whereas; the purpose of this chapter is to explicate the findings through the empirical study in detail manner. An empirical study was mainly focused to review the resettlement processes which have been adapted in landslide resettlement projects in Sri Lanka based on the identified conceptual resettlement planning framework under chapter 02 of this study.

This chapter is initiated with a brief description about the selected four cases. Then, cross case analysis is presented the resettlement practices adopted.

4.2. Background of Cases

The empirical study was conducted by using four (4) landslide resettlement project, which was not fully successful and implemented after the year 2000. A brief description about selected cases are given in Table 4.1.

Finding of each case is discussed under ten (10) broad heading which are the main steps come in the proposed resettlement planning framework.



Table 4.1. Details of Selected Cases

<i>No</i>	Case	<i>Case – A</i> <i>Farm Garden Resettlement Project</i>	<i>Case – B</i> <i>Johnston Estate Resettlement Project</i>	<i>Case – C</i> <i>Galahawatta Resettlement Project</i>	<i>Case – D</i> <i>Meeriyabedda Landslide Resettlement</i>
<i>01</i>	Disaster Victims	Ratnapura Landslides 2003	Hanguranketha Landslides – 2007	Gangawata Korale, Ududumbara, Nawalapitiya, Kundasale, Patha Hewahera 2010	Meeriyabedda landslide – 2014
<i>02</i>	Year of Commenced	2003	2007	2011	2014
<i>03</i>	Location	Ratnapura DSD	Rikillagaskada, Hanguranketha DSD	Galaha, Delthota DSD	Koslanda, Haldumulla DSD
<i>04</i>	Housing Units	246	198	150	67
<i>05</i>	Project Planning and Implementation organizations	Ratnapura DSD, NBRO, NHDA	Hanguranketha DSD, NBRO, Asia Foundation, IOM	Delthota DSD, NHDA	Haldumulla DSD, UDA, NBRO, NPPD, SL Army

4.3. Case Analysis

Case – A (Farm Garden Resettlement Project)

The palm garden landslide and flood resettlement project was selected to do the empirical study and this project was initiated ten years back. The site was located close to Rathnapura in Sabaragamuwa Province, Sri Lanka. On 17th May 2003, Rathnapura had extremely heavy and unusual rainfall of 347.2 mm within 24 hours. Floods that hit the city inundated the commercial area by the end of the day downpour. This is recorded as the most severe event during the last 47 years. The total number of deaths due to floods and landslides resulting from this deluge in Rathnapura District was reported to be around 122 of which 94 were due to landslide occurrence. 34,478 families were affected, 3,811 houses were fully damaged and 9,809 houses were partially damaged. Many landslide occurrences have also been observed within the Rathnapura district surrounding the municipality area.

The Government decided to relocate and resettle most of the 34,478 families affected in May 2003 under the subsequent recovery initiative to reduce the future risks. Identification of safe locations for resettlement took time.



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Identification of Lands

Two blocks of land were identified in Rathnapura based on NBRO recommendations. The land identified in Rathnapura for relocation of families is just outside the MC limits, and is a part of the Palm Garden Estate. The National Housing Development Authority (NHDA) provided the technical input required by the Divisional Secretary to block out the land for allocation.

Selection of Beneficiaries

Damage and loss assessment information which was provided by Grama Niladari has used to select the beneficiaries for allocation of lands in resettlement site.

Selected Approach

Case A has used, the owner driven approach for the resettlement program. Rupees 100,000.00 were given to each of the selected families to build a house on the land allocated. In addition, there was also financial and other assistance given by Non-Governmental Organizations (NGOs) to some of the selected families. The Technical Officers and Housing Officers of the NHDA provided technical advice to the beneficiaries. The families themselves organized labor input for construction of houses. Both voluntary and hired labor was deployed in this effort. Moreover, model house was constructed to demonstrate the flood resilient housing constructions.

Case – B (Johnston Estate Resettlement Project)

Walapane and Hanguranketha Divisions of Nuwara Eliya District in Sri Lanka, where the landscape is very undulating with steep slopes are frequently affected by landslides. Unusually heavy rainfall in mid-January 2007 has caused a series of landslides in these areas causing immense damage to human life and properties. Over 450 displaced families in Hanguranketha and Walapane Divisions were resettled in 6 locations by the respective Divisional Secretaries (DS). 198 Families in Hanguranketha were resettled at a land called Johnston Estate.

The Johnston Estate site is located about 1.5 km away from the Rikillagaskada town, in an abandoned tea plantation. Topography is consisting mainly with lands of moderate slopes and some highlands with steep slopes, and environmentally sensitive areas unsuitable for habitation. Rock boulders are scattered all over the site. Government has allocated 198 land plots to displaced families

Selected Approach

Case B also has used owner driven approach for resettle the affected people. The government has granted 20 perch of land plot, 28 roofing sheets, 50000 rupees for each affected families to construct their new settlements. The amount of money they have granted in 3 installments. Further, several non-government organizations have provided assistants in various ways for the families to be resettled in the new location. These families were given 11 house plans on the basis of slope of the

terrain, slope stability, income level of the families, the number of members in the family etc. which developed by the government organization. Moreover, it was developed a demonstration site with resilient housing along with appropriate land use practices to be followed by people to develop their own houses in the resilient manner.

Case – C (Galahawatta Resettlement Project)

In 2010, there were several land failure in the Kandy district. Following these land failures, around 585 families were affected from Gangawata Korale, Ududumbara, Nawalapitiya, Kundasale and Patha Hewahera DS divisions. 150 affected families were planned to resettle in Galahawatta which is an abandoned tea estate located in the Delthota DS division.

Identification of land

Implementing agencies have identified a 200 acres land in Galahawatta which 12 km away from Kandy city. The land is situated on the side of hill top facing a valley. National Housing Development Authority along with NBRO has provided the technical support necessary for land selection.



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Selected Approach

As previous two cases, the Case C resettlement project also has used owner driven approach for resettlement and reconstruction of affected families' houses. The selected families have received 30 perch land with Rs. 200,000.00 loans and Rs. 100,000.00 grant from the government. Both the grant and loan have given in installment according to the construction progress. Since affected families are scattered around the district, it has been minimal community consultation in decision making process. Two house plans were provided by technical supporting agency for constructing houses. People were given on-site training and technical support for constructing their houses.

Case – D (Meeriyabedda Resettlement Project)

A major landslide occurred on October 2015 in Meeriyabedda, Kosalanda in Badulla district. In this landslide, 37 people were found dead and around 70 families were displaced. National and local government institutions start the reconstruction and resettlement work for displaced families soon after the Meeriyabedda tragedy. It is constructing 64 houses at the resettlement site while 4 houses have been completed at the time this study conduct.

Identification of land

Site selection and recommendation on resilient development has been carried out by NBRO.

Selected Approach

The Case D resettlement is undertaking donor driven approach for resettling displaced people. The government along with several institutions carry out the planning and implementation of the program.

4.4. Cross Case Analysis

Cross case analysis with regard to the empirical study is carried out in this section by analyzing the process of resettlement of each case based on the identified conceptual resettlement framework under literature review (refer figure 2.4). For the purpose of validating the literature findings, it was illustrated the literature findings with this cross case analysis where relevant.

Discussion is mainly based on the following topics proposed in the conceptual framework (refer figure 2.4): Contextual Study, Institutional Arrangement, Forming the Work Team, Assessment and Studies, Establish Mechanisms, Resettlement Alternatives and Options, Land Component, Physical Planning (DRR, EIA), Housing, Infrastructure and Access to Services Component, and Post resettlement Stage Activities.

4.4.1. Contextual Study

Study on essential background information is a key to formulate appropriate resettlement strategy. The impact of the geography, climate, national and local government decision making system, the main economic activities, social and political background and history of previous natural disasters are main consideration come under this phase. All this information will provide essential background information for the individual planning and implementing organizations.

Geography

Geographical information is important in designing the resettlement program. It can be determined, its impact on program logistics, time scale etc.

According to the four cases, Case A, Case B and Case D resettlement project has followed this study in a minor scale. However, according to the project officials, Case C resettlement has not considered this aspect. Therefore, they have experienced issues in providing basic infrastructure facilities to the new resettlement site. According to the physical observation made due to its geographical location, accessible to other infrastructure facilities are very poor. As well, other individual organizations who are expected to provide services to the resettlement site, facing problems in providing services due to its geographical location. Therefore, the implementing agencies have unable to finish the project within the stipulated time period.

Economic Activities

Identification of economic activities of the area and available skills within the affected community are helpful for planning the livelihood development of the resettled community. According to the Case B, Case A and Case D project officials, they have conducted informal studies on this background. However, Case C resettlement has not studied on this background. Since that, resettled community does not accede to former or any new livelihood activities in a new location. Therefore, it has become a critical issue in the resettlement project. This is further confirmed by the statement given by the resettled community representative.

“There were nine families resettled here about a few months ago, but around six families left here and went to their former locations without having access to any livelihood activity. Now, we are only four families live in whole resettlement.”

