

# CHAPTER 01

## INTRODUCTION

### 1.1 Background of the Study

Since human beings have been attempting creative endeavors, the discipline of project management has been practiced (Syed, 2009). Simply, a project is defined as “a temporary endeavor that produces a unique output” (PMBOK 2013; El- sokhn and Othman, 2014; & Taylor, 2015) and it is goal oriented, complex task as well as risks involved. Further, it has its own definite start and end, where end is reached when the project objectives have been achieved (PMBOK 2013).

“Project management approach is relatively modern (Kerzner, 2009 & Taylor, 2015). It is characterized by the methods of restructuring management and adopting special management techniques, with the purpose of obtaining better control and use of existing resources” (Kerzner, 2009, p.2). Construction project management is an especially important concept for developing countries as many development projects are taking place (Kerzner, 2009 & Taylor, 2015). The integration, monitoring and control of the contributors to the project and their output and the evaluation and selection of alternatives in pursuit of the client’s satisfaction with the project outcome are fundamental aspects of construction project management (Kerzner, 2009).

Today, many Asian countries have experienced rapid growth rates in urban population (World Urban Prospects, 2014). Similarly, the numbers of underserved settlements have also increased. These dwellers do not have proper land and house to live, no access to potable water, sanitation, electricity etc. Hence, these conditions result many health problems, urban unhappiness, environmental degradation and haphazard development also taking place.

More than half of the Colombo city population lives in underserved settlements (Urban Development Authority, 2017) including shanties, slums and dilapidated old housing schemes. These settlements occupied nine percent of the total land extent of

the city (Urban Development Authority, 2017). It is a big challenge and also a constraint to make city more comfortable for its people.

At present, a survey which is being conducted by the Urban Development Authority (UDA) has identified a total number of 68,812 families living in 1,499 community clusters (underserved settlements) which do not have a healthy environment for human habitation and access to basic infrastructure facilities such as clean water, electricity, sanitation etc. (Urban Development Authority, 2017). Relocation of these underserved dwellers in new housing schemes with acceptable standards will be one major step in the urban regeneration. In order to achieve this objective, Urban Development Authority has launched a program for construction of 60,000 housing units for relocation of underserved settlements of the city of Colombo and its immediate suburbs. The aim of this program is to eliminate shanties, slums and other dilapidated housing from the city by relocating dwellers in modern houses (Urban Development Authority, 2017).

Relocation deals with the principal issue of “moving away of persons’ lives”, which implies moving away from places where people are accustomed to live and work among others. In other way, “the process of displacement becomes a ‘totalising’ phenomenon, affecting virtually every aspect of life” (Oliver-Smith, 2009). Hence, relocation needs careful planning and management as it builds new communities. Oliver-Smith (2009) stated that, a vast majority of displaced who resettled suffer the outcomes of inadequately financed, poorly designed and incompletely implemented resettlement that ended up being “development disasters”. Therefore, Oliver-Smith (2009) stresses the need for a well-planned, financed, implemented and administered resettlement projects.

In researchers’ concern, there is a gap in between causes of challenges and project management. Many of aforesaid challenging factors are closely associated with the project planning and management. Hence, project management is significant in addressing challenges faced by project managers in mitigating project failures in relocation of underserved settlements. Mitigating project management challenges is a multifaceted task in terms of construction industry due to its dynamic with nature

(El- sokhn and Othman, 2014). Therefore, project managers today are faced with many challenges from political, financial, legal coming from the differences in practices of local and foreign stakeholders (Nguyen et al., 2013). These circumstances provide the background to address challenges faced by project managers in mitigating project failures in terms of relocation of underserved settlements in Sri Lanka.

## **1.2 Problem Statement and Justification**

According to foregoing review, there is a clear gap between challenges faced by project managers and the project management. Despite of fact that interest in project management is increased, projects continue to fail at large (Dias et al., 2014). The complexity of projects is increasing as the time passes due to their execution in dynamic environments, having multiple stakeholders with different perspectives, lack of strategic planning and rapid technological challenges characterized by uncertainties (El- sokhn and Othman, 2014). From the project management point of view, it is assumed that “any shortfall of the project is due to management deficiencies” (El- sokhn and Othman, 2014, p. 13). Hence it is better to have a clear understanding on project management.

The construction industry has been one of the contributors of national economy and also societal wellbeing (El- sokhn and Othman, 2014). Despite its role in national prosperity, construction project management encountered with lot of challenges in terms of failure mitigation. As researchers stressed, project management is significant in addressing challenges faced by project managers (Syed, 2009; Taylor, 2015). Project managers are encountered with diverse challenges that are both intrinsic and extrinsic to the project when mitigating failures (Syed, 2009). The challenges constantly faced are virtual nature of projects, constant time pressures, poor risk management, poor communication, poor scheduling, lack of executive support, lack of strategic connection, increased complexity, ignorance of lessons learned (Taylor, 2015).

In contrast, the project management practices, skills and its competencies level are very low in developing countries (Othman, 2013). A lot of projects are getting delay, budget overrun because of improper planning & scheduling and many other management related problems. Similarly, unrecognition of importance of project management and absence of project management practices hindered the development of construction industry in developing countries (Othman, 2013). Public sector projects in developing countries have to deal with issues that are unique to the environment including large number of stakeholders, lack of project planning, weak procurement systems, complex processes, shortage of skills & resources, and bureaucratic red tape (Ahsan & Gunawan, 2010). Other environmental complexity factor that can affect project performance includes market conditions (competition in market, stability in pricing of raw material and exchange rate), stakeholder dependencies, and political influence (El- sokhn and Othman, 2014). In the case of Sri Lanka, there are many challenges faced by project managers including above. With this point, researchers thoroughly argued that project management knowledge is essential to complex projects to address the project management challenges. Hence, the research problem emerged through this study is how to address challenges faced by project managers in mitigating project failures in terms of relocation of underserved settlements with its dynamic nature.

### **1.3 Aim and Objectives**

The aim of this research is to propose strategies to address challenges faced by project managers in mitigating project failures in terms of relocation of underserved settlements in Sri Lanka. Research objectives are,

*Objective 01* - To identify major categories of project management challenges in relocation of underserved settlements

*Objective 02* - To identify most critical challenges faced by project managers in relocation of underserved settlements

*Objective 03* - To explore strategies to address challenges faced by project managers in mitigating project failures in relocation of underserved settlements

*Objective 04* - To propose ways to implement strategies to address challenges faced by project managers in mitigating project failures in relocation of underserved settlements

## **1.4 Methodology**

### **1.4.1 Research Approach**

A well-structured literature survey was carried out referring books, journal articles, electronic sources and reports to identify prevailing challenges in project management in the construction industry with giving especial consideration to the relocation of underserved settlements in Sri Lanka.

The research question emerged through this study is “how to address challenges faced by project managers in mitigating project failures in terms of relocation of underserved settlements in Sri Lanka. According to the research question and aim of this study, it is essential to get quantitative answer on critical challenges in project management and its severity to the project failure. Hence, project management challenges have to be categorized. Subsequently, it would be quantify the answers obtained from the respondents. Further, this research study attempts to test a hypothesis is there a relationship between challenges faced by project managers and the project management. Hence, quantitative approach more suits for this research study.

### **1.4.2. Research Techniques**

#### **a) Data Collection**

Considering the advantages and disadvantages of the available data collection methods, a well-structured written questionnaire survey was used to primary data collection while journal articles and books are used for secondary data collection.

The questionnaires were delivered through by hand and e-mails which are the inexpensive, time saving, highly reliable and fast communication method.

The questionnaire was designed with aiming to propose strategies to address challenges faced by project managers in mitigating project failures in relocation of underserved settlements in Sri Lanka. It consists with two parts. Part one includes general information about the respondents and part two covers 03 sections as major categories of project management challenges with its level of contribution to project failure and the responsible project players (Objective 01), challenges faced by project managers according to the frequency of occurrences and its severity to the project failure (Objective 02) and strategies to address challenges faced by project managers according to its level of relevancy (Objective 03).

The project management challenges and its major categories, mitigating approaches were decided to be gathered from depth literature review. Simple random sampling method was used to select the sample population including major project players.

### **b) Data analysis**

The Relative Importance Index (RII) was used to analyze the data collected through questionnaire survey. This technique was used to rank the major categories of project management challenges, challenges faced by project managers in relocation of underserved settlements and strategies to address challenges faced by project managers in relocation of underserved settlements in Sri Lanka.

### **1.5 Scope and Limitations**

This research covers only the relocation of underserved settlements in Sri Lanka. The scope of the study is limited to address challenges faced by project managers in mitigating project failures in relocation of underserved settlements in Sri Lanka. Findings and Conclusion are based on information obtained through literature review and questionnaire survey from Project managers, Planners, Engineers, Designer/Architects, Quantity surveyors. Most of project players or authorized

persons were avoid discussing failure cases and also not interest to share related information due to the fear of harming the reputation.

## **1.6 Chapter Breakdown**

Chapter 01 – Introduction: The focus of this chapter is to introduce the topic and its background followed by problem statement, highlight research gap and research question, aim and objectives, research methodology and scope and limitations of the study.

Chapter 02 – Literature Synthesis: This chapter discusses the theoretical background of the research to establish the significance of the research problem.

Chapter 03 – Research Methodology: This chapter explains research methodology of the study including research process, research design, research approach, research techniques.

Chapter 04 – Data Analysis and Findings: This chapter presents the data collected through questionnaire survey, data analysis using RII and findings of the study.

Chapter 05 – Discussion and Conclusion: This chapter comprises the summary of the study, conclusion, recommendations and directions to further research.

## **CHAPTER 02**

### **LITERATURE SYNTHESIS**

#### **2.1 Introduction**

This chapter mainly attempts to review the theoretical aspects of the research topic. At the first, chapter is concisely reviewed the relevant literatures to understand key terms of project, project failure, project management, project manager, underserved settlements and the relocation. This study is going to be address challenges faced by project managers in mitigating project failures in relocation of underserved settlements in Sri Lanka. Hence, section 2.3 and 2.4 explain impact of project failure and project failure factors respectively. The understanding about the concept of “Project management” is needed in this study. Therefore, following two sections describes role of a project manager and project management challenges. Moreover, chapter explains about relocation projects in developing countries. The aim of the study is to propose strategies to address challenges faced by project managers in mitigating project failures in terms of relocation of underserved settlements. Accordingly, section 2.8 explains the strategies to mitigate project management challenges collected through in–depth literature review.

#### **2.2 Definition of Keyterms**

##### **2.2.1 Project**

A project is a temporary endeavor undertaken to create a unique output, service or result (PMBOK, 2013; El- sokhn and Othman, 2014; & Taylor, 2015). The temporary nature of projects indicates a definite start and end. The end is reached when the project objectives have been achieved. Temporary does not mean short in duration. Every project creates a unique output (PMBOK, 2013; El- sokhn and Othman, 2014; & Taylor, 2015). Although repetitive elements may be present in some project deliverables, this repetition does not change the fundamental uniqueness of the project. A project can create, a product that can be either a



component of another item or an end item in itself, a capability to perform a service and result such as an outcome or document (PMBOK, 2013 & El- sokhn and Othman, 2014). Also a project as an endeavor in which human, financial and material resources are organized in a novel way to undertake a unique scope of work within given constraints of cost, time and quality (Turner & Muller, 2005).