The Case B project has considered this criteria and offered new livelihood opportunities at the new resettlement. However, the majority of resettled community was engaged in agriculture based livelihood activities. At the initiation of a resettlement program, local politicians had promised to offer 50perch land for agricultural activities. However, under this resettlement program, it has been offered only a land plot for housing. According to the community representative, due to lack of land for agricultural activities, around 50 families have left the new location of the former settlement.

National and Local Government Decision Making

Understanding of responsibility division between local and national government and responsible authority in provision of particular activities of the program, enables the smooth flow of the program. Having this type of background information on the initiation of the project, improve the efficiency of the project with the effective division of responsibilities and quick decision making.

According to the four cases, Case A and Case C Resettlement had limited information on this case. According to the Case C project officials and community representatives, stakeholder participation is very less. Therefore, all the responsibilities have laid on few authorities. That has resulted in very low progress in the project.

However, according to the Case D project officials, it has been initially identified these information and responsibility has divided into various key stakeholders. This has enabled quick decision making and implementation of the program.

Social Background

Basic understanding of social systems, social conflicts or unrest in the area is important in decision making. Social systems of the victims and host population should be studied carefully before make decisions.

Only Case D resettlement has considered the social background of the area. Other cases have not considered this criteria. Therefore, there are some conflicts has raised at the Case A resettlement in the host community. As well, there is some conflict between the resettled communities also. However, there are no major issues raised at Case C and Case B resettlement yet.

Climate and Natural Hazards

Is there a history of natural disasters? Is there a risk that should mitigate as part of the recovery (resettlement)? Having answers to these questions will reduce the chance of arising critical issues in a program.

According to these four cases; all the cases have followed, studied on landslide risk. But, it has been forgotten study on the history of other hazards and climate of the area. Case C is located on a mountain area. As well, it is on a top side of a large valley. According to the community representatives, prevailing wind change seasonally. During a six month period of the year, this area is getting the high wind situation. Currently, the newly constructed houses have affected by the high wind situation. This has become a serious issue in the Case C resettlement project. If the project had done a proper study of the area, newly constructed houses could include resilience measure or any means of sheltering to mitigate the impact. This situation is further proved by the statement given by the project officer,

“We had no idea of the prevailing situation. Once we got to know about the impact of high wind, we got the support of experts to overcome the situation.”

Johnson Estate resettlement also has the same issue as in Case C. It is also experiencing a high wind situation during a half year period. Further, whole the settlement is located on a colluvium soil mass which can be a previous landslide

deposit at history. However, lack of studies on history of disasters is causing some critical issues at the moment for this project. The Case D resettlement project has done some work on this aspect. Since, it is in the initial stage, the consequences of this study are not be visible yet.

Table 4.2. Issues Identified

Issues identified
Difficulties in providing basic infrastructure due to the geographical situation in Case C.
Newly constructed houses have abandoned without having any means of livelihood opportunities at or near to the resettlement in Case C.
Long delay in project completion due to lack of responsibility divisions in Case A, C.
Conflict between host and resettle community has raised due to lack of consideration in creating social harmony in Case A, C
Case A, B, C, and D settlements have affected by unexpected natural hazards, especially the high wind situation due to lack of studies on climate and history of natural hazards in new locations

The table 4.2 shows the causes and its effects on resettlement program, which has caused due to lack of proper contextual study. This has proved in the literature finding also (refer section 2.8), in literature finding, stated that, lack of adequate baseline information is one of the important factors for failure of resettlement programs. Further, it stated that, transfer of responsibility or responsibility division has resulted in the success of the past resettlement programs. Further, in literature finding stated that the physical environment of the new settlement is one of the three crucial factors in determining the success or failure of a resettlement project.

4.4.2. Institutional Arrangement

The multidimensional nature of the resettlement program needs participation in different institutions in different sectors. One institution for direct the overall program and others stakeholder institutions for specific functions.

According to the four resettlement projects, participation by different stakeholder institutions for resettlement programs are higher in Case B and Case D resettlement projects. As stated by “Piyal Ganepola” in his publication,

“Various institutions have engaged in providing specific services at the resettlement program. For example; NBRO for cost effective house designing and risk assessment, Asia foundation for housing constructions, IOM to construction of roads and water supply, another for offering training on livelihood activities and etc.”

With this type of combination, the Case B project has able to provide most of the services needed for resettled population within a considerable time period.

According to the project officials, the most recent Case D resettlement is comprised participation of various stakeholders. It includes government and non-government institutions. Risk assessment, land use planning, land zoning, house designing and constructions, fund management, provision of infrastructure are the some of identified sectors which has different institutional engagement. As stated by project officer of the Case D project, so far it has achieved their considerable progress of its work with the participation of many stakeholders for different functions within the project.

However, this situation is different in Case A and Case C resettlement projects. According to the project officer of Case C resettlement, participation of stakeholder institutions is very less. Only a few institutions are engaged in project planning and implementation. Lack of strong institutional arrangement has caused delay in providing essential services for the project area.

The same story is coming from the Case A resettlement project. According to the representatives of Case A, initially project comprised only the planning and implementation organizations with some donors. After two years, only with involvement of community, Case A could bring essential services. With a lack of strong institutional arrangement, resettled community has to spend more than four years without proper access to drinking water and electricity. Chairman of the Case A CBO stated that;

“It took a long time to receive us basic facilities like, continuous water supply, electricity. We could do this only with CBO involvement”

Table 4.3. Issues Identified

Issues identified
Long delay in project completion due to limited stakeholder involvement in Case A, C.

Table 4.3 shows the effect of lack of strong institutional arrangement, on resettlement programs. This has been supported by the literature findings also (refer section 2.8), it stated that inadequate institutional capacity/ arrangement is one of the important factors for failure of resettlement programs. Moreover, literature findings reveal that, good organizational structure that integrated government agencies, NGOs and the community, had contributed to the success of past resettlement practices.

4.4.3. Forming Work Team

Since, resettlement is a multidimensional process, interdisciplinary working teams are essential to achieve expected objectives of the project. Based on the size of resettlement project, number of working teams or the size of the working teams can vary.

These interdisciplinary teams are essential in conducting assessments, land selection, and house designing.

According to the four cases, forming of interdisciplinary working teams for conducting specific functions of the all projects are limited. As stated by the project

officials, in Case A resettlement project, interdisciplinary working team has formed only for model house construction which has not practically materialized in constructing individual houses, because of the suitability issues.

In Case B, according to the project officials and published documents, several interdisciplinary teams have been formed for different functions. Among those, house designing, drainage designing, model house construction teams were formed with the participation of interdisciplinary professionals.

However, according to the representatives from Case C project, there is no interdisciplinary working teams has formed for any functions. Only planning and implementation organizations are working together as a team for conducting most of the project functions. The composition of this team includes a few professionals from limited areas. This has resulted in issues in land selection and house designing at Case C resettlement.

According to the officials of the most recent Case D resettlement project, it has formed several interdisciplinary teams for conducting its specific functions. Land selection team includes planners, geologist and technical officers; a team of planners is conducting zoning plan for resettlement; inter organizational team has formed with different professional for taking important decisions in continuation of the project.

Table 4.4. Issues Identified

Issues identified
Land selection, Houses designing and construction issues have occurred in Case A, B and C due to lack of interdisciplinary working teams consisted with necessary professional.

According to the table 4.4, lack of interdisciplinary working teams has caused land selection and housing construction issues in resettlement cases. Agreeing to this, literature finding (refer section 2.8) reveals that Lack of interdisciplinary works is a factor for refusing new settlements in post-disaster reconstruction projects.

4.4.4. Assessment and Studies

Conducting an effective assessment and studies on identified important aspects lead to rational decision making in continuation of the resettlement project successfully. These assessments include, damage and loss assessments, socioeconomic assessment and cultural studies, Risk assessment and vulnerability studies for future hazards, capacity and need assessment and etc.

Assessment of damage and loss is essential to understanding the extent and distribution of impact in terms of loss of life, property, infrastructure, livelihoods and impact on the economy. By conducting this type of proper assessment, it helps to plan and design the resettlement program more precisely. According to the representatives from all four cases, almost all of them has done damage and loss assessment.

Ethical, social and cultural considerations should be considered in the design and implementation of the resettlement plans. Therefore, socioeconomic and cultural studies are important in deciding the resettlement alternatives and options, creation of livelihood opportunities, new location of the resettlement and designing the houses. However, According to the community representatives and project officers, none of the project from these four cases has not conducted these studies and assessment. These projects have not considered socio-cultural aspect in deciding the new location or designing the houses.

Resettlement should be a prevention tool, rather than a mechanism for responding to emergencies. In that case, it is essential to conduct risk and vulnerability assessment with damage and loss assessment. Risk and vulnerability assessment helps identify the communities who living in risk areas. With that, those at risk and vulnerable communities can resettle with affected community as a preventive measure. According to these four cases, all of them has conducted risk and vulnerability assessment for future hazards with initiation of resettlement project. All these projects are comprised with affected and at risk communities. This is further confirmed by the way of land allocation to the resettled community at Case A project as expressed by a community member.

“We received three types of land plots, 10 perch land has awarded to the totally affected families while 6 perch land for the half damage and 5 perch land for the risk and vulnerable families.”