As El- sokhn and Othman (2014, p.1) defined “construction project is a complex, unique and one-time effort, as numerous of people, activities and requirements are involved to achieve the project goals”. It is viewed as an ordered, linear phenomenon, which can be organized, planned and managed top down. But, the frequent failures to complete construction projects on budget and schedule give rise to thinking that the process maybe not is as ordered and predictable in its nature as it may look (Bertelsen, 2002).

### **2.2.2 Project Failure**

It is difficult exactly define the term “project failure”. However, the failure or success of a project is measured by the difference between what is anticipated of a project during and after its completion and the actual apparent performance of the project when it is put to use (PMBOK, 2013). Subsequently, Ikediashi, Ogunlana and Alotaibi (2014, p. 37) defined project failure is “ not matching of expectations of the client and other stakeholders in terms of cost, time and quality by the actual construction by contractors and other project teams”. However, the ability of project to meet its objectives is project failure.

“Project failure the world over continues to be a talked about issue whose occurrence is at an alarming rate despite the increasing understanding of the concept of successful project management maturity and consistent stream of successful projects” (Amade et al, 2015, p 65).

### **2.2.3 Project Management**

Project management has been practiced for thousands of years even since the Egyptian era (Syed, 2009). Nevertheless, it has been about half a century ago that organizations start applying systematic tools and techniques of project management for complex projects (Syed, 2009 & El- sokhn and Othman, 2014). “The origin on modern project management concept started between 1990s and 1950s. At that time, technology advancement compressed the project schedules. Automobiles allowed effective resource allocation and mobility. The telecommunication system increased the speed of communication through the project team. The job specification was widely used and Henry Gantt invented Gantt chart. The job specification later is became the basis of developing the Work Breakdown Structure (WBS)” (Carayannis, Kwak and Anbari, 2005, p.18).

According to PMBOK (2013), project management can be understood as the application of knowledge, skills, tools and techniques to meet the project objectives. It is accomplished through the appropriate application and integration of five groups including initiating, planning, executing, monitoring & controlling and closing (PMBOK, 2013). Further, it explains that managing a project includes identifying project requirements, addressing the different needs of project stakeholders and balancing the competing project constraints (PMBOK, 2013).

According to El- sokhn and Othman (2014), the principle obligations of a project management are the arranging, coordinating, and executing the arrangements of different exercises of a project because of the time imperative. Project management applies learning, abilities, apparatuses, and procedures to project exercises keeping in mind the end goal to meet the project prerequisites (PMBOK, 2013 & Taylor, 2015). As Abbasi and Al-Mharmah (2000, p.105) stated “it is the art and science of planning, designing and managing work throughout all the phases of the project life cycle”.

As literature reveals that, project management is an innovative management practice because it helps to implement best approach to client with their limited resources in

order to achieve recurring success and meeting the expectations of stakeholders (Olateju, Abdul-Azeez & Alamutu, 2011).

#### **2.2.4 Project Manager**

The project manager is the person assigned by the project performing organization to reach the project objectives (PMBOK, 2013). This is a challenging and also a responsible character with shifting priorities (PMBOK, 2013). As project manager is the lead person, he must have comprehensive understanding about the project details manage from the overall project perspective.

The competent project manager possesses the following characteristics.

- Knowledge – knowledge about project management
- Performance – ability to implement or achieve while applying project management knowledge
- Personal – ability to guide the project management team while achieving project objectives with constraints (PMBOK, 2013).

With respect to this, Nichalas (2005) has mentioned project manager as the accountable person for the project execution and who would be the primary contact party to the donors, beneficiaries and other project stakeholders also.

#### **2.2.5 Underserved Settlements / Informal Settlements**

As Nabutola (2004, p 2.) defined, an informal settlement is “a group of dwellings put up without authority of the owner of the land, usually without a formal design and without conforming to any specification as to laid down rules and regulations, planning standards, generally accepted methods of workmanship, construction and are more often than not temporary”. Further Nabutola explains that they do not have access to public utilities and minimal or no access to public social infrastructures. The physical layout of these settlements is characterized by a non-functional pattern,

with the distribution of plots following no planned structure or conventional planning principles (Nabutola, 2004 & Nassar & Elsayed, 2017).

Later, the General Organization of Physical Planning in Egypt (GOPP) (2006) defined Informal Settlements as areas that have been organized by individual, whether single or multi-story buildings, in the absence of legal requirements and has not been physically planned. These constructions might be environmentally and socially unsafe and also lack the basic services and utilities (Nassar & Elsayed, 2017).

From the perspective of the value and functionality of informal settlements, it is assumed that there are evaluations on why informal settlements exist and what kind of functionality is given to its residents. “Whilst informal settlements are all different and sweeping generalizations are risky, one recurring factor in their formation is that they typically provide an initial point of access into the urban environment for incoming migrants, or for those moving from other parts of the city. They gain such access at a very low economical cost and barriers to entry are low. The nature of this access can be solved to a number of factors as follows. Access to employment and other economic / livelihood opportunities (this is often moderate or persistent) Access to the political system (access to the council members and voting and access to the lobby), legal system Access to (or improved access to) access, potential access to housing and infrastructure illegal services and available connections) (Misselhorn & Zack, 2008).

Informal settlements thus serve a critical function as ‘holding places’ where people can access the urban environment at extremely low financial cost and piece together various livelihood strategies there (Nabutola, 2004; Misselhorn & Zack, 2008 & Nassar & Elsayed, 2017). Some might remain permanently and even ultimately gain access to formal housing, whilst others might reside temporarily for specific purposes which, once fulfilled, result in them moving elsewhere in the city or returning from whence they came (Misselhorn & Zack, 2008).

### *Underserved Settlements in Sri Lanka*

According to an article on “A profile of underserved settlements in Colombo” published by Philbrihty (2016), underserved settlements in Colombo date back to the time of colonial rule when the British brought in workers from surrounding rural areas, and from India, to work in offices, factories and the port itself. These communities were accommodated in Northern Colombo mainly in rented housing. These areas are called later district 1 became a focus for new migrants entering the city. Over time the supply of housing began to lag behind the demand and so as the low income population continued to grow people began to encroach on peripheral areas such as canal banks, along railway lines, in marshy areas and abandoned paddy fields (Philbrihty, 2016 & Munasinghe, 2013).

Land was also set aside for new settlements in the East and South line of the city of Colombo. These settlements were never provided with fundamental services so just as with the underserved settlements in District 1. But, it is thought that around 50% of the population of Colombo city can still be categorized as low income settlements (Philbrihty, 2016).

Another article presents that “there are large number of Underserved Settlements in urban areas within Colombo Metro Region (CMR), where haphazard low density housing has horizontally expanded throughout a long period of time, depriving the inhabitants from obtaining basic infrastructure services or improve their housing conditions. Such settlements which exist in lands permissible for housing are selected for On-site Relocation. Residents are temporarily removed from the land (sometimes part by part) and new houses with proper infrastructure are constructed” (Jagoda, 2005, p.14).

Although these informal settlements in urban area are unauthorized, it has identified their existence is essential in carrying out most of the city’s activities. Dolapihilla (2000) has mentioned some of such activities are as follows. 1) Porters - porters are mainly available in harbor and wholesale markets in the city 2) Informal trade - pavement hawkers 3) Second hand markets 4) Food sellers.

Even the informal sector is categorized in low income or lower middle-income group; the income level of the majority of underserved dwellers is comparatively high (Dolapihilla, 2000 & Philbrihty, 2016). But due to lack of recognition, education, coordination and control, their self-development is minimal. Therefore, government has the responsibility to upgrade basic infrastructures (both physical and social) and implement strategies to enhance living conditions of these people rather than discriminating them as unauthorized, as their existence is essential in smooth and well-functioning of the city (Dolapihilla, 2000, p.2).

Underserved settlements in Sri Lanka are threatened by both natural and manmade disasters. It is noticed that many threats are associated with the locations where underserved dwellers and their services accommodated. This can be identified as planning related issue.

### **2.2.6 Relocation**

According to Oliver-Smith (2009) relocation can be defined as moving away of people's lives, which implies moving away from places where people are adapted to live and work among many others. Later Munasinghe (2013) identified relocation as a process. According to Munasinghe (2013) relocation is a process whereby a community's housing, assets, and public infrastructure are rebuilt in another location. In 2014, another author also stressed that relocation is a process where government approaches, architects design decisions, financing systems and local organizations must work in the same direction following a guideline where every decision have a consequence in the social situation of the people and the city (Lopez, 2014).

As many authors pointed out, resettlement or relocation of underserved settlements has been very poorly planned and designed, inadequately financed, incompletely implemented, lack of administered and managed. These projects generally end up being "development disasters" due to aforesaid reasons (Oliver-Smith, 2009 & Nassar & Elsayed, 2017). Hence, it is vital to secure these underserved settlements of the relocated dwellers to make development more sustainable.

### **2.3 Impact of Project Failure**

Construction projects are known for cost overruns or extra costs. These extra costs are referred to as failure costs. Cost failure is a problem associated with the project management. The rise of failure cost due to many reasons. As Memon, Rahman & Azis (2012) pointed out poor communication, poor planning, design errors, construction deficiencies and poor risk management are highly contribute for the rise of failure cost. Even though high awareness against failure cost is provided in the construction industry, many construction companies are unaware of the nature or the root of the excessive costs and how to be controlled (Memon, Rahman, & Azis, 2012).

When increasing number of construction project failures, it affects to the whole business industry. Eventually there is the possibility of a company's failure. Failure of a construction company has a negative impact on the business world as it causes a lot of losses to stakeholders, investors, creditors, shareholders, and employees. On the other hand, the bankruptcy rate of construction companies has increased in the past few years. As a result of the dynamic nature of the construction industry, it is more vulnerable to financial failures and construction companies' bankruptcy. Due to the combination of failure factors and the global financial crisis, it is more important for project managers to observe the risk of cost failures and try to reduce their impact. It is imperative to make appropriate strategies in order to solve this problem (El- sokhn and Othman, 2014).

### **2.4 Project Failure Factors**

According to literature survey, there are some PFFs frequently cited. Subsequently, many researchers categorized those factors according to failure factor source including time related, cost related, quality related, communication related, project related, planning & management related, safety related, government & policy related, environment related, geographically related and design related. There are various studies on factors affect the project failure throughout the world. Out of that, most of

factors are similar to relocation project also. The table 2.1 shows the identified PFFs through in-depth literature survey.

The most of studies about project failure were done based on construction industry in Thailand, Nigeria, Saudi Arabia, Turkey, Southern and Central regions of peninsular Malaysia, Sri Lanka and some other developing countries after year 2000.



Table 2.1 – Project Failure Factors (PFFs)

ID	PFF	Amade et al. (2015)	Zuofa and Ochieng (2014)	Ramkumar & Gopalakrishnan (2014)	Yadollahi et al. (2014)	Ikediashi, Ogunlana and Alotaibi (2014)	El- sokhn and Othman (2014)	Nguyen and Chileshe ( 2013)	Saraf (2013)	Nguyen et al. (2013)	Olalusi and Otunola (2012)	Amponsah (2012)	Ayuba, et al. (2012)	Xaba (2011)	Ling et al. (2010)	Enshassi, Mohamed & Abushaban (2009)	Sambasivan & Soon (2007)	Viratkapan, & Perera (2004)	Nguyen, Ogunlana and Lan (2004)	Frequency (n=18)
1	Poor project planning and scheduling	x			x	x	x	x	x					x	x		x	x		10
2	Time overrun				x	x	x	x	x					x					x	07
3	Neglect of the significance of project planning processes			x	x	x	x	x	x	x	x	x							x	09
4	Poor communication / Lack of communication about project goals			x		x	x				x			x			x			06
5	Problems in Leadership styles			x			x							x						03
6	Frequent design changes, Design errors & Poor design/incompetent design/design discrepancies	x				x	x	x	x					x					x	07
7	Improper techniques and tools			x				x	x										x	04
8	Poor risk management					x					x						x			03
9	Labor shortage/skill labor shortage					x					x									02
10	Inefficient resources allocation			x							x									02

11	Poor project management/inexperienced personnel	x	x	x	x	x	x			x		x	x	<b>09</b>
12	Lack of financial capacity/delay in payment/poor financial resources management		x			x	x	x		x			x	<b>07</b>
13	Poor site management	x				x	x					x	x	<b>05</b>
14	Unclear scope and objectives					x	x			x				<b>03</b>
15	Improper managerial principals	x							x					<b>02</b>
16	Bureaucracy and corruption		x					x	x	x			x	<b>05</b>
17	Poor quality materials									x		x	x	<b>03</b>
18	Shortage of professional/lack of professionalism		x										x	<b>02</b>
19	Lack of efficient change management					x								<b>01</b>
20	Incorrect estimation						x		x	x		x	x	<b>05</b>
21	Lack of top management support						x		x					<b>02</b>
22	Financial difficulties of contractor											x	x	<b>02</b>
23	Obsolete or unsuitable							x	x			x	x	<b>04</b>
24	Subcontractor failure					x							x	<b>02</b>
25	Poor monitoring and tracking						x		x				x	<b>03</b>
26	Cultural Differences in global projects						x							<b>01</b>
27	Poor time performance		x				x			x		x		<b>04</b>
28	Poor cost performance						x			x		x		<b>03</b>
29	Unrealistic deadlines & scheduling					x	x		x	x				<b>04</b>

30	Ignorance of lessons learned	x	x	x	x		x	<b>05</b>
31	Change in government polices & regulations					x		<b>01</b>
32	Wrong selection of project team/inefficient team skill	x		x	x		x	<b>04</b>
33	Unrelated tasks/high number of tasks		x					<b>01</b>
34	Time pressure on pre-construction works (feasibility studies)		x		x			<b>02</b>
35	Unclear project scope and objectives given by the client		x					<b>01</b>
36	Poor linkage in between project manager and all stakeholders		x					<b>01</b>
37	Bad weather condition/effects of natural disasters	x	x	x	x		x	<b>05</b>
38	Lack of strategic project planning		x				x	<b>02</b>

## **2.5 Role of a Project Manager**

According to the PMBOK (2013), project manager is the person responsible for project success. Therefore, he is in charge of all aspects of the project including, developing the project management plan, keeping the project within planned time framework and budget and identifying, monitoring and responding to risk. As many researchers pointed out, project manager is responsible for communicating with all stakeholders and he occupies the center of the interactions between stakeholders and the project itself (PMBOK, 2013).

Researchers has identified that people management drives project success more than technical issues do (Scott-Young & Samson, 2004). With relevant to this, Prabhakar (2008) mentioned “project manager” as a project success factor. Further he explains project manager’s leadership style and competence, having profound impact on project success.

The combination of changes in the organizational environment and changes in the characteristics of the project makes the role of project leaders within this environment difficult (PMBOK, 2013). A project manager is frequently regarded as having a significant impact on overall project success as well as being critical to other project elements, such as the success of the project team, including team members’ motivation and creativity. This strongly link with success ensures that project manager’s role (PMBOK, 2013 & Prabhakar, 2008).

## **2.6 Project Management Challenges**

Project management covers coordinating various aspects of the project to produce good results. This adjustment can include factors such as personnel, materials, procedures, equipment. Over the past five to ten years the challenges faced by project managers are increasing (Othman, 2013 & Ford, 2004).

The construction industry faces significant challenges and obstacles. While the construction industry everywhere faces many problems and challenges, its

complexities and difficulties are most critical. According to literature, frequently cited common project management challenges are as follows.

**Unrealistic deadlines** – As Ford (2004) stated, many argue that the majority of construction projects have "schedule slippage" as a standard feature rather than an anomaly. The challenge of many project managers becomes to find optional approaches to the tasks and schedules in order to complete a project "on time", or to get approval for slipping dates out. Later, Yadollahi, Mirghasemi, Mohamad Zin, and Singh (2014) stressed similar idea to this. He mentioned "inappropriate scheduling also a critical challenge to the project manager.

**Communication deficit/Lack of communication about project goals/ poor communication by the management** – inevitably, "poor communication" is a critical challenge faced by all most all project managers and team members do not provide enough information to enough people, along with the lack of an infrastructure or culture for good communication (Ford, 2004), (Young et al., 2009), (El- sokhn and Othman, 2014) and (Ikediashi, Ogunlana and Alotaibi (2014).

**Scope changes** – According to Ford (2004), managing scope creep in project management is a challenging task that needs clearly defined, documented and controlled. Scope change is inevitable. Scope change is natural. The lack of project scope change management is one of the biggest obstacles to making a project successful. The best of the best project managers try to control the change rather than stopping the change (Weeraratne, 2014).

**Resource competition** - Usually, a project competes for resources (people, money, time) against other projects and initiatives, putting the project manager in the position of being in competition. The attention of the project manager is divided between managing the project and finding the resources they need to work on it (Ford, 2004) and (El- sokhn and Othman, 2014).

**Project planning and management** - Predominantly cost management during project implementation is very important, if costs are to be kept within budget. Without proper cost control and analysis of variances, it is possible to incur costs that are not within the project budget, leading to disputes and failure to complete the project

(Memon, Rahman and Azis, 2012 & Nguyen & Chileshe, 2015). Project control is another fundamental aspect that affects project performance. It can be seen that majority of challenges in construction can be avoided if the planning is accurate and if implementation is well controlled.

Several projects are not implemented to the expected quality, within cost and time constraints because of inadequate contracts. Many issues can be left hanging in contracts leading to conflicts. This can lead to a project standstill, or unforeseen costs and delays. Many times, there is need to use standard contracts, such as FIDIC (Jaeger and Hok, 2009) but it is always important to tailor the contract to cover local conditions and small projects.

Project Risk Management - Project Risk Management also a challenge to project performance. According to Olalusi and Otunola, 2012 & Ikediashi, Ogunlana and Alotaibi, 2014), a successful project is one for which a comprehensive risk assessment is carried out. Many times, risk assessments and sensitivity analysis are mere formalities that are carried out for completeness sake at design stage by the consultant. The fact is most projects are designed in such a way that the designer proceeds with the project supervision means that the risk assessment can never be negative. Risk assessors should not approve projects, the two roles should be separate (Nguyen & Chileshe, 2015).

According to Othman (2013) & Yadollahi, Mirghasemi, Mohamad Zin and Singh (2014), the project plan contains simple listed risks. Learning to cope with and plan risks is another challenge for project management. Since projects rarely proceed as planned, risk tolerance is usually a desirable property of project managers. To collect information, build trust and know which part of the project is most likely out of the course is a job aspect of the project manager.

Selecting reliable sub-contractors/ poor performance of sub-contractors - It is a common challenge for a reputable foreign contractor to win a tender but during construction, subcontracts nearly all the work to a local contractor. This is tantamount to a breach of contract (Nguyen & Chileshe, 2015). Even when large-scale turnkey contracts of large projects are awarded to big contracting agencies, sub-

contractors end up executing the works. In some instances, the owner of the project does not have control over these subcontractors, as they are normally accountable only to the main contractor, resulting in delays and poor quality output (Ling et al., 2010).

Insufficient team skills/ lack of project management skills on project team- The team members for many projects are assigned based on their availability, and some people assigned may be too proud or simply not knowledgeable enough to tell the project manager that they are not trained for all of their assigned work (Ford, 2004 & Othman, 2013).

Unclearly defined vision and goal - the goals or ultimate target of the project (and the reasons for doing so) are not necessarily clearly defined, together with the relevant subprojects or main tasks. It is impossible to clearly communicate these ambiguous goals to project participants (Nguyen & Chileshe, 2015) and (Othman, 2013).

Project Monitoring and Evaluation - Project monitoring and evaluation is essential for project success. But, it is weak in many project implementing organizations. Consequently, there are cases where money disbursed is not used for its intended function. It is also common to find a project implementation unit carrying out project monitoring and evaluation. Technically this is not advisable because there will be no internal controls, and no checks and balances in the system. Because work performed is not checked, there is a high risk of poor quality work (Nguyen & Chileshe, 2015).

As noted above, it is worthwhile considering separating project design from project supervision, so that the two roles are carried out by different parties. The traditional approach of awarding both roles to the same consultant is preferred as it saves costs, avoids repeated procurements, and saves time during project implementation, because the supervisor is conversant with the design. However, in this approach, feasibility studies and designs may not be sincere since the party that carries them out is the same party scheduled to supervise the project, thus design results will be inclined to support project implementation (Othman, 2013 & El- sokhn and Othman, 2014).

Moreover, Yadollahi, Mirghasemi, Mohamad Zin and Singh (2014) have identified project management challenges according to six categories. Those six categories and factors under each category are presented in Table 2.2.

*Table 2.2 – Project Management Challenges according to Categories*

<b>Category</b>	<b>Project Management Challenges</b>
Category 1: Technical	<ul style="list-style-type: none"> <li>▪ Unfamiliar technology</li> <li>▪ Unrelated tasks</li> </ul>
Category 2: Managerial	<ul style="list-style-type: none"> <li>▪ Inappropriate scheduling</li> <li>▪ Poor specification</li> <li>▪ Design alteration</li> <li>▪ Lack of portfolio management knowledge</li> <li>▪ Delay in project delivery</li> <li>▪ Inappropriate performance measurement</li> <li>▪ High number of tasks</li> <li>▪ Inappropriate construction sequence</li> </ul>
Category 3: Personal Skills	<ul style="list-style-type: none"> <li>▪ Poor workmanship</li> <li>▪ Poor planning</li> <li>▪ Unfamiliarity with green buildings and materials</li> <li>▪ Poor communication</li> <li>▪ Poor decision-making</li> <li>▪ Worker’s unawareness</li> <li>▪ Lack of cross-functional work</li> </ul>
Category 4: Contractual	<ul style="list-style-type: none"> <li>▪ Unclear contract</li> <li>▪ Discrepancy in contract forms</li> </ul>
Category 5: Psychological	<ul style="list-style-type: none"> <li>▪ Time pressure</li> <li>▪ High level of risk</li> </ul>
Category 6: Financial	<ul style="list-style-type: none"> <li>▪ Lack of resources</li> <li>▪ Inadequate payment</li> </ul>

Source: Yadollahi, Mirghasemi, Mohamad Zin and Singh (2014)



As Nguyen and Chileshe (2015) stressed most common project management challenges for project managers are geographically dispersed project teams, using the wrong tool for the job, over booked or mismanaged resources, wasting time looking for project documents or assets and spending too much time in status meetings. Many construction project teams are geographically dispersed (Nguyen and Chileshe, 2015 & El- sokhn and Othman, 2014). In fact, the project is essentially collaborative work. The essence of the project is that the project team usually consists of multiple project players. In many cases, the project team incorporates several organizations. Team members can be clients, vendors, subcontractors, and other third parties as well as employees. Hence, this is an issue for the project manager. In addition, there are many documents that require approval. A great feature is the routing and approval process. It is a time-consuming process, a time-consuming effect on delaying project activities. Many project team members are unsatisfied with spending too much time on meetings to update project progress and meetings for decision making (Nguyen and Chileshe, 2015).