What are the affected communities’ needs and priorities for assistance? What materials are available locally? Do the necessary skills exist within affected communities or the construction industry? What capacity exists within professionals, institutions and government to manage and support the reconstruction program? Capacity and Need assessment provides answers to these questions and it will effectively support to plan and implement the successful resettlement program. The output of these assessments helps to decide which approach to be used in implementing the resettlement program. However, all the four projects have not conducted these assessments. All of these projects have taken decisions on implementing the approach without considering these assessments.

Case A, Case C and Case B projects have used owner driven approach for constructing houses. However, in Case A project, at the middle of the project non-government organization has involve in constructing houses for their own plan. According to community representatives these houses does not satisfy their requirements. The Case D resettlement project has used donor driven approach for constructing of houses.

Table 4.5. Issues Identified

Issues identified
Socio-cultural studies show peoples social status, employment and cultural values. Output of above studies should be used in decision making on land selection, house designing and creating livelihood. Due to lack of above studies several issues have raised in A, B, C, D Cases related land, house designing and livelihood.
Resettlement approaches for selected cases have not been decided upon the characteristics and the capacity of the people. Therefore, suitability issues with the selected approach has raised in Case A, B and C.

As show in the above table 4.5, lack of socio-cultural studies and need and capacity assessments has caused a negative impact on resettlement programs. This is

supported and proved in literature findings (refer section 2.8) also. Accordingly, capability of the community to develop itself is one of the three crucial factors in determining the success or failure of a resettlement project. Literature finding further reveals that, sound socio cultural analysis is also affecting the success of the resettlement projects.

4.4.5. Establish Mechanisms

There are several mechanisms that should be established within a resettlement process, in order to achieve the best output from the program.

Mechanism to coordinate the participation of stakeholders

If the resettlement has planned properly, it should be consisted with participation by different institutions or stakeholders for performing different functions of the project. To ensure these activities are planned and implemented timely manner, avoid duplication of functions and resource waste, coordination mechanism should have established in the program.

According to the four cases, Case A resettlement does not provide this kind of mechanism for coordinating participation of stakeholders. It can be clearly identified, in the way, how they have received basic infrastructure facilities in the program. As stated by community representatives, Case A has resettled community in 2003, electricity supply has given in 2005 by “Lion Club” while water supply has given in 2007 by “UNDP”. If there was a mechanism to coordinate these functions, Case A could have received these facilities much earlier at once. Moreover, at the middle of the project one NGO has come to construct houses for the project. At the same time, another institute has constructed model houses to guide construction of the project and transfer technical knowledge to the affected community to construct their houses in cost effectively and disaster resilient manner. However, the NGO has constructed all the houses according to their own single plan. It was completely different the model houses constructed by another organization. Since, there was no coordination among these institutions, effort of one organization was useless and it was a waste of resources and not the best way to construct the houses.

In the Johnson Estate resettlement project, there were several stakeholders to provide essential services. As stated by Project officials, they created a friendly atmosphere among all the stakeholders through creating coordination forums to share information. The Case B resettlement project has commenced in two phases. According to the community representatives, most of these stakeholders have provided their services only for the community resettled under the phase one. Community further stated that, the delay in resettlement has resulted in losing some of the important services of phase one to phase two. Specially, livelihood assistance which was given in phase one has not continued in phase two. This issue could overcome, if there was a mechanism to coordinate those stakeholder institutions. Another example of the Case B resettlement is, as stated by project officials, a model house has been constructed by a stakeholder organization to demonstrate cost effective construction methods among the community. However, according to the community, this model house does not meet their aspirations and those methods limited only to that house. At the same time, several house designs have prepared by other stakeholder institution, to be used for the construction of houses. According to the community, no one has used those plans. This is further confirmed by the following statement given by the community representative.



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“Official did not consult us before they design the house plan, for me those plans are not suitable and funds given to us is not enough to construct the house according those plans. I know, no one has followed those plans”

However, due to lack of coordination among community and other stakeholder institutions, most of the efforts have not materialized.

In Case C resettlement project, according to both the project officials and community representatives, there is no mechanism to coordinate the stakeholders engaged in different functions.

In Case D resettlement, although there are a number of stakeholders involve, as stated by a project officer, at the initiation of the project, there was no proper mechanism for coordinating those stakeholders. Therefore, several organizations were involved in same function and it was a big waste of time and resources.

Dispute resolution mechanism

As in many other projects, within the resettlement projects also, there will be disputes among the stakeholders. In order to resolve these possible disputes, a need of proper mechanism arises. Therefore, planning and implementing authority should have established dispute resolution mechanism for facing these situations.

According to the four cases, there is no such mechanism has formed for any of these projects. According to the Case A, Case B and Case C resettled community, their major issue is land ownership of their new lands. For the Case A, it is being 10 years and for the Johnson Estate is 7 years after resettlement, but still community has not received deeds for their lands. Not having deed for their lands have affected on community lives in different ways. This can be clearly identified by the statement given by the community representative.

“Still, we have not received deed for our land. We have only received an authorization letter. Although, we frequently insisted to relevant authority about our deeds, after 10 years of time still we did not get it. Most of people are waiting for deeds because if we have that we can obtain a loan and modify houses and use for self-employment purposes”

Transparency and Accountability Mechanism

Transparency and accountability mechanism is important to build the trust between planning and implementing organization and resettled community.

According to the four cases, Case A resettlement project has issues of transparency of the activities. As stated by community representative of Case A, several people who have not affected by the disaster has received lands from the resettlement which was to be received some of actual victims. They further expressed that,

“There were so many political influences. Some of the non-victims got the land from this project and some victims still remaining without having a land. Initially DS has promised them to give 20 perch land and later it has converted into 10, 6, and 5 with political interference.”

These incidents have resulted to weaken the trust between the community and project implementing organization.

Although, there is no proper mechanism has established in the other three cases, no major issues have occurred as a result of lack of transparency and accountability mechanism.

Mechanism for Preventing New Settlement in Affected Areas

Allowing constructions or living in affected areas after the resettlement may lead to another disaster situation and it will indirectly contribute to the failure of the program.

In Case B resettlement, it has not been prevented new constructions and living in existing houses in the affected and at risk areas. Due to this, as stated by community representative of Case B, around 50 families have gone for former locations.

However, in Case C resettlement community representative stated that project officers have asked them to destroy the existing affected houses to be eligible to receive a land from resettlement project. However, except 4 families all others have abandoned the resettlement.

In Case D resettlement project, most of the victim houses have fully destroyed from the landslide disaster. But, as stated by estate authority, before they have faced this disaster, they have received new houses in safe areas because of the risk they had. However, those new houses were allocated to extended families of the same household and one family was living in the house of risk areas.

Mechanism for Development of Social Services and Restoration of Income

According to the most of scholarly works found in the literature review, a mechanism for provision of social services and develop an alternative form of employment opportunities can attract the people for new settlement.

However, in this four resettlement project, as per the project officials only Case B resettlement has a mechanism for development of social services and income

restoration. They have conducted a livelihood program by providing credit facilities and micro finance programs. This has further confirmed by the community representatives,

“Our people received several equipment for starting new employments. Those include, equipment for carpentry works, masonry works, sewing machines etc. As I know most of our people has started new employments using these machines.”

According to them, they have received not only the machines, these communities has received necessary trainings also.

However, all these services have received only for the community resettled under phase one only. Although, community were received, some livelihood assistance, some of people has left the resettlement. Community members expressed this as,

“Member of Parliament promised us to give 20 perch for housing and ¼ acres for cultivation. Now we have received only a 20perch land. Most of our people are farmers. Since they have lost their land, they have livelihood problems. More than 50 families have gone back to original place due to lack of livelihood opportunities.”



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In Case A resettlement, according to project officials, there was no strong mechanism to provide social services and income restoration. As further stated by the community, they had found new income generation ways after they moved to the new lands. Since, the new location is accessible to town area, this has not affected critically on their lives. However, if there was a mechanism to support resettled community, they would have a better living standard than what they have at present. This proves, according to a comment of an occupant of the Case A,

“We lost what we had in our former places. Especially the lands we cultivated. We have not received any assistance to restoration income. At least if we had received deeds for our lands, we could obtain loans and start new income generation way.”

Further, according to the chief of Case A CBO, social service such as, electricity, water and Community Centre have provided, by the community itself with the support of several NGOs. A mechanism was not available for providing those social services within the resettlement project.

Table 4.6. Issues Identified

Issues identified
<p>In above Case A, B and D, several stakeholders have engaged in proving services. However, due to limited coordination among stakeholders following issues have raised;</p> <ul style="list-style-type: none"> ▪ Compatibility issues of work done by different stakeholders. ▪ Some services have received for a one party only. ▪ Most of the efforts of different institutions have not materialized. ▪ Waste of resources due to repetition of work by several institutions.
<p>Disappointment among resettled community due to not having land titles Case A, B, and C.</p>
<p>Misapplication of the land plots of Case A resettlement has weakened the trust between the community and project implementing organization.</p>
<p>Although the government has provided new settlement for affected people, since there is no mechanism to prevent the settlements in affected and at-risk areas, the people of the Case B and C have abandoned the resettlement and living in risk areas.</p>

Table 4.6 shows the issues has caused to the resettlement cases, due to lack of necessary mechanisms. As literature findings (refer section 2.8) stated, having of several important mechanisms serve the resettlement with positive outcomes and less burden.