Okoye, Ngwu and Ugochukwu (2015) analyzed management challenges faced by professionals involved in construction projects in Nigeria using relative Importance Index (RII). Accordingly major challenges are quality management challenges, time management challenges, safety management challenges, cost management challenges, communication and co-ordination challenges, risk and uncertainty management challenges, resources allocation challenges, and change management challenges. Furthermore it says, technical and environmental issues to highly dynamic management challenges. This has more contributed to construction project failures in Nigeria, thereby requiring high sense of managerial judgment, capabilities, skills and strategies. Thus, time; cost, quality, and safety remain the top management challenges facing construction project managers in Nigeria. It also shown that aside the technical skills, there are other management skills required by the construction project managers in managing construction projects.

After the in-depth literature review on project management challenges, following challenges were coincided to get respondents' view according to the frequency of occurrences and its severity to the project failure in the questionnaire survey.

Besides, these challenges collected through various studies which cover construction industry in developing countries after year 2000. Similarly, some authors have identified project management challenges according to the categories. Accordingly, 11 categories were identified which were frequently cited: time related, cost related, quality related, planning & management related, architectural & design related, communication related, safety related, environment related, geographical related, government/policy related and social – cultural related.

Table 2.3 – Project Management Challenges

ID	Challenge	Nassar and Elsayed (2017)	Hyatali & Pun (2016)	Taylor (2015)	Nguyen and Chileshe (2015)	Fontem, Mutambara and Indermun (2015)	Amade et al. (2015)	Okoye, Ngwu, and Ugochukwu (2015)	Rothe et al. (2014)	Zuofa and Ochieng (2014)	Yadollahi et al. (2014)	Weerarartne (2014)	Muhwezi & Otim (2014)	Ikediashi, Ogunlana and Alotaibi (2014)	El- sokhn and Othman (2014)	Othman (2013)	Megha & Rajiv (2013)	Nguyen et al. (2013)	Saraf (2013)	Amponsah (2012)	Olalusi and Otunola (2012)	Ahsan & Gunawan (2010)	Enshassi, Mohamed & Abushaban (2009)	De silva, Rajakaruna & Bandara (2008)	Ford (2004)	Frequency (n=24)
01	Lack of strategic project planning/ project integration management	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x			x	15	
02	Unrecognition of importance of project management as a professional career				x											x										02
03	Change project requirements at later stages of the project life cycle by Stakeholders				x					x	x					x					x		x	x		07
04	Poor missing or incomplete project requirement											x				x							x	x		04
05	Political tension/political interference/political instability				x							x				x								x	x	05
06	Time pressure on feasibility studies, especially for explore possible			x			x	x		x						x										05

engineering and technical solutions														
07	Ineffective leadership/Leadership problems						x				x		x	<b>04</b>
08	Poor use of project management practices										x			<b>02</b>
09	Ineffective and improper scheduling & budgeting										x		x	<b>05</b>
10	Lack of considering environmental requirements, preserving historical sites, High environmental impact										x			<b>02</b>
11	Inappropriate behavior of the client organization												x	<b>02</b>
12	Wrong selection of project team												x	<b>02</b>
13	Budget overrun												x	<b>04</b>
14	Ignorance of health & safety considerations, absence of activating health and safety acts/ inadequate safety precautions/limited funds for safety												x	<b>03</b>
15	Improper decision making and overlooking specialists and stakeholders consultation during the decision making process												x	<b>02</b>
16	Inadequate communication at all levels and poor coordination interface management between project stakeholders/Communication deficit/poor coordination with Las												x	<b>13</b>

17	Effective risk mitigation/project risk management	x	x	x	x		x		x	x		x		x	<b>09</b>
18	Lack of research capacity and business innovation/government involvement in R&D									x					<b>01</b>
19	Lack of professional expertise						x			x					<b>02</b>
20	People affected by the project are not involving to the decision making process									x					<b>01</b>
21	Bureaucracy and Corruption practices			x						x			x		<b>03</b>
22	Unrealistic deadlines /Time pressure/project time management		x	x	x		x	x	x					x	<b>10</b>
23	Stressful tasks/High number of tasks		x				x		x					x	<b>04</b>
24	Lack of cross-functional works						x								<b>01</b>
25	Project change management/project scope management/lack of clarity of scope				x		x	x		x			x		<b>05</b>
26	High demand for deliverables						x	x							<b>02</b>
27	Inadequate specification for materials/work						x	x		x	x				<b>04</b>
28	Delays in obtaining permission from local authorities							x	x						<b>02</b>
29	Delays in commissioning other related projects							x			x				<b>02</b>

30	Improper construction methods					X			X					<b>02</b>
31	Rework due to mistakes					X			X	X				<b>03</b>
32	Organization's culture does not support/low level of administrative flexibility					X			X					<b>02</b>
33	Professional and personal conflict					X			X			X		<b>03</b>
34	Difficulties of managing CBOs					X			X					<b>02</b>
35	Geographically dispersed project team	X				X	X		X					<b>04</b>
36	Delays in payment/inadequate payment/cost management		X	X		X	X	X	X					<b>06</b>
37	Adverse weather					X	X	X	X	X		X		<b>06</b>
38	Increasing reports of accidents					X	X					X		<b>03</b>
39	Unskilled labor shortage					X	X							<b>02</b>
40	Inadequate support from banking sector/ high interest rates/limited credit							X	X			X		<b>03</b>
41	Bribe/corruption and favourism							X			X	X		<b>03</b>
42	Lack of high technical equipment					X								<b>01</b>
43	Lack of motivation for HR						X		X					<b>02</b>
44	Design alteration					X			X					<b>02</b>
45	Project monitoring & Evaluation					X			X	X			X	<b>04</b>
46	Project quality management	X		X	X	X			X					<b>05</b>
47	Rapid changes in the national economy								X	X		X	X	<b>04</b>

48	Ignorance of lessons learned							x	<b>01</b>
49	Lack of project management skills in project team	x	x		x			x	<b>05</b>
50	Selecting a reliable sub-contractors	x			x			x	<b>03</b>

## **2.7 Relocation Projects in Developing Countries**

At present, it is estimated that one third of the urban population of developing countries do not have access to adequate housing and they do not have safe drinking water and sanitation facilities also (Viratkapan & Perera, 2004 and *The Challenge of Slums: Global Report on Human Settlements*, 2003). These people live in overcrowded and under serviced settlements situated on marginal or reservation lands. They have lack access to public clean water, and have to pay a premium to private providers. Their waste is not only left untreated but also surrounds them and their daily activities and affects their health, especially their children. This situation is not new. Since human beings first lived in cities, the problem of poorly planned and maintained overcrowded urban housing where poor people in urban societies lived has been recognized as an undesirable aspect of urban life (*The Challenge of Slums: Global Report on Human Settlements*, 2003).

In the case of Bangkok, many slums relocation projects have been implemented during the past 30 years (Viratkapan & Perera, 2004). There are several prerequisites to succeed in the slum relocation projects, such as availability of strong leadership, actively participating by all stakeholders, and giving compensation. One of the studies found that slum relocation projects require specialized activities in the consolidation stage, in order to sustain the momentum generated at the eviction and transition stage of the projects (Viratkapan & Perera, 2004). Similarly, Saraf (2013) & Othman (2013) stressed that pre-planning and public participation is significant to the relocating low income settlements in developing countries.

## **2.8 Strategies to Mitigate Project Management Challenges in Relocation of Underserved Settlements in Sri Lanka**

In the context of construction industry, researchers pointed out many strategies to mitigate the challenges faced by project managers in construction projects. Also there are several studies regarding the suitable approaches to mitigate challenges faced by project managers in relocation of underserved settlements in Sri Lanka. According to the study done by Okoye, Ngwu, and Ugochukwu (2015), 12 strategies



to address project management challenges are, Develop realistic estimates and forecasting, Assign the project team early, Continuous and effective communication of project objectives, Choose the right project delivery strategy, Obtain buy-in from senior management, Develop project specific policies and procedures, Actively manage project risks, Improve individuals/team performance quality through stakeholders' development and training, Assign project specific roles and responsibilities, Conduct frequent team meetings, Develop productive project culture through behaviors and relationships and Encourage knowledge sharing.

Informal settlements are usually taking place in suburban and urban surroundings (Akhmat & Khan, 2011 and Wijayasinghe, 2010). There are key interventions to solve the project failures of informal abodes and upgrade these informal settlements in third world including advanced improvement of infrastructure facilities, new type of settlement master plans, strong commitment and involvement of the communities to be served in the planning activities, decision-making, implementation and management processes (Gunetilleke, Cader & Fernando, 2004 & Wijayasinghe, 2010). Various types of interventions can be applied to change illegal and substandard environments into acceptable and livable places. Through technical and capital-intensive intervention, international support and cooperation plays an important role in the mainstreaming of these low-income settlements in developing countries. Informal settlements create very complex environments, and for an intervention to be successful, it has to be able to deal with this complexity and should be based upon good practice and strong theoretical foundations (Akhmat & Khan, 2011).

As Beleiu, Crisan & Nistor (2000) stressed that five main strategies to successful execution of a project including clearly defined goals and directions, adequate competence of project team, clearly defined roles and responsibilities, communication and consultation with stakeholders ,planned budget, time frame and performance evaluation criteria.

There is several policy principals pointed out by Sri Lanka National Involuntary Resettlement Policy. The selected policy principles include: Involuntary resettlement

should be avoided or reduced as much as possible by reviewing alternatives to the project as well as alternatives within the project, Affected persons should be fully involved in the selection of relocation sites, livelihood compensation and development options at the earliest opportunity, Replacement land should be an option for compensation in the case of loss of land in the absence of replacement land cash compensation should be an option for all affected persons, Compensation for loss of land, structures, other assets and income should be based on full replacement cost and should be paid promptly, Resettlement should be planned and implemented with full participation of the provincial and local authorities, To assist those affected to be economically and socially integrated into the host communities; participatory measures should be designed and implemented, Resettlement should be planned as a development activity for the affected people, Affected persons who do not have documented title to land should receive fair and just treatment and Project Executing Agencies should bear the full costs of compensation and resettlement (Sri Lanka National Involuntary Resettlement Policy, 2001)

The most important lessons behind the successful implementation of the relocation project is that investing time and resources for careful relocation planning and scheduling, implementation, short and long term monitoring. They also collaborated with various partners (NGO's) who acted as strong links between the relocated communities, the project team as well as with local authorities in the relocation process which built good relationships (Wijayasinghe, 2010 and Akhmat & Khan, 2011). Inclusions of host communities in the project and preparing resettlement sites should be adopted through community contracts (UN-HABITAT, 2009).

Related to this, another study reveals several points to address challenges faced by project managers in relocation of underserved settlements in Sri Lanka including target group is fully compensated, providing assistance to reestablish their livelihood, attractive physical conditions of the housing etc. Additionally, social and cultural aspects of the target population also to be considered in advanced as sense of security, political supports, free or very cheap services associated with their original locations (Wijayasinghe, 2010).

There are various studies regarding the suitable strategies to mitigate challenges faced by project managers in construction industry and also relocation of underserved settlements. The table 2.3 shows the identified possible strategies to mitigate challenges faced by project managers in relocation of underserved settlements through in-depth literature survey. The most of strategies to mitigate challenges faced by project managers in construction industry are applicable to address challenges faced by project managers in relocation of underserved settlement projects in Sri Lanka also.

Table 2.4 – Strategies to Mitigate Challenges Faced by Project Managers

ID	Strategy/mitigating approach											Frequency (n=12)	
		Sohu et al. (2018)	Hyatali & Pun (2016)	Okoye, Ngwu, and Ugochukwu (2015)	Nguyen and Chileshe (2015)	Roslan (2015)	Fernando & Punchihewa (2013)	Memon, Rahman and Asiz (2012)	Enshassi, Mohamed & Abushaban (2009)	De silva, Rajakaruna & Bandara (2008)	Prabhakar (2008)		Viratkapana & Perera (2004)
1	Enhancing the Professionalism of the Industry							x	x				02
2	Raising the Skills Level of project team		x		x			x	x				04
3	Improving Industry Practices and Techniques							x		x		x	03
4	Adopting an Integrated Approach to Construction			x			x	x	x				04
5	A Collective Championing Effort for the Construction Industry							x					01
6	Effective Site management and supervision/Close monitoring		x			x		x				x	04
7	Effective strategic planning works	x	x			x	x	x	x			x	07
8	Committed leadership and management							x			x		02
9	Send clear and complete message to workers to ensure effective communication/Clear information and communication channels			x	x	x		x	x				05
10	Hire skilled workers							x					01
11	Focus on the quality, cost and delivery of the project			x				x		x			03

12	Use new construction technologies/Use of appropriate construction methods							x				01
13	Provide training and development to all participant to support delivery process effectively							x				01
14	Provide knowledge/training to unskilled workers based on their scope of work							x		x		02
15	Fully utilize the construction team							x				01
16	Focus on client's need							x				01
17	Proper project planning and scheduling	x	x		x	x	x	x			x	07
18	Conducting Frequent progress meetings	x		x		x		x				04
19	Proper emphasis on past experience/ lessons learned							x		x	x	03
20	Use of experienced subcontractors and suppliers							x				01
21	Use up to date technology utilization							x				01
22	Frequent coordination between the parties	x						x	x			03
23	Perform a preconstruction planning of project tasks and resources needs							x				01
24	Developing human resources in the construction industry							x				01
25	Improving contract award procedure by giving less weight to prices and more weight to the capabilities and past performance of contractors	x						x				02
26	Assign the project team early			x					x		x	03
27	Choose the right project delivery strategy			x				x				02
28	Develop realistic estimates and forecasting	x	x	x		x						04
29	Assign project specific roles and responsibilities			x								01
30	Commitment by team members to pre-established project objectives			x				x				02
31	Continuous and effective communication of project objectives			x		x						02
32	Encourage knowledge sharing			x							x	02
33	Develop productive project culture through behaviors and relationships			x						x		02
34	Competent and qualified team should be employed	x										01

35	Improve individuals/team performance quality through stakeholders development and training		x		x		02
36	Political influence should be avoided		x				01
37	Climatic conditions and environmental impacts of the site should be foreseen		x				01
38	Develop project specific policies and procedures				x		01
39	Allocate sufficient funds for project		x				01
40	Political influence should be avoided by client		x				01
41	Policies of project should not be revised on basis of favoritisms		x				01
42	Apply construction safety practices					x	01
43	Adopting incentive awarding mechanism					x	01

## **2.9 Chapter Summary**

This chapter was mainly focused to identify the current knowledge on the research areas and define the gap between current literature and subject to be researched. The literature was gathered through local & foreign researches, journal articles, conference papers, books, websites and other reliable sources. Thus, chapter was first reviewed current literature on key terms including project, project failure, project management, project manager, underserved settlements and the relocation. Next, it was synthesized literature on impact of project failure, project failure factors, role of a project manager, project management challenges, relocation projects in developing countries and finally strategies to mitigate project management challenges.

## **CHAPTER 03**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter focuses on the research methodology adapted to this research study. Accordingly, section 3.2 explains research process which is carrying out this study from beginning to end including steps: Identify the area of research study, Identify the need to carry out the research, Establish Aim & Objectives, Literature Review, and Research Design, Data Analysis and Discussion & Conclusion.

The following two sections are about the research design and research approach respectively. Research design is the conceptual arrangement within which the research study is conducted. Research approach is used to get conclusion for identified research problem which is “how to address challenges faced by project managers in mitigating project failures in terms of relocation of underserved settlements with its dynamic nature”. In view of that, Quantitative approach is selected as the research approach to adopt on this study.

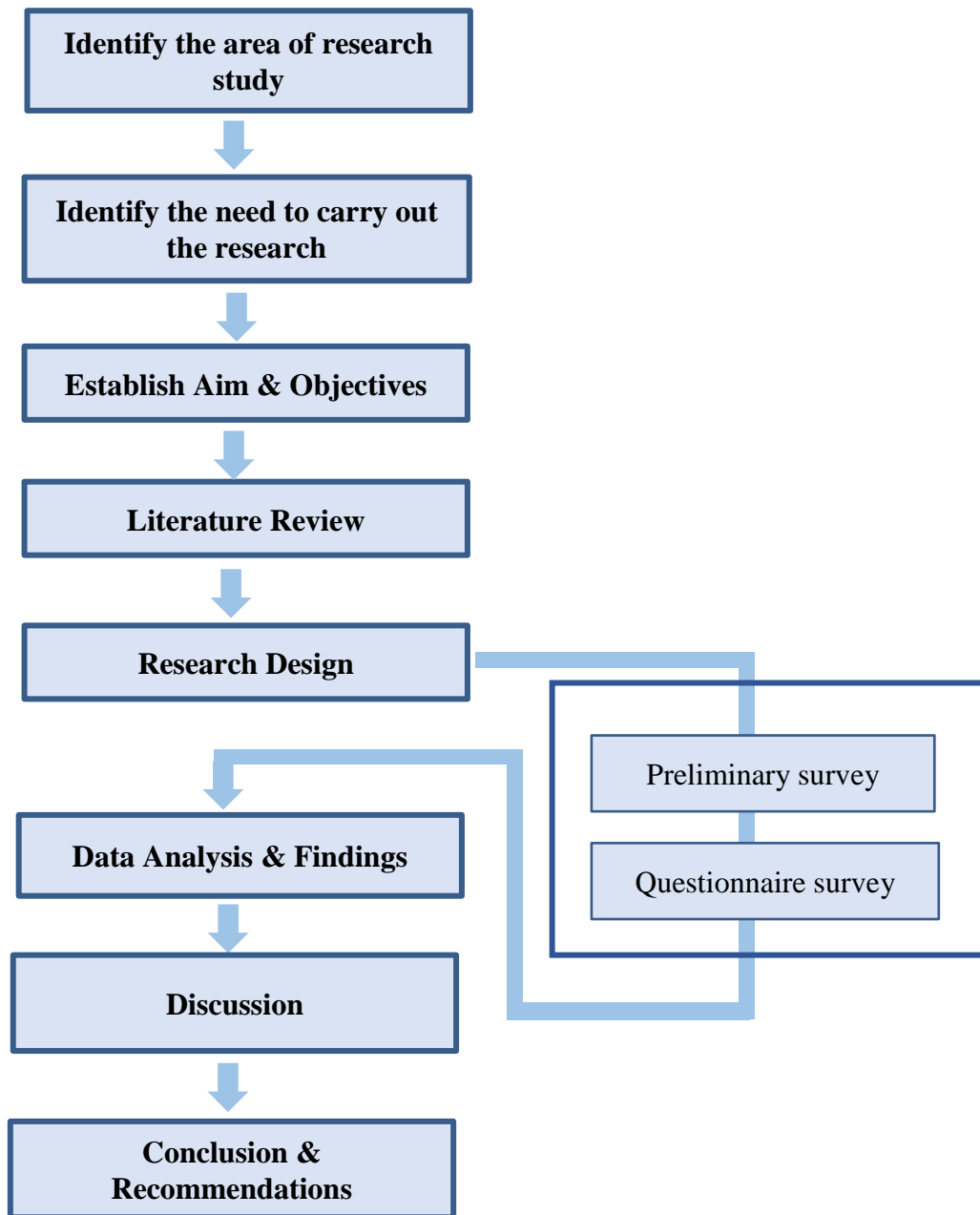
The section 3.5 is about research technique used herein. It includes method of data collection, questionnaire design, sample design, pilot survey and data analysis techniques. The Relative Importance Index (RII) is used to analyze the data collected through questionnaire survey.

#### **3.2 Research Process**

Research process is the way of carrying out the research from beginning to end. The research process of this study is illustrated in figure 3.1.



Figure 3.1 - Research Process



### 3.3 Research Design

According to Bordens & Abbott (2002) research design can be identified as the most influential segment which bridges research problem with correspondent data. Strategy, framework and entity are the main elements which should be successfully outlined in the research design. Kothari (2004, p.31) stressed a research design is

“the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure.” In fact, the research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data (Kothari, 2004 & Creswell, 2009). Moreover, author stressed that research design is needed as it facilitates the smooth sailing of the various research operations, thereby making research as efficient as possible yielding maximal information with minimal expenditure of effort, time and money (Kothari, 2004).

### **3.4 Research Approach**

The research approach can be identified as the method used to get conclusion for identified problem statement at beginning by the researcher (Bordens & Abbott, 2002; Kothari, 2004 and Creswell, 2009). According to researchers there are two main research approaches as quantitative and qualitative (Bordens & Abbott, 2002; Kothari, 2004; Creswell, 2009 and Kumar, 2011).