4.4.6. Resettlement Alternatives and Options

Collective and individual resettlement is the main two resettlement alternatives available for new resettlement. According to the nature and characteristics of the affected population or based on the finding of the studies conducted at the assessment and study phase, which alternatives and options to be used in the program can be decided.

The used resettlement alternative of the selected four resettlement project is collective resettlement. However, the characteristics and the nature of these each resettlement are different. It seems that, it has not been considered, these characteristics and nature of the population to be resettled before they decide the resettlement alternative.

At the same time, according to the community and project representatives, there was only set options for these resettlements.

Case B and Case A resettlement projects have used the collective resettlement and only set options were to provide land and fund to be constructed houses by owner itself. According to the community, they are preferred for collective resettlement, but they preferred if there were few options to be selected. According to a community member,

“There are some families who are unable to construct houses themselves, especially women headed and disabled families.”

In this case availability of more resettlement options would be served to them equally.

Case C resettlement is slightly different from other resettlement. According to project officials, it has communities from several localities and different community groups. According to the community and the nature of the community, it is preferred individual resettlement than the collective resettlement. This is further confirmed by the comment made by a community member,

“I am working at the town, every day I have to travel. It is more than 12km to the town and 5km walking to take bus from this location. There are more people like me. It is very difficult continuing my employment with the situation. I would prefer if I get some fund to find a place near town area to resettle.”

As an alternative, individual resettlement is the best alternative for these types of mixed characterized resettlement.

In Case D also implementing organization has used collective resettlement as their alternative way of resettlement. Since, the affected community is from the same social system and ethnic group, collective resettlement would be better for them. Moreover, it is being used donor driven approach to construct the houses. With the nature and characteristics of the affected community, this option would be better for them.

Table 4.7. Issues Identified


Issues identified
 <p>Case A and C found mix characterized communities. However, a decision has made without considering these different characteristics. Therefore resettlement has faced difficulties in collective resettlement.</p>
<p>Case A, C and D resettlement had collective resettlement only with one option. Due to limited options in collective resettlement families with lack of resources (e.g. Women headed families) has faced difficulties in house construction.</p>

Table 4.7 shows the issues has raised because of not having resettlement alternatives and options within the program. As literature finding stated (refer section 2.8) resettlement programs (The Nueva Esperanza Resettlement – Colombia) which consisted resettlement options and alternatives, have successfully completed.

4.4.7. Land Component

Choice of location or land selection is a crucial stage of resettlement process. It should be established crucial criteria that would govern the location of resettlement. The selected land must meet those criteria for the success of the resettlement as follows; Compliance with existing land use plans, safety, accessible location, property titles, soil quality, access roads, access to public services, compatibility of host and resettled population.

Compliance with Existing Land use Plans

According to all the project representatives, land selection was done with the concession of respective local authorities. Local authorities give their approval only if the land is compatible with their existing land use plans.

Safety

Safety is the most important factor in the new land selection. According to the Case A project, safety of the land has been assessed in terms of landslides, and it has been demarcated the safe and risk areas. However, according to the community representative of Case A,

“There are some lands which are recommended not to resettle people. Once an implementing organization resettle some families there, our CBO asked to implement organization to give them lands from another place. Once they moved to another place once again implementing organization has resettle some families in the same lands. Now those families are under landslide threat.”

According to the project official of Case B, it has been conducting the geological studies to assess the land safety in terms of landslides. However, some of the land areas are not safe for settlements. According to a study conducted by K. Sugathapala and J. Prasanna, it reveals that,

“Around 2/3 of the area is covered with colluvium soil, which was a landslide related phenomena in the history, which is an evidence for unsuitable ground condition of human settlement. It can be considered as marginal land for housing or residential.”

They further stated that,

“Ground topography shows a highly diverse terrain, therefore when people make their living area and livelihood activities, it will make a mass movement during rainy days. Due to limited flat land, potential house holders have to cut the land which will cause some soil instability to the immediate neighbors also it is dangerous during the rainy season.”

This statement is further confirmed by the statement given by a community representative of Case B. According to him,

Initially I received one land plot and it was affected on landslides. Due to that around 70 families moved to other land plots. This land is a previously landslide one, I dig 14 foot depth toilet pit within one and half day. That means, the soil is very strongly and not stable.”



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Apart from that, community representative stated that, they are experiencing high wind situations in the land during a six month season in each year. Therefore, according to them, this land has the future risk of its stability and impact of high wind.

According to project representatives from Case C resettlement, they have undertaken a landslide risk assessment of the new location. Although, the land is safe in terms of landslide, at present it has severely affected by the high wind. Most of the roofs of new houses have blown away with high wind, not one but several times. According to an assessment conducted for the high wind impact of the Case C resettlement project by expert organization, this assessment stated that,

“The land is subject to winds with a much higher speed. This could be due to the high elevation of the land a wind tunneling effect.”

Accessible Location

As per the spatial distribution of existing services and locations of Case A and Case B resettlement lands, both the lands have access to social services and other public services. Therefore, there is no big issue with accessibility of these two lands. However, Case C resettlement land has very poor accessibility to all the social and public services. Road access and conditions of the roads are very poor. According to the community representatives, resettled community is having minor living conditions at the resettlement site without having access to any of essential social and public services. Due to this, more than 90% of the newly constructed houses have been abandoned.

Selected location for the Case D resettlement is accessible to most of the public and social services.

Accessible to Livelihood Opportunities

Since, Case A, Case B and Case C resettlement locations are located away from former locations of the resettled community, according to the community representative of each community, most of the families have lost their employment and they had to find new livelihood opportunities. Due to this some of the families of the Johnston and many of from Case C have left the resettlement and stay back in the at risk areas.

Table 4.8. Issues Identified

Issues identified
In Case B and C, proper safety assessment has not done for resettlement sites. Therefore, resettled communities in above cases are under risk due to ground stability issues and the impact of high wind.
90% of the newly constructed houses have been abandoned in Case C resettlement due to poor accessibility to existing public and social infrastructure and livelihood opportunities..

Table 4.8 shows the issues raised due to lack some criteria in selected cases. Accordingly, safety and accessibility issues have caused problems in new resettlements. As literature stated (refer section 2.8), past resettlement projects (in Turkey) have failed due to inadequate site selection criteria. This has further agreed with the literature findings, it stated that, the Manjil earthquake resettlement program in Iran failed to meet its goals due to unequal access to resources and opportunities.

4.4.8. Physical Planning

Resettlement should include Disaster Risk Reduction (DRR) measures to mitigate any possible disaster impacts and environmental mitigation measures to mitigate adverse environment impacts.

In Case A, according to the project officials, they have introduced integrated DRR in house designing and constructions. As stated by officials at Case B, they have conducted studies on integrating DRR in resettlement. Expert agencies have designed plans by including the DRR component. As well as, mitigation plans have been designed for reducing the impact on the environment.

As per the project officials and community of Case C, there is no DRR or any environment impact mitigation measure has taken place within the project. This has further confirmed by the statement given in the high wind assessment report of the Case C project.

“It was also observed that the land lacked any means of sheltering which can be from a tree-line that may help reduce the effect of wind on the houses constructed in the site.”

Although, some of these projects have put their emphasis on including these concepts in to resettlement process, due to lack of community involvement in these activities most of these attempts have not materialized at the real ground. As a community representative stated,

“One organization demonstrated about housing construction in flood prone areas. But, it was not applicable to us since we are not in a flood prone area.”

Table 4.9. Issues Identified

Issues identified
Case B and C resettlement locate high wind prone areas. However, it has not been integrated disaster risk reduction measures for housing construction. Therefore, newly constructed houses have affected by high wind disaster.

Table 4.9 shows the impact due to lack of disaster risk reduction, integration in new settlement developments. DRR is not much considered in past resettlement also. According to the literature findings (refer section 2.8), “The Southern Leyte Landslide Resettlement - Philippine” has caused some problems due to lack of DRR integration in settlement planning.

4.4.9. Housing and Infrastructure

Designing and construction of houses and other infrastructure is determined based on the approach used in the project. The approach is decided based on the finding of the assessment and study phase.

Case A, Case B and Case C resettlement project has used “owner driven” approach to constructed houses. Under this approach, owner has to construct their houses while funds and technical assistance are provided by the implementing organization. According to the project officials and community representatives, for these four projects, several house designs have been given. According to the community, those designs do not meet their aspirations. As community members stated, there was no community involvement in designing the house plans. Planning institutions have not considered social and cultural values of the community in designing the house plans. Therefore, community has rejected those designs and have built their houses on their own plan.

This was same at the Case D resettlement. According to the community, they are not happy with the initial house designs. As per the community and their representatives, they are expecting a design which can address the issues they have at present. Therefore, planning and implementing authorities had to change the plan according to the comments from the community.