The quantitative approach involves the “generation of data in quantitative form can be subjected to rigorous quantitative analysis in a formal and rigid fashion” (Kothari, 2004, p.5). Quantitative research approach is influenced by the empiricist paradigm, which means that it is concerned with cause and effect of social phenomena and uses the data – which is based on empirical observation and their critical interpretation (Bordens & Abbott, 2002; Kothari, 2004; Creswell, 2009 and Kumar, 2011). Quantitative researches are more reliable and objective and it can be used statistics to generalize findings (Kothari, 2004; Creswell, 2009 and Kumar, 2011). It is often reduces and restructures a complex problem to a limited number of variables. Further, quantitative approach looks at relationships between variables and can establish cause and effect in highly controlled circumstances. It tests theories or hypotheses. Similarly, it assumes sample is representative of the population, subjectivity of researcher in methodology is recognized less and quantitative analysis less detailed than qualitative data and may miss a desired response from the participant (Kothari, 2004 & Creswell, 2009).

Qualitative approach is subjective. It refers the assessment of attitudes, opinions and behavior. Research in such a situation is a function of researcher's insights and impressions. This approach generates results either in non-quantitative form or in the form which are not subjected to rigorous quantitative analysis. Generally, the techniques of focus group interviews, projective techniques and depth interviews are used (Kothari, 2004 & Creswell, 2009). Mixed research approach is more flexible where the research design is determined by what is want to find out rather than by any predetermined epistemological position. In mixed research approach, qualitative or quantitative components can predominate or both can have equal status (Kothari, 2004 & Creswell, 2009).

The research question emerged through this study is "how to address challenges faced by project managers in mitigating project failures in terms of relocation of underserved settlement. According to the research question and the aim of this study, it is essential to get quantitative answer on critical challenges in project management and its severity to the project failure. Hence, project management challenges have to be categorized. Subsequently, it would be quantify the answers obtained from the respondents. Further, this research study attempts to test a hypothesis is there a relationship between challenges faced by project managers and the project failure (project management). Hence, quantitative approach more suits for this research study.

### **3.5 Research Technique**

Research techniques are comprised with both methods of data collection and data analysis (Bordens & Abbott, 2002; Kothari, 2004 and Kumar, 2011).

#### **3.5.1 Data Collection**

Data collection methods differ from primary data collection to secondary data collection. In literature review, it considered the advantages and disadvantages of available methods, in order to select the most appropriate method of data collection

for this research study. Table 3.1 describes the advantages and disadvantages of available data collection methods.

*Table 3.1 – Advantages and Disadvantages of Data Collection Methods*

<b>Methods</b>	<b>Advantages</b>	<b>Disadvantages</b>
<b>Observation</b>	<ul style="list-style-type: none"> <li>▪ Subjective bias is eliminated</li> <li>▪ Independent of respondents' willingness to respond</li> </ul>	<ul style="list-style-type: none"> <li>▪ An expensive method</li> <li>▪ The information provided by this method is very limited</li> <li>▪ Sometimes unforeseen factors may interfere with the observational task</li> </ul>
<b>Interview</b>	<ul style="list-style-type: none"> <li>▪ More information and that too in greater depth can be obtained</li> <li>▪ Greater flexibility under this method as the opportunity to restructure questions is always there</li> <li>▪ Personal information can as well be obtained easily under this method</li> <li>▪ The language of the interview can be adopted to the ability or educational level of the person interviewed and as such misinterpretations concerning questions can be avoided</li> </ul>	<ul style="list-style-type: none"> <li>▪ Very expensive method, especially when large and widely spread geographical sample is taken.</li> <li>▪ Relatively more-time-consuming, especially when the sample is large and recalls upon the respondents are necessary.</li> </ul>
<b>Document review</b>	<ul style="list-style-type: none"> <li>▪ Relatively inexpensive</li> </ul>	<ul style="list-style-type: none"> <li>▪ Information may be inapplicable, disorganized, unavailable or out of date</li> <li>▪ Information may be incomplete or inaccurate</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Can be time consuming to collect, review, and analyze many documents</li> </ul>
<p><b>Through questionnaire</b></p> <ul style="list-style-type: none"> <li>▪ Low cost even when the universe is large and is widely spread geographically</li> <li>▪ Free from the bias of the interviewer; answers are in respondents' own words.</li> <li>▪ Respondents have adequate time to give well thought out answers</li> <li>▪ Respondents, who are not easily approachable, can also be reached conveniently</li> <li>▪ Large samples can be made use of and thus the results can be made more dependable and reliable</li> </ul>	<ul style="list-style-type: none"> <li>▪ Low rate of return of the duly filled in questionnaires</li> <li>▪ Can be used only when respondents are educated and cooperating</li> <li>▪ Possibility of ambiguous replies or omission of replies altogether to certain questions; interpretation of omissions is difficult.</li> </ul>
<p><b>Through schedules</b></p> <ul style="list-style-type: none"> <li>▪ Very useful in extensive enquiries and can lead to fairly reliable output</li> <li>▪ Schedules can be used when the respondents happen to be illiterate</li> <li>▪ The identity of respondent is known</li> </ul>	<ul style="list-style-type: none"> <li>▪ An expensive method - schedules are being filled in by the enumerators who are specially appointed for the purpose</li> <li>▪ Requires the selection of enumerators for filling up schedules or assisting respondents to fill up schedules and as such enumerators should be very carefully selected</li> </ul>

Source: (Kothari, 2004; Creswell, 2009 & Kumar, 2011)

The aim of this research study is to propose strategies to address challenges faced by project managers in mitigating project failures in relocation of underserved

settlements in Sri Lanka. Relocation projects are very complex with its nature. The responsible project players engaged with these projects and work with very tight time framework. Hence, well-structured written questionnaire survey is used to primary data collection while journal articles and books are used for secondary data collection.

#### *a) Questionnaire Survey*

This method of data collection is quite popular, particularly in case of big enquiries (Kothari, 2004, p.100). Surveys are set of questions which cannot be changed (Bordens & Abbott (2002) Moreover, data can be collected by large number of respondents within shorter time period. As Kothari, 2004 & Creswell, 2009) stressed that a written questionnaire is a tool, which collects data through answering questions by respondents in written form. It is easy to compare and analyze the data collected through this method than others.

The questionnaire sheet includes set of questions in a definite order as a printed document. Questionnaires are sent to the selected sample population through email and by post (Kothari, 2004).

In this research study, questionnaires are delivered through by hand and e-mails which are the inexpensive, time saving, highly reliable and fast communication method.

#### *b) Questionnaire Design*

The questionnaire was designed with aiming to propose strategies to address challenges faced by project managers in mitigating project failures in relocation of underserved settlements in Sri Lanka. It consists with two parts. Part one includes general information about the respondents such as profession, organization attached and years of experience. Part two covers 03 sections as follows.

Section 01 includes the major categories of project management challenges in relocation of underserved settlements with its level of contribution and the responsible project players (Objective 01). In this section, respondents are asked to rate the major categories of project management challenges using a scale from 1-5, where 1= Not at all, 2= Low, 3= Moderate, 4= High, 5= Very high. Simultaneously, respondents are also asked to identify the responsible project players for each category.

Section 02 consists the challenges faced by project managers in relocation of underserved settlements (Objective 02). In this section, respondents are asked to rate the frequency of occurrences of each challenge and its severity to the project using a scale from 1-5, where 1= Not applicable, 2= Low, 3= Moderate, 4= High, 5= Very high.

Section 03 includes the strategies to address challenges faced by project managers in mitigating project failures in relocation of underserved settlements in Sri Lanka. (Objective 03). In this section, respondents are asked to rate the level of relevancy of each strategy using a scale from 1-5, where 1= No, 2= Low, 3= Moderate, 4= High, 5= Very high.

The project management challenges and its major categories, mitigating approaches are gathered from depth literature survey.

### ***c) Sample Design***

A sample design is a definite plan for obtaining a sample from a given population. It refers to the technique or the procedure the researcher would adopt in selecting items for the sample (Kothari, 2004 & Creswell, 2009). Sample design is determined before data are collected. As Kothari (2004) stressed, choice of the sample frame which constitute a representative subset of the population is the most critical element of the sampling procedures. The sample frame must adequately represent the unit of analysis.

All the elements under consideration are a 'universe' or 'population'. A complete enumeration of all elements of 'population' is known as a census inquiry. It can be supposed that in such an inquiry when all the elements are covered no element of chance is left and highest accuracy can be obtained (Kothari, 2004). Nonetheless, in practice this may not be true. The sample for this research study is obtained from project players of relocation of underserved settlement projects in Sri Lanka using simple random sampling method.

#### *d) Preliminary Survey*

A preliminary survey was conducted to examine the feasibility as well as the quality/appropriateness of the questionnaire survey. The time needed to complete the questionnaire and the level of understanding ability of the questionnaire were the main concerns of the preliminary survey (Appendix 01- Draft questionnaire for data collection for the Preliminary Survey).

### **3.5.2 Data Analysis**

When data collection is completed, the next step to be followed is data analysis (Schutt, 2012). As Ritchie et al. (2014) pointed out, data analysis is the challenging and exciting stage of the entire research process. Among different methods of data analysis, the Relative Importance Index (RII) is used herein to analyze the data collected through questionnaire survey.

#### **Relative Importance Index (RII)**

According to the literature survey, recently most of researchers have used the Relative Importance Index (RII) to rank factors (Ritchie et al., 2014 & Somiah, Osei-Poku & Aidoo, 2015). In this research, RII was used to rank the major categories of project management challenges, challenges faced by project managers and the strategies to address challenges faced by project managers.



The RII is computed as,

$$RII = \frac{\sum (W \times n)}{A \times N}$$

Where,

- RII - Relative Importance Index
- W - Constant expressing the weighting given to each response
- A - The highest weighting
- n - The frequency of responses
- N - Total number of responses

### **3.6 Chapter Summary**

The chapter discussed about the research methodology to be followed to achieve aim and objectives of the research. Research process, research design, research approach and research techniques were explained. As the research approach for this study, quantitative approach was selected. Under the research techniques both data collection method and data analysis techniques were discussed. Accordingly, well-structured written questionnaire was decided as an instrument of primary data collection. The information collected through questionnaire survey is analyzed using Relative Importance Index (RII). At last, the research process was explained from beginning to end.

## **CHAPTER 04**

### **DATA ANALYSIS & FINDINGS**

#### **4.1 Introduction**

This chapter presents the collected information through questionnaire survey and its output. Chapter includes the analysis of respondent's profile, response rate to the questionnaire and finding & analysis of data collected through questionnaire survey. Under the findings, it is discussed the most critical category of project management challenges in relocation of underserved settlement projects with responsible project players. Similarly, top ranked project management challenges faced by project managers according to the frequency of occurrences as well as severity to the project failure were discussed. At last, it is presented most appropriate strategies to mitigate most critical challenges faced by project managers in mitigating project failures in relocation of underserved settlements in Sri Lanka.

#### **4.2 Respondents' Profile**

This section reports the professional background, type of working experience and years of experiences of the respondents. 39 questionnaires were received out of fifty questionnaires distributed among the professionals/project players involved in relocation of underserved settlements projects. Table 4.1 shows the Respondents' profile including their designations, type of organizations and years of experience.

Table 4.1 - Respondents' Profile

Professional Background			Type of working experience			Years of experiences		
Designation	No.	%	Type of organization	No.	%	Years	No.	%
Project manager	07	18	Client	26	67	05-10 Yrs	19	49
Town Planner	08	20.5	Consultant	06	15	10-15 Yrs	12	31
Quantity surveyor	08	20.5	Client & Consultant	07	18	More than 15 Yrs	8	20
Engineer	08	20.5						
Designer/Architect	08	20.5						
<b>Total</b>	<b>39</b>	<b>100</b>	<b>Total</b>	<b>39</b>	<b>100</b>	<b>Total</b>	<b>39</b>	<b>100</b>

As table 4.1 shows all respondents of this study are project managers, town planners, quantity surveyors, engineers and designer/Architects well-known in the construction industry as well as having experiences in relocation of underserved settlements in Sri Lanka. Accordingly, nearly 50% of respondents have 05-10 years of professional experiences while 31% of respondents have 10-15 years of professional experiences and 20% of respondents have more than 15 years of experience in the construction industry.

### 4.3 Analyses and Findings of the Survey

This section reports major categories of project management challenges in relocation of underserved settlements projects with responsible project players, project management challenges according to the frequency of occurrences and also its severity to the project failure and strategies to address challenges faced by project managers in mitigating project failures in relocation of underserved settlements in Sri Lanka respectively.

### 4.3.1 Identification of Major Categories of Project Management Challenges in Relocation of Underserved Settlements Projects

It was identified major categories of project management challenges in relocation of underserved settlements projects after an in-depth literature review. Among the list of project management challenges, 11 major categories were most frequently cited in the literature including time related, cost related, quality related planning & management related, architectural & design related, communication related, safety related, environment related, geographical related, government/policy related and social – cultural related.

The most critical categories of project management challenges in relocation of underserved settlements projects were ranked out of these 11 categories using on a likert scale from 1-5, where 1= Not at all, 2= Low, 3= Moderate, 4= High, 5= Very high. Accordingly, the tabulated results obtained through Relative Importance Index (RII) are shown in Table 4.2. The RII value of major categories of project management challenges in relocation of underserved settlements projects above 0.80 are considered as “highly critical” categories of project management challenges.

*Table 4.2 -Major Categories of Project Management Challenges in Relocation of Underserved Settlements Projects*

<b>ID</b>	<b>Major categories of challenge</b>	<b>RII</b>	<b>Rank</b>
1	Planning & Management related	0.908	1
2	Cost related	0.897	2
3	Time related	0.872	3
4	Communication related	0.867	4
5	Quality related	0.692	5
6	Architectural & design related	0.667	6
7	Social – cultural related	0.492	7
8	Environment related	0.467	8
9	Safety related	0.446	9
10	Government/policy related	0.421	10
11	Geographical related	0.415	11

Accordingly highly critical categories of project management challenges are planning and management related, cost related, time related and communication related respectively.

Project planning and management is vital in project management. Unlike other types of projects, the challenges which related to the project planning and management are significant in relocation of unreserved settlement projects in Sri Lanka. Similarly, most of project failure causes and project management challenges can be identified under planning and management category. As researchers stressed, many construction projects tend to failure due to insufficient data and lack of time allocation for project planning and management. The cost related factors contribute to project failures that arise as a result of excessive cost and time overruns as well as an inability of client to meet cash flow obligations (Ikediashi, Ogunlana and Alotaibi, 2014). The time related challenges also significant in relocation projects as relocation process is more complex with diverse community groups and livelihoods. Communication is one of the most recognized facilitator for successful implementation of any project. Hence, communication related challenges also to be addressed through effective communication plan. As a first step, all stakeholders related to a particular project should be identified and registered.

The quality related challenges and architectural & design related challenges also to be considered as those two categories indicating as “critical” according to the RII value.

#### **4.3.2 Identification of Responsible Project Players for Major Categories of Project Management Challenges**

11 major categories of project management challenges in relocation of underserved settlement projects were identified according to the responsible project players. The tabulated results are shown in Table 4.3.

*Table 4.3 - Responsible Project Players for Major Categories of Project Management Challenges in Relocation of Underserved Settlement Projects*

ID	Major categories of challenge	Responsible Project Player						
		Project manager (n=39)	Engineer (n=39)	Quantity Surveyor (n=39)	Designer (n=39)	Client (n=39)	Contractor (n=39)	Other (n=39)
1	Planning & Management related	38	7	1	9	20	21	0
2	Cost related	27	20	19	17	29	22	0
3	Time related	38	7	2	2	17	32	0
4	Communication related	38	24	18	18	31	25	0
5	Quality related	26	29	10	22	19	23	0
6	Architectural & design related	0	0	0	38	16	5	0
7	Social – cultural related	16	0	0	0	22	6	8
8	Environment related	17	7	2	4	26	2	5
9	Safety related	36	10	0	8	19	26	0
10	Government/policy related	8	4	4	4	11	5	32
11	Geographical related	2	2	0	2	23	3	14

Accordingly, project manager is the first responsible project player for three of highly critical categories of project management challenges including planning and management related, communication related, time related. Similarly, client is ranked as first responsible project player for cost related challenges while project manager remaining second responsible project player.

In the case of quality related challenges, engineer ranked as the first responsible project player and project manager is the second responsible project player. As respondents present, Designer is almost responsible for the architectural & design related challenges while project manager, engineer and quantity surveyor have no responsibility regarding the project design and its architectural works.

### 4.3.3 Identification of Project Management Challenges in Relocation of Underserved Settlement Projects

After the foregoing review of major categories of project management challenges, 47 project management challenges collected through literature survey, were listed considering frequency of occurrences and its severity to the project failure using on a likert scale from 1-5, where 1= Not applicable, 2= Low, 3= Moderate, 4= High, 5= Very high. The tabulated results obtained through Relative Importance Index (RII) are shown in Table 4.4 and Table 4.5. According to Table 4.4 & Table 4.5 the RII value of project management challenges in relocation of underserved settlement projects above 0.80 are considered as “most frequent” and “most sever” challenges to the project failure respectively.

*Table 4.4 - Project Management Challenges in Relocation of Underserved Settlement Projects according to the Frequency of Occurrences*

ID	Challenge	Frequency of occurrences	
		Rank	RII
1	Poor communication by the management about project goals	0.826	1
2	Lack of project management skills in project team	0.815	2
3	Time pressure on feasibility studies, especially for explore possible engineering and technical solutions	0.813	3
4	Not allocating reasonable project duration	0.812	4
5	Poor coordination among project stakeholders	0.811	5
6	Budget overrun	0.809	6
7	Wrong selection of project team	0.808	7
8	Neglect of the significance of project planning process	0.806	8
9	Ignorance of lessons learned	0.805	9
10	Lack of strategic project planning	0.802	10
11	Selecting a reliable sub-contractors	0.744	11
12	Poor, missing incomplete project requirement given by the top level	0.728	12
13	Poor linkage in between project manager & all stakeholders	0.728	12
14	Lack of funding for project preparation (Planning & scheduling, Feasibility studies)	0.723	13
15	High cost for maintenance	0.713	14
16	Lack of project integration management	0.713	14
17	Failures of stakeholder meetings	0.708	15
18	Political tension/political interference	0.697	16
19	Lack of effective project risk mitigation/ management	0.697	16
20	Improper techniques and tools used in project planning	0.697	16

21	People affected by the project are not involving to the decision making process	0.692	17
22	Unrecognition of importance of project management as a professional career	0.687	18
23	Bribery and corruption	0.682	19
24	Poor monitoring and evaluation	0.667	20
25	Lack of efficient change management	0.656	21
26	Unskilled labor shortage	0.656	21
27	Frequent design changes/ frequent changes in user requirements	0.651	22
28	Complexity of social processes	0.641	23
29	Poor quality of construction materials	0.641	23
30	Ignorance of health and safety considerations / Inadequate safety precautions	0.636	24
31	Not having change management strategy	0.631	25
32	Difficulties in coordinating the multiple sources of funding required and low levels of cooperative governance	0.626	26
33	Lack of exploiting uncertainties	0.621	27
34	Consist with large number of individual projects	0.621	27
35	Risk management in planning	0.610	28
36	Lack of top management support to the project works	0.605	29
37	Absence of activating health and safety acts	0.600	30
38	Material waste due to reworks	0.595	31
39	Inefficient equipment allocation by the management	0.585	32
40	Lack of considering environmental requirements	0.579	33
41	Changing government priorities on projects	0.574	34
42	Commitment to people( construction industry does not recognize its greatest asset – People)	0.569	35
43	Inability to address project problems & disputes as they arise by the management	0.554	36
44	Adverse weather	0.544	37
45	Remote project locations	0.503	38
46	Changes in government policies and regulation, Regulatory constraints	0.492	39
47	Lack of research capacity & business innovation	0.421	40

Accordingly, most frequent project management challenges in relocation of underserved settlement projects are 1. Poor communication by the management about project goals, 2. Lack of project management skills in project team, 3. Time pressure on feasibility studies, especially for explore possible engineering and technical solutions, 4. Not allocating reasonable project duration, 5. Poor coordination among project stakeholders, 6. Budget overrun, 7. Wrong selection of



project team, 8. Neglect of the significance of project planning process, 9. Ignorance of lessons learned and 10. Lack of strategic project planning.

*Table 4.5 - Project Management Challenges in Relocation of Underserved Settlement Projects according to its Severity to the Project Failure*

ID	Challenges	Severity to the project Failure	
		RII	Rank
1	Time pressure on feasibility studies, especially for explore possible engineering and technical solutions	0.892	1
2	Lack of project management skills in project team	0.882	2
3	Poor communication by the management about project goals	0.877	3
4	Wrong selection of project team	0.846	4
5	Poor quality of construction materials	0.856	5
6	Not allocating reasonable project duration	0.841	6
7	Lack of funding for project preparation (Planning & scheduling, Feasibility studies)	0.836	7
8	Frequent design changes/ frequent changes in user requirements	0.836	8
9	Poor, missing incomplete project requirement given by the top level	0.831	9
10	Budget overrun	0.831	9
11	Poor linkage in between project manager & all stakeholders	0.826	10
12	Unskilled labor shortage	0.821	11
13	Selecting a reliable sub-contractors	0.815	12
14	People affected by the project are not involving to the decision making process	0.810	13
15	High cost for maintenance	0.805	14
16	Lack of strategic project planning	0.8	15
17	Difficulties in coordinating the multiple sources of funding required and low levels of cooperative governance	0.790	16
18	Lack of top management support to the project works	0.774	17
19	Poor coordination among project stakeholders	0.779	18
20	Lack of project integration management	0.774	19
21	Changes in government policies and regulation, Regulatory constraints	0.774	19

22	Political tension/political interference	0.774	19
23	Commitment to people( construction industry does not recognize its greatest asset – People)	0.774	19
24	Lack of considering environmental requirements	0.769	20
25	Ignorance of lessons learned	0.764	21
26	Neglect of the significance of project planning process	0.764	21
27	Poor monitoring and evaluation	0.759	22
28	Failures of stakeholder meetings	0.759	22
29	Improper techniques and tools used in project planning	0.754	23
30	Not having change management strategy	0.738	24
31	Bribery and corruption	0.733	25
32	Inability to address project problems & disputes as they arise by the management	0.728	26
33	Unrecognition of importance of project management as a professional career	0.728	26
34	Changing government priorities on projects	0.728	26
35	Complexity of social processes	0.723	27
36	Lack of exploiting uncertainties	0.723	27
37	Lack of effective project risk mitigation/ management	0.718	28
38	Inefficient equipment allocation by the management	0.703	29
39	Risk management in planning	0.687	30
40	Ignorance of health and safety considerations / Inadequate safety precautions	0.682	31
41	Lack of efficient change management	0.677	32
42	Absence of activating health and safety acts	0.672	33
43	Material waste due to reworks	0.667	34
44	Adverse weather	0.656	35
45	Consist with large number of individual projects	0.646	36
46	Remote project locations	0.569	37
47	Lack of research capacity & business innovation	0.451	38

Accordingly, most sever project management challenges to the project failure are 1.Time pressure on feasibility studies, especially for explore possible engineering and technical solutions, 2. Lack of project management skills in project team, 3. Poor communication by the management about project goals, 4. Wrong selection of

project team, 5. Poor quality of construction materials, 6. Not allocating reasonable project duration, 7. Lack of funding for project preparation (Planning & scheduling, Feasibility studies), 8. Frequent design changes/ frequent changes in user requirements, 9. Poor, missing incomplete project requirement given by the top level 10. Budget overrun, 11. Poor linkage in between project manager & all stakeholders, 12. Unskilled labor shortage, 13. Selecting a reliable sub-contractors, 14. People affected by the project are not involving to the decision making process, 15. High cost for maintenance and 16. Lack of strategic project planning.