Further, according to the project representatives, in Case A and Case B resettlement projects, model houses have been constructed to guide the resettled community for constructing their houses. However, as stated by community representatives, these model houses are not compatible with their social-culture and requirements. Therefore, no one has followed these model house guidelines in constructing their houses. This effort could have succeeded, if the project conducted socio-cultural study and integrate those outputs with the project activities.

Table 4.10. Issues Identified

Issues identified
In Case A, B, C and D, the community have refused the all house designs and construct houses as they wish due to ignorance of community involvement in house designing.
Demonstrated model houses in Case A and B have failed to achieve expected outcomes due to ignorance of socio-cultural values of the affected community.

Table 4.10 shows the issues raised due to ignorance of community involvement and socio-cultural values of the community. Literature finding also agreed on this situation. Literature findings (refer section 2.8) stated that, new settlement in Turkey has refused due to lack of user participation in the early decision-making process and not considering the life style of the users. It further argues that, lack of consultation and participation of the affected people is one of the important factors for failure of resettlement programs.

4.4.10. Post resettlement Stage Activities

After the resettlement, the post resettlement assistant period should be established to ensure that resettled community achieves a good quality of life conditions at the new resettlement. It should be included provision of education and training programs in different aspects and program for restoration of income.

As per the community, Case A resettlement project has received very limited post resettlement assistance. Specially, community has faced lots with difficulties in schooling the children in new schools. As community members stated, without land

ownership and 5 year residence at the new location, it has been a difficult task to schooling the children. Further, they have not been received, any means of training or programs to restore the income.

However, as stated by the community and project officials, Case B resettled community has received some trainings and assistance on restoration income after the project also. As described by a community member of the Case C resettlement, they have received assistance on technical support, when high wind hit on their houses. Other than that, there is no major assistance to the community after the resettlement. However, according to the project officials, they are working on providing infrastructure facilities to the Case C with the assistance of relevant government institutions.

Table 4.11. Issues Identified

Effects
Communities of the case A, B, and C had to face difficulties in continuation of a normal lifestyle and difficulties on restoration of family income due to lack of post resettlement assistants.

Table 4.11 shows the impacts due to lack of post resettlement activities. To support this scenario, literature finding stated (refer section 2.8), people were attracted to the new city by the provision of services and alternative forms of employment, which were not made available at old sites. Further, this has been supported by the literature findings, it describes weak monitoring program is an important factor for new settlement failure.

A thorough data analysis was carried out in this section in order to evaluate the existing resettlement process of selected cases based on the identified resettlement framework under chapter 02 of this study. Through the analysis, factors which were not addressed during the resettlement process of each were identified with its effects on the resettlement projects. It can be summarized the problems and their causes in each step as in Table 4.12.

Table 4.12: Summary of Resettlement Process – Problems and Causes

#	Program	Problems	Causes
01	<u>Contextual Study:</u>	Difficulties in providing basic infrastructure due to the geographical situation in Case C.	Lack of studies on geography
	A. Geography	Newly constructed houses have abandoned without having any means of livelihood opportunities at or near to the resettlement in Case C.	Lack of studies on economic activities of the affected community
	B. Economic Activities		
	C. National and Local Government Decision Making	Long delay in project completion due to lack of responsibility divisions in Case A and C.	Lack of responsibility division
	D. Social Background	Conflict between host and resettled community has raised due to lack of consideration in creating social harmony in Case A and C.	Lack of social consideration
E. Climate and Natural Hazards	Case A, B, C, and D settlements have affected by unexpected natural hazards, especially the high wind situation due to lack of studies on climate and history of natural hazards in new locations	Lack of study on climate and history of natural hazards	
02	Institutional Arrangement	Long delay in project completion due to limited stakeholder involvement in Case A and C.	Lack of strong institutional arrangement
03	Forming the Work Team	Land selection, Houses designing and construction issues have occurred in Case A, B and C due to lack of interdisciplinary working teams consisted with necessary professional.	Lack of interdisciplinary teams for specific functions
04	Assessment and Studies	Socio-cultural studies show peoples social status, employment and cultural values. Output of above studies should be used in decision making on land selection, house designing and creating livelihood. Due to lack of above studies several issues have raised in A, B, C and D Cases related land, house designing and livelihood.	Lack of social-cultural studies

#	Program	Problems	Causes
		Resettlement approaches for selected cases have not been decided upon the characteristics and the capacity of the people. Therefore, suitability issues with the selected approach has raised in Case A, B and C.	Lack of need and capacity assessment
05	Establish Mechanisms	In above Case A, B and D, several stakeholders have engaged in providing services. However, due to limited coordination among stakeholders following issues have raised; <ul style="list-style-type: none"> ▪ Compatibility issues of work done by different stakeholders. ▪ Some services have received for a one party only. ▪ Most of the efforts of different institutions have not materialized. ▪ Waste of resources due to repetition of work by several institutions. 	Lack of coordination among the stakeholders
		Disappointment among resettled community due to not having land titles Case A, B, and C.	Lack of dispute resolution mechanism
		Misapplication of the land plots of Case A resettlement has weakened the trust between the community and project implementing organization.	Lack of transparency and accountability mechanism
		Although the government has provided new settlement for affected people, since there is no mechanism to prevent the settlements in affected and at-risk areas, the people of the Case B and C have abandoned the resettlement and living in risk areas.	Lack of a mechanism to prevent the settlements in affected and at-risk areas
06	Resettlement Alternatives and Options	Case A and C found mix characterized communities. However, a decision has made without considering these different characteristics. Therefore resettlement has faced difficulties in collective resettlement.	Irrational decision making on resettlement alternatives and options
		Case A, C and C resettlement had collective resettlement only with one option. Due to limited options in collective resettlement families with lack of resources (ex. Women headed families) face difficulties in house construction.	Limited options collective in resettlement

#	Program	Problems	Causes
07	Land Component	In Case B and C, proper safety assessment has not done for resettlement sites. Therefore, resettled communities in above cases are under risk due to ground stability issues and the impact of high wind.	Lack of proper safety assessment
		90% of the newly constructed houses have been abandoned in Case C resettlement due to poor accessibility to existing public and social infrastructure and livelihood opportunities..	Poor accessibility to existing public and social infrastructure and livelihood opportunities.
08	Physical Planning (DRR, EIA)	Case B and C resettlement locate high wind prone areas. However, it has not been integrated disaster risk reduction measures for housing construction. Therefore, newly constructed houses have affected by high wind disaster.	Lack of DRR integration of planning the resettlement.
09	Housing, Infrastructure and Access to Services Component	In Case A, B, C and D, the community have refused the all house designs and construct houses as they wish due to ignorance of community involvement in house designing.	Ignorance of community involvement in house designing
		Demonstrated model houses in Case A and B have failed to achieve expected outcomes due to ignorance of social-cultural values of the affected community.	Ignorance of socio-cultural values of the affected community
10	Post resettlement Stage Activities	Communities of the case A, B, and C had to face difficulties in continuation of a normal life style and difficulties on restoration of family income due to lack of post resettlement assistants.	Lack of post resettlement assistants

According to the analysis, there is no systematic procedure or approach is used in any of the projects. All the projects have used its own informal procedures. It is lacking with best practices which was identified in the literature review. Absent of best practices in resettlement process has created negative impacts in various ways. Another finding of this study is, there is no set procedure or systematic approach for the landslide resettlement in Sri Lanka. Since, any failure of a resettlement process directly or indirectly impact on effected community, it is needed an effective approach or process to achieve wellbeing of the affected community. Therefore, with the findings of the literature, analysis of locally recognized major landslide resettlement and subject experience of the researcher himself, it is proposed following updated resettlement planning framework which was formed in chapter 02 of this study and factors directly affected by the failure of most landslide resettlement cases with suggestions, to be used in landslide resettled in Sri Lanka.

4.5. Landslide Resettlement Planning Framework

Figure 4.1 shows the final landslide resettlement framework which consisted with ten main steps and important attributes for each step. This framework was developed after updating the conceptual resettlement framework with the findings of the case analysis and suggestions given by the participants in the interview process.



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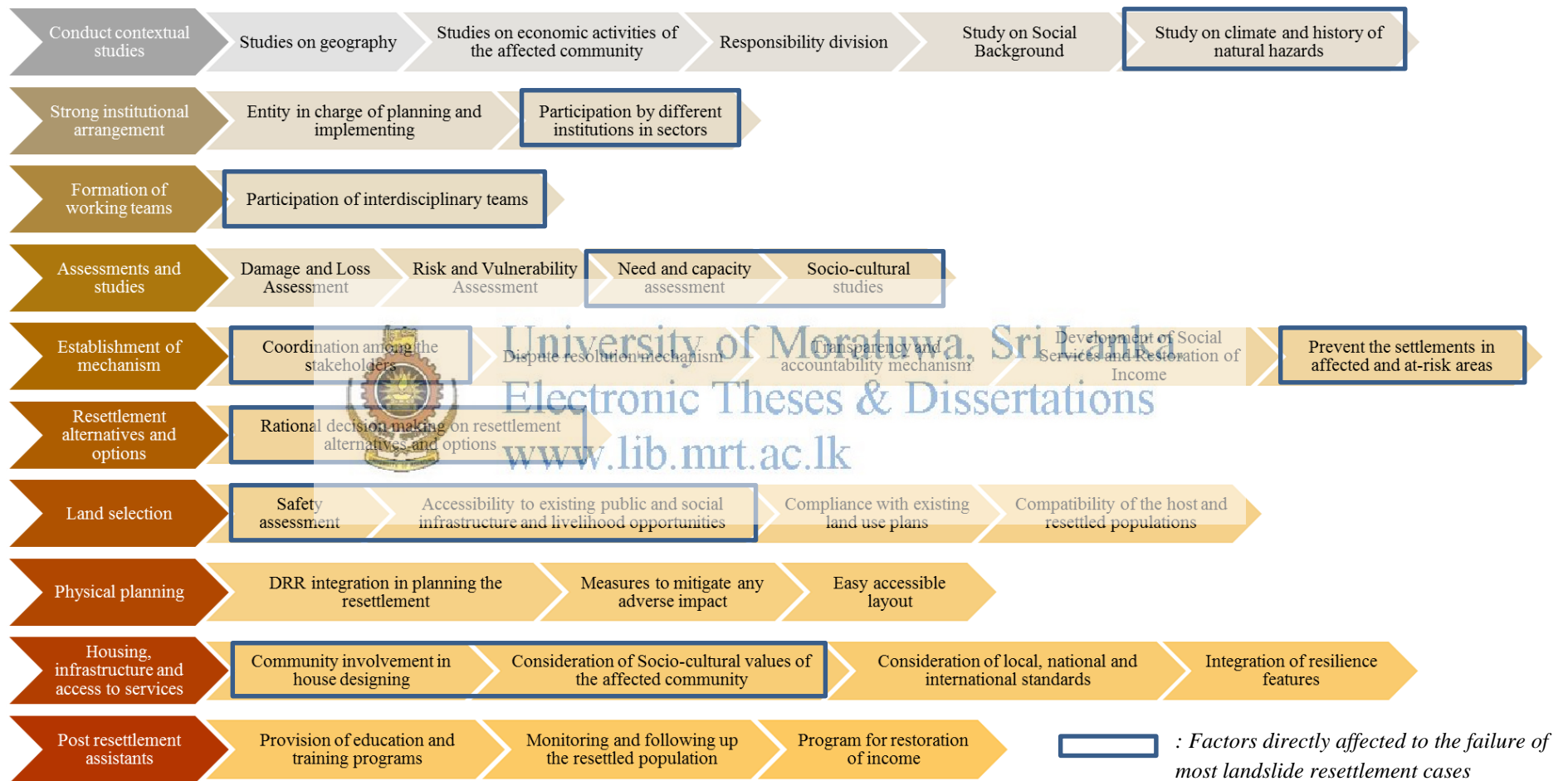


Figure 4.1. : Updated Landslide Resettlement Planning Framework

When it is compared with the conceptual landslide resettlement planning framework, final landslide resettlement planning framework has identified several new attributes which are more important in Sri Lankan context, to be considered in resettlement process as in table 4.13;


Table 4.13. Identified New Attributes in Resettlement Planning Framework


#	Phase	Identified new attributes
1	contextual studies phase	Responsibility division
2	Assessment and Studies	Need and capacity assessment Socio-cultural studies in assessment and studies phase
3	Establishment of mechanisms	Prevent the settlement in affected and at-risk areas
4	Land selection	Compatibility with existing land use plans
5	Housing, infrastructure and access to services	Community involvement in house designing Integration resilience features

The Factors which has marked in figure 4.1, has been not considered in most of the cases. Therefore, those have directly affected to the failure of above discussed resettlement cases. Therefore, following suggestions as given to overcome these issues in future landslide resettlements along with proposed framework.

Table 4.14. Factors Directly Affected by the Failure of Most Landslide Resettlement Cases and Suggestions to Overcome

#	Factors directly affected to the failure of most landslide resettlement cases	Suggestions to overcome
1	Study on climate and the history of natural hazards	Need to have a comprehensive idea on climate and especially the history of natural disaster of the resettlement areas before plan the resettlement.
2	Participation by different institutions in sectors	Need to identify and involve different institute for different functions such as housing, education, health, public services, and social assistance.

#	Factors directly affected to the failure of most landslide resettlement cases	Suggestions to overcome
3	Need and capacity assessment	If the resettlement approach is owner driven, it is important to identify capacities of the people and their interest. If affected families does not have required skills and resources (labor etc.), It is needed to rethink about approach or any assistance for such families.
4	Socioeconomic and cultural studies	Most of the important decisions (resettlement approach, resettlement options) in resettlements need to take rationally. This rationality is based on socio-cultural studies. Therefore, for the success of resettlement, socioeconomic and cultural information should be collected from the affected communities.
5	 <p>Coordination among the stakeholders</p>	<p>If the resettlement has well planned, there would be several institutions for different functions. In that case, the entity in charge of planning and implementation should effectively coordinate other stakeholders to avoid repetitions of work and complete work timely. If not, there would be more repetitions, delay in work and sometimes everyone (affected community) would not be equally treated in provision of services.</p>
6	Prevent the settlement in affected and at-risk areas	When communities are resettled from areas where affected by disaster and identified as risk areas should be prevented from further settlement by means of conservation as reserves or etc.
7	Rational decision making on resettlement alternatives and options	If the affected community belongs to one culture and the same social group and same locality, then it is possible for going direct options such as collective resettlement. But, when affected community from different socio-cultural background and different

#	Factors directly affected to the failure of most landslide resettlement cases	Suggestions to overcome
		localities, collective resettlement is not successful. Individual resettlement options would be the most appropriate alternative for such different characterized communities. This decision should be mainly based on the outputs of socioeconomic and cultural studies.
8	Safety assessment	Safety assessment for new land (in hilly areas) should be done for all possible disasters. It should not only be focused on landslides. Studies on the history of natural hazard would help identify possible disasters.
9	<p>Accessibility to existing public and social infrastructure and livelihood opportunities</p>  <p>University of Kelaniya, Sri Lanka Electronic Theses & Dissertations www.lib.mrt.ac.lk</p>	Most of the above cases have failed due to problems with accessibility of the new location. Access is the most important factor in land selection. It is better if the land is close to former settlement, since most of families' livelihoods are based on former locations. If the selected land is lacking with accessibility to basic infrastructure, those services should be provided before resettling the people. If not, another option is change the resettlement alternative to individual resettlement.
10	Community involvement in house designing and consideration of social-cultural values of the affected community	All house designs provided by above cases have not satisfied the community requirement. Therefore, community involvement in house designing is a must. Because, culturally and socially different people have different requirement in housing. Planning institution should consider these social and cultural values of displaced communities and those should be incorporated in planning and designing.

4.6. Summary

This chapter explains a descriptive way of research findings and analysis of data. Firstly, cross-case analysis was done with regards to resettlement process of each case. In cross-case analysis, selected cases were evaluated based on the conceptual resettlement planning framework and validated with the literature findings. Best practices, which were not followed in the resettlement process of each case were identified in the latter part of this chapter. Finally, the conceptual landslide resettlement planning framework was updated and factors directly affected by the failure of most landslide resettlement cases were presented with suggestions to improve as the final outcome.

Having analyzed and presented all the finding related to the empirical study, the conclusions and recommendations on all the finding will be discussed in the following Chapter 5.



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CHAPTER – 05

CONCLUSION

5.1. Introduction

This chapter provides conclusions on the previous chapters, including the literature review and findings of the multiple case analysis carried out in the previous chapter. Additionally, this chapter provides limitation of this research study, further research and contribution to the industry and knowledge.

5.2. Summary of Research Findings

The aim of the research was to review prevailing resettlement project & to propose a suitable resettlement planning framework for landslide disaster for future resilience. Having focused on such aim, three objectives were formulated. The first objective was achieved successfully through the comprehensive literature review and next two objectives were achieved through the empirical study which was conducted under the chapter 04. An empirical study was carried out through multiple case study, which was compared the different processes used in landslide resettlement programs based on developed resettlement planning framework under literature review. Three landslide resettlement programs were selected under the multiple case study design with time constraints and convenience. Data collection within the case study was based on semi structured interviews with participants from implementation agency and the target community.

The First objective was to identify good practices and reasons for effectiveness in terms of landslide disaster resettlement. This objective was successfully achieved through a comprehensive literature survey, which was carried out by referring journals, conference papers, books and other publications. Initially, terms of disaster, landslide, landslide management and resettlement were discussed. Later, internationally recognized landslide resettlement cases were studied. Literature on past resettlement experience in Sri Lanka was examined to identify the problems of past resettlements. Those identified disaster resettlement problems in local and international context was incorporated with best practices identified through the

studied cases to develop a conceptual resettlement planning framework which is the main outcome of the literature review. The empirical study was carried out to achieve third and fourth objectives. The second objective was to examine and analysis of prevailing landslide resettlement planning approaches used in a local context, which was achieved through multiple case study research. Multiple cases were analyzed based on the developed conceptual resettlement planning framework. Four major local landslide resettlement cases were selected for the analysis. By analyzing the selected cases, resettlement process of each were identified. Further, specific problems in each resettlement case were identified with causes in each step of the resettlement process. Therefore, it was able to successfully achieve the second objective through this comprehensive case study approach.

The third objective was to propose a suitable resettlement planning framework for landslide disaster resettlement in Sri Lanka. To achieve this objective, initially resettlement planning framework was developed using the best practices and other literature available. Based on the developed framework, locally selected landslide resettlement cases were analyzed. With the analysis, it was found that, there was no unique or systematic procedure for landslide Resettlement Sri Lanka. Each selected case had followed its own informal approaches. Finally, it could find factor which directly affected by the failure of selected landslide resettlement cases. Based on all these findings, initially developed resettlement planning framework was updated and factor directly affected by the failures were presented with suggestions to improve in future landslide resettlement planning in Sri Lanka.

5.3. Conclusion about Overall Research Problem

Literature findings, evidence that a considerable number of researches have been conducted in resettlement planning and related attributes that should be considered in the resettlement process. Further, literature finding shows that, there are successful landslide resettlements has taken place in the world. Most of the researchers have done research on success and failure of the resettlement projects. Although, there were many researches have conducted on this subject, still the landslide resettlement in Sri Lanka has failed to meet its objectives. Therefore, to get a meaningful outcome

a holistic view of landslide resettlement process in Sri Lankan context was considered in this empirical study. Hence, the aim of this research was established to analyze prevailing resettlement project and to propose a suitable resettlement planning framework for landslide disaster for future resilience

To achieve the above mentioned aims, three objectives were established. Therefore, by achieving those objectives, improved resettlement planning framework for landslide resettlement was established (refer figure 4.1).

5.4. Contribution to the Industry and Knowledge

The following can be recommended as implications for the industry. Subsequently, this study is expanded by identifying a mechanism to landslide resettlement planning in Sri Lanka. Therefore, this study focused on the following areas,

- Finding out the drawbacks of the existing resettlement process
- Introducing a new framework for landslide resettlement planning in Sri

Lanka

These implications are directly benefited by the implementing institutions related to the landslide resettlement. Subsequently, it will be benefitted to the other disaster resettlement programs with some minor alterations.

5.5. Limitations of the Research

The selected cases for empirical study was in different time periods. This was due to unavailability of major landslide resettlement projects which was commenced in the same time period.

5.6. Further Research

The following could be given as suggestions for further researches, which emerged out of the study carried out.

- Study community involvement in decision making in disaster resettlement Case study finding of this research reveals that almost all the cases have ignored the community views in resettlement process and it has greater impact on the success


of the program. Therefore, it is important to carry out a study of the importance of community involvement in decision making in disaster resettlement.

In conclusion, this research will provide guidance and direction to landslide resettlement institutions for successful resettlement program implementation.



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APPENDIX A: LANDSLIDE RESETTLEMENT CASES

Program	<u>Case 1: Panabaj and Tz'anchaj – Reconstruction with Transformation – Guatemala 2005</u>	<u>Case 2: The Nueva Esperanza Resettlement – Colombia 2004 – 2009</u>	<u>Case 3: The Southern Leyte Landslide Resettlement - Philippine 2006</u>
Disaster	<u>Tropical Storm with a huge debris fall</u>	<u>Bogotá – Landslides hazards</u>	<u>Landslide Disaster</u>
Impact	287 families that lost family members, houses, possessions and crops: 600 were killed, leaving 31 orphans and 77 widows, and 205 houses were destroyed.	1,074 families (4,600 persons) Part of a larger resettlement program of families living in high risk-areas (15,000 families)	landslide disaster in 2006; killing 1,126 people and displacing approximately 19,000 more
Process	<ul style="list-style-type: none"> → Study of Assessment of the Risk of Landslides was conducted to identify the land suitability for available land and to identify communities at risk after the disaster. → Criteria that would govern the location of resettlement sites were established, as well as the type of disaster mitigation measures to be implemented. → The resettlement process has redirected to achieve coordination between strategic land planning program, inter-agency cooperation and transparency needed to restore credibility and achieve community participation. → Stakeholders took part in the resettlement by identifying and acquiring land, designing houses and urban development schemes, and preserving the archeological heritage. 	<ul style="list-style-type: none"> → Risk assessment studies to identify and declare high risk zones. → The findings of the studies were compared and integrated with the land uses, established in the Land use plan. → Design an integrated rehabilitation, reconstruction and sustainable development plan, which includes resettlement of population at-risk. → Following Studies were conducted for resettlement program (to identify the impacts of displacement and designing purposes): Census of lots, houses and population, Land tenure study (to determine the ownership status), Appraisal of the lots and structures, Socio-economic studies. 	<ul style="list-style-type: none"> → The major tasks, which the authorities had to do with the project, are to find out suitable lands for resettlements, shelter design and preparation, provision of infrastructure facilities and services. → Six new settlement areas were identified to resettle seven landslide affected villages. → Multi sectored participation in planning the resettlement were used. → Urban professional were get opinion from public also. → Livelihood activities were introduced for the community. → But, Most of the livelihood activities introduced in the community were unsuccessful. There were organizations that extended assistance but did not

<ul style="list-style-type: none"> → Land Procurement Commission to find land suitable for the resettlement. It consisted of representatives from the community and the Secretariat of Agrarian Affairs. → Urban Design and Housing Design Commissions comprised of four members from the community and members from the other relevant stakeholders developed the urban and housing design proposals based on a study of customs and traditions. The community was actively involved in the housing design process. → Establishing the participation network and strengthening the social fabric and Establishing agreements on transparency for building trust → Based on the results of the risk assessment and ideas & wishes of the community representatives a land for resettlement was selected. → Environmental impact study was conducted to the new site to mitigate any negative impacts of resettlement. → Participatory project design adopted for the new settlement. The decisions were based on inputs from the professional team and the community. 	<ul style="list-style-type: none"> → The resettlement program comprised with many stakeholder institution. One agency for direct the program and other entities for specific functions. (such as risk assessments and management, education and health care, community organization, and income-generating projects.) → Accountability mechanisms were devised to ensure that progress with the resettlement and other programs in the rehabilitation. → Awareness and workshops were conducted regarding, the resettlement process, their rights and duties, and obtain counseling and support services from the various entities. → Resettlement options were identified based on the findings of the studies. → Communities were given knowledge for livelihood improvement and different construction for expansion of their new houses. → Courses on environmental sanitation, food security, household hygiene, safe water, urban agriculture and family vegetable gardens and orchards were provided. 	<ul style="list-style-type: none"> consult the people about their needs. → In some of resettlement areas, 50% of the residents live in the resettlement and 50% live in the former community that was declared a danger zone. → There are some villages where 90% of the residents have come back to the Former residential area to revive agricultural production there, while still living in the resettlement area. → Most of the livelihood programs introduced to the community did not complement the people's technical expertise. → Poor land selection has caused some problems. → There are new hazards in the resettlement areas brought by inadequate services such as the inadequate water supply and poor road conditions, poor design of the drainage and the septic tanks.
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	<ul style="list-style-type: none"> → Facilities were provided for economic activities and recreational activities. → Possible hazards in the resettlement area were identified and mapped, with community participation, and a risk-management plan was designed. → Legal titles were provided for the land and houses under the category of “family property”. → An inventory was compiled of their resources and skills; studies were conducted of existing demand for employment in the public and private sectors; the community was offered training. 	<ul style="list-style-type: none"> → “Peaceful co-existence” courses, which established rules of behavior for relating to neighbors and the community, and for managing public and private areas were provided. → Rehabilitation of at risk areas were initiated and new settlement at-risk areas were prevented by the local authority. → Monitoring and following up the resettled population, ensuring that good quality of life conditions were maintained. → A post-resettlement assistance period was established to be conducted for 12 months for achieving 100 percent achievements in all services provided to resettled community. 	
<p>Lesson Learnt</p>	<ul style="list-style-type: none"> → Importance of trust between government and affected communities → Importance of cultural dimension; decision to include ethnical, social and cultural considerations in the design and implementation of the resettlement plans → Accountability and transparency mechanisms for building trust with the communities. → Inter-agency mechanisms that help ministries and secretariats cooperate effectively. → Resettlement should be a prevention tool, rather than a mechanism for responding to 	<ul style="list-style-type: none"> → Resettlement incorporated into a comprehensive risk reduction strategy. → A long term vision and effective strategies on disaster risk reduction → Effective land use planning → Importance of several resettlement options → Advantages of having an institution that only directs the resettlement of at-risk populations; 	<ul style="list-style-type: none"> → Importance of community consultation in community assistance (Introduction of livelihood activities). → Importance of risk consideration in land selection. → Danger zones should be regularized to prevent further settlement

	<p>emergencies.</p> <p>→ Active participation of all stakeholders and respectful of ethical and cultural values, became an opportunity not just to build houses but also to rebuild community trust in the State, to strengthen the social fabric, forge greater communal cohesion, improve living conditions, reinforce cultural identity and generate opportunities for the economic, social and cultural inclusion of historically excluded groups.</p>		
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APPENDIX B: INTERVIEW GUIDELINE
FOR PLANNING AND IMPLEMENTATION OFFICERS

Personal Information

Organization :.....

Designation at the Program :.....

Name of the interviewee :.....

Information on Resettlement Process

1. Contextual Study

What are contextual studies conducted at the beginning of the program?

- Impact of the geography
- Impact of the climate
- Impact of national and local government to decision making
- Main economic activities of the area
- Social and political background of the area
- History of previous natural disasters



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2. Institutional Arrangement

— What was the institutional arrangement for the program?

(In charge of planning and implementing the resettlement program)

— Who are the participant organizations?

3. Forming the Work Team

— Who are the professionals included in the planning team?

- Attorneys
- Architects
- Planners
- Engineers
- Economists
- System specialists

4. Assessment and Studies

What are studies conducted in the planning stage?

- Risk assessment and vulnerability studies
- Damage Assessment
- Census and Socioeconomic and Cultural Studies
- Land tenure study
- Capacity Assessment (Construction Skills, Material availability)
- Need Assessment

5. Establish Mechanisms

What are established mechanisms for the resettlement program?

- Information Management Systems
- Mechanisms to coordinate the participation of stakeholders
- Dispute Resolution Mechanism
- Transparency and Accountability Mechanism
- Mechanism for development of social service and restoration of income
- Mechanism for preventing new settlement in affected area
- Mechanism for public participation in planning



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6. Resettlement Alternatives and Options

— What are the identified resettlement alternatives and options in the program?

7. Land Component

What were the main considerations in land selection?

- Compliance with existing land use plans
- Safety
- Accessible Location
- Property titles
- Soil Quality
- Access roads
- Social service centers
- Access to public services
- Land value

- Access to livelihood opportunities
- Compatibility of the host and resettled populations

8. Physical Planning (DRR, EIA)

- Was the resettlement program integrated to the local physical plan (if available)?

- Was the resettlement plan integrated DRR in settlement planning?

- Was the resettlement plan included any measures to mitigate adverse environment impact?

9. Housing, Infrastructure and Access to Services Component

- What were the main considerations in house designing?

- What were the main considerations in building material selection?

- Was there community involvement in house designing and building material selection?



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- What were the infrastructures facilities provide to the resettlement site?

10. Post resettlement Stage Activities

- Was there any following up or monitoring mechanism in resettlement program?

- What were the trainings offered to the affected community?

- What was approach used to select the training programs?

**APPENDIX C: INTERVIEW GUIDELINE
FOR RESETTLED COMMUNITY**

Personal Information

Organization :

Designation at the Program :

Name of the interviewee :

Information on Resettlement Process

1. Does the planning organization collect any socio-economic/damage assessment/need assessment/capacity assessment information before implement program?

2. How is your participation in the resettlement process?



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3. How the planning org. response to the disputes?

4. How you feel about the transparency of the project

5. Have you received any resettlement options to be selected?

6. Does the new land satisfy your requirement?

- Compliance with existing land use plans
- Safety
- Accessible Location
- Property titles

- Soil Quality
- Access roads
- Social service centers
- Access to public services
- Land value
- Access to livelihood opportunities
- Compatibility of the host and resettled populations

7. How is your involvement in house designing?

8. Does the new house satisfy your requirement? Design and material

9. How are the infrastructure facilities available at the new settlement?



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10. Did the planning org. continue their assistance/monitoring after the resettlement?

11. Have received any trainings through this program?

12. Did they consult you before offer any training/was the training worth enough to improve your living standard or etc.?

APPENDIX D: INTERVIEW TRANSCRIPT FOR PLANNING AND IMPLEMENTATION OFFICERS

Personal Information

Organization : **NBRO**

Designation at the Program : **Deputy Project Director**

Name of the interviewee :

Information on Resettlement Process

1. Contextual Study

What are contextual studies conducted at the beginning of the program?

- Impact of the geography** ✓
- Impact of the climate** ✓
- Impact of national and local government to decision making
- Main economic activities of the area
- Social and political background of the area
- History of previous natural disasters** ✓



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2. Institutional Arrangement

— What was the institutional arrangement for the program?

(In charge of planning and implementing the resettlement program)

DSD/RMC – Implementation

NBRO

NHDA

CHPB

— Who are the participant organizations?

NBRO – Identification of safe locations/ Model house construction

NHDA – Technical inputs (Land block out)

3. Forming the Work Team

— Who are the professionals included in the planning team?

- Attorneys
- Architects** ✓
- Planners
- Engineers** ✓

- Economists
- Geologist ✓

4. Assessment and Studies

What are studies conducted in the planning stage?

- Risk assessment and vulnerability studies ✓
- Damage Assessment ✓
- Census and Socioeconomic and Cultural Studies
- Land tenure study
- Capacity Assessment (Construction Skills, Material availability)
- Need Assessment

5. Establish Mechanisms

What are established mechanisms for the resettlement program?

- Information Management Systems
- Mechanisms to coordinate the participation of stakeholders
- Dispute Resolution Mechanism
- Transparency and Accountability Mechanism
- Mechanism for development of social service and restoration of income
- Mechanism for preventing new settlement in affected area
- Mechanism for public participation in planning



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6. Resettlement Alternatives and Options

— What are the identified resettlement alternatives and options in the program?

Land + Rs. 100,000.00

7. Land Component

What were the main considerations in land selection?

- Compliance with existing land use plans
- Safety (Flood and Landslide) ✓
- Accessible Location ✓
- Property titles
- Soil Quality
- Access roads ✓
- Social service centers
- Access to public services ✓
- Land value
- Access to livelihood opportunities ✓
- Compatibility of the host and resettled populations

8. Physical Planning (DRR, EIA)

- Was the resettlement program integrated to the local physical plan (if available)?
- Was the resettlement plan integrated DRR in settlement planning?

DRR methods in construction in disaster prone areas.

Promote community solidarity, ownership and cultural and social integrity in disaster risk reduction, decision making and implementation process.

- Was the resettlement plan included any measures to mitigate adverse environment impact?

Model drainage system to prevent erosion and stabilize the soil.

9. Housing, Infrastructure and Access to Services Component

- What were the main considerations in house designing?

-

Only demonstration housing plans to show that how construct houses in disaster prone areas with low cost

- What were the main considerations in building material selection?

Cost, Availability
Demonstration house constructed using cost effective materials. (Slip-form technology and a low cost material mix of soil and cement).

- Was there community involvement in house designing and building material selection?

-

- What were the infrastructures facilities provide to the resettlement site?

Roads, Community Centre, Water, Electricity

10. Post resettlement Stage Activities

- Was there any following up or monitoring mechanism in resettlement program?

-

- What were the trainings offered to the affected community?

Training of skilled workers (masons and carpenters) in appropriate techniques for

construction in hazard prone areas and introduce new sustainable livelihood options for them.

— What was approach used to select the training programs?

No special



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APPENDIX E: INTERVIEW TRANSCRIPT FOR RESETTLED COMMUNITY

Personal Information

Organization : **Ekamuthu Drinking Water Organisation**

Designation at the Program : **Secretary**

Name of the interviewee :

Information on Resettlement Process

1. Does the planning organization collect any socio-economic/damage assessment/need assessment/capacity assessment information before implement program?

Damage assessment done by GN

Gathered information about risk

2. How is your participation in the resettlement process?

We asked for a land and DS gave this land. We were not involved in land selection. Lands were given according to a numbering system. We asked give lands to live with naughours together



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3. How the planning org. response to the disputes?

Still people have not received deed for their land. They have only received an authorization latter. Although, they insisted to have their deed, after 10 years of time they did not get it.

4. How you feel about the transparency of the project

There were so many political influences. Some of the non-victims got the land from this project and some victims still remaining without having a land.

Initially DS has promised them to give 20 perch land and later it has converted in to 10, 6, 5 with political interference.

5. Have you received any resettlement options to be selected?

There were some plans given by the DSD together with UOM. Those plans were to build houses in disaster prone areas. Since, these lands are not prone to landslides, people refused those plans.

6. Does the new land satisfy your requirement?
- Compliance with existing land use plans
 - Safety ✓
 - Accessible Location ✓
 - Property titles
 - Soil Quality ✓
 - Access roads ✓
 - Social service centers ✓
 - Access to public services ✓
 - Land value
 - Access to livelihood opportunities ✓
 - Compatibility of the host and resettled populations

There are some lands NBRO recommended not to resettle people. Once DS resettle some families there our CBO asked to DS give them lands from another place. Once they moved to other place once again DS has resettle some families in the same lands.

Land size is not enough

Host community has encroached their land

7. How is your involvement in house designing?

Their own design / Singha Samajaya constructed 60 houses for a one plan. Later people has modified accordingly.



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8. Does the new house satisfy your requirement? Design and material

-

9. How are the infrastructure facilities available at the new settlement?

Roads

Electricity By Sinha Samajaya

Water By UNDP

School

No place for waste dumping

CBO

10. Did the planning org. continue their assistance/monitoring after the resettlement?

Yes.

11. Have received any trainings through this program?

No any training

12. Did they consult you before offer any training/was the training worth enough to improve your living standard or etc.?

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