### **Poor communication by the management about project goals**

Frequency of occurrences of a challenge is a most significant characteristic used to decide the importance of a particular project management challenge. Poor communication is a morale killer (Ikediashi, Ogunlana and Alotaibi, 2014) and it leads to project failure. According to respondents' view the poor communication by the management about project goals is ranked as first challenge faced by project managers in Sri Lanka working attached to the relocation projects. Project manager should keep communications and feedback open between upper management and project team as well as with the other stakeholders also.

### **Lack of project management skills in project team**

This challenge ranked as 2<sup>nd</sup> considering both frequency of occurrences and also severity to the project failure. As respondents reveal the lack of project management skills of project team members will effect on time and cost overrun directly due to reworks due to mistakes and also not considering on parallel works etc. Besides, project team is not skilled or trained enough to meet the challenges and perform assigned tasks it's a big challenge for a project manager. Similarly, team members are not very much concern about the project management aspects and also significant of the project planning process which is critical challenge to the project manager.

### **Time pressure on pre-construction period (feasibility studies, especially for explore possible engineering and technical solutions)**

According to respondents' view, this challenge ranked as first, according to severity to the project failure. Pre- construction period of a relocation project usually requires a more time compared to other development and construction projects due to these projects are focusing on different community groups. This also often more involvement and interaction with diverse stakeholder groups which may also delay the pre-construction works. In the context of Sri Lanka, there cannot be seen much consideration on feasibility studies or social, environmental impact assessment in relocation of underserved settlement projects. As respondents and some literature reveal that time allocation for pre- construction period is not enough in relocation of underserved settlement projects in Sri Lanka. However, this should be addressed by the project manager and the team for entire project success.

### **Lack of funding for project preparation (Planning & scheduling, Feasibility studies)**

As mentioned above, there is not much consideration regarding the project preparation works as project planning and scheduling, feasibility studies etc. It can be noticed lack of funding for project preparation, although big amount of fund allocation to entire project. This situation is not specific to the relocation projects; it is common to many construction projects in the globe. In project management perspective, project preparation phase is more important in successful project management although it requires much time and funds.

### **Wrong selection of project team**

This also a highly frequent challenge in underserved settlements relocation project in Sri Lanka and also respondents stressed that its severity to the project failure also high. The wrong selection of project team members may be due to external reasons which are difficult to manage. This causes to unsuccessful outcome with failure of time, cost, and quality management from the initial stage of the project life cycle.

### **Poor quality of construction materials**

Material is the generic, absolute and vital ingredient without which construction cannot commence, continue and conclude successfully. Quality of construction largely depends on the quality of the constituent materials (Ayuba, et al. (2012). In that respect, material can give rise to quality problems in various ways that include: improper method of handling materials and poor site storage methods. Hence, using poor, inappropriate quality of construction materials is a challenge for the project manager and its severity to the project failure also high.

### **Not allocating reasonable project duration**

This challenge is very common for all type of construction projects not only for relocation projects. Under the major categories of project management challenges, time overrun has ranked as third. Many projects are allocated less time for important project activities as project planning and scheduling, designing, feasibility studies etc. Eventually, whole project will be delayed as these activities take much time than estimating. Hence, not allocating reasonable project duration is a big challenge for a project manager.

### **Frequent design changes/ frequent changes in user requirements**

Frequently design changes and changes in client's requirements also a big challenge project manager. This challenge effects on project quality & also it will create reworks and finally cause to extra time and cost.

### **Poor, missing incomplete project requirement given by the top level**

Although this is not a highly frequent challenge in relocation projects its severity to the project failure is very high once it happens. As mentioned in literature synthesis, upper level management support influences the success of the project (Othman, 2013). Similarly, Essence of top management support and continuous communication is related to effective decision making to manage risk and to

authorize process change (Galorath, 2006 & Young and Jordan, 2008). However, according to researchers' and respondents' view it is project managers' responsibility to clearly defined client's need and communicate to the whole team.

### **Budget overrun**

Budget overrun is a common challenge on construction projects. Cost estimation is an important part of project planning. It is a major challenge in planning for realistic cost estimation. Cost overruns are due either to incorrect estimates or to changed conditions in the market place. Additionally, serious project design errors, not planning for change orders, administration errors, and poor site management are caused on budget overrun in relocation of underserved settlement projects. However, budget overrun is a critical challenge for a project manager. Systematically reducing budget overruns should be a priority in project planning.

### **Poor linkage in between project manager & all stakeholders**

As construction practitioners stressed this also a highly contribute challenge within the industry. Construction projects in public or private sector is largely depend on project managers' selection of project team, continuous monitoring of time, cost, material and the quality of the work.

Poor linkage in between project manager & all stakeholders has the highest impact on the project performance. Hence, project manager should keep strong linkage with all other stakeholders engaging the project for the project success. This will be much critical for regarding the relocation projects as number of parties involving this. Keeping interest among team members is important.

### **Unskilled labor shortage**

Construction industry faces a higher risk of unskilled labor shortage than many other occupational sectors. The labor shortage delays projects works and finally it effect on escalating project cost also. In the most of time this happens due to not having job

security, poor wages, cultural shifts and unavailability of safety and health insurance etc. However, the most valuable resource for any construction company is its people (Yadollahi et al., 2014).

### **Selecting a reliable sub-contractors**

Subcontractors can play an important part in the successful implementation of a construction project. Subcontractors should not select purely on price and should consider subcontractor's ability to deliver the project on time and to the required quality. In relocation projects, selection of the best sub-contractor is a vital. Failure to manage subcontractors caused to project delays, disputes and even accidents. Finally, this leads to project failure with time & cost overrun.

### **People affected by the project are not involving to the decision making process**

As respondents pointed out, relocation is a process of community's housing, assets and their physical & social infrastructure are reestablish in another newly location. Hence, effective relocation plan should concern the affected people's opinions in decision making process. Affected community helps development and views positively. At the planning stages of the project, the effected communities do not have proper understanding of the new resettlements going to be established. According to respondents views none of the people know about the new houses are with water, electricity, sanitary facilities etc. It might be a reason for the failure of the project. Therefore, not getting involve the affected community become a challenge in project management.

### **High cost for maintenance**

In the case of underserved settlement relocation projects in Sri Lanka, maintenance of high rise building is difficult and complicated to maintain with many amenities including lifts, staircases, combined water & electricity networks. As respondents reveal, the cost for maintenance of these high rises is very high.

### **Lack of strategic project planning**

Project planning is a procedural step in project management, and it is a document created to ensure successful execution of the project. Project planning includes all actions required to define, prepare, integrate and coordinate plans on cost, time, quality, resources, communication and safety also. The project plan must articulate how the project is executed, monitored, controlled and closed. The absence of strategic project planning is a challenge for a project manager. The strategic project planning should include scope planning, preparation of the work breakdown structure, project scheduling, resource planning, budget planning, procurement, risk management, quality planning and communication planning.

### **Poor coordination among project stakeholders**

Project coordination is more important in successful execution of any project. In relocation of underserved settlement projects, project players deal with large number of stakeholders, such as owners, designers, engineers, quantity surveyors, contractors, subcontractors, suppliers, bankers, community based organizations and governmental units. Although, coordination among all these parties is challengeable task for a project manager, all parties are required to coordinate the tasks before and during the construction phase to ensure its successful delivery of the project.

### **Neglect of the significance of project planning process**

The project planning phase is probably the most neglected aspect of many development projects including relocation of underserved settlement projects. This is very common in developing countries. Inevitably, the main reason behind the project management challenges faced by project managers are lack of advanced planning. Thus, much time, cost, experiences, knowledge and more attention should be invested in the project planning phase.



## **Ignorance of lessons learned**

Many construction projects are encountered with the challenge of ignoring lessons learned from the past. As ignoring past experiences it will repeat the same mistakes again. This is a critical challenge in project management, especially in relocation projects. Nevertheless, lessons learned has helped advance the understanding of lessons learned by identifying best practices and barriers.

### **4.3.4 Identification of strategies/approaches to address challenges faced by project managers in mitigating project failures in relocation of underserved settlement Projects**

Once identified most critical project management challenges and also responsible project players for each, finally, 26 strategies/approaches were coincided to address challenges faced by project managers in mitigating project failures in relocation of underserved settlements in Sri Lanka. Out of these 26 factors, 24 factors were identified through depth literature review and two factors were noted through pilot survey including reducing maintenance cost should think at the initial stage of planning and designing and Improve individuals/team performance quality through stakeholders' development and training. All these strategies were ranked according to its relevancy to address project management challenges faced by project managers in mitigating project failures using on a likert scale from 1-5, where 1= No, 2= Low, 3= Moderate, 4= High, 5= Very high. The tabulated results obtained through Relative Importance Index (RII) are shown in Table 4.6. The RII value of strategies above 0.80 are considered as "most relevant" to address challenges faced by project managers in mitigating project failures in relocation of underserved settlements in Sri Lanka.

*Table 4.6 - Strategies to address Challenges faced by Project Managers in Mitigating Project Failures in Relocation of Underserved Settlements*

ID	Strategies/approaches	Relevancy	
		RII	Rank
1	Proper project planning, scheduling and management	0.928	1
2	Reducing maintenance cost should think at the initial stage of planning and designing	0.903	2
3	Effective Site management and Supervision/Close monitoring	0.851	3
4	Committed leadership and management	0.846	4
5	Conducting frequent progress meeting	0.841	5
6	Use of experienced subcontractors	0.831	6
7	Frequent coordination between the parties	0.826	7
8	A collective championing effect for the final product with the team	0.821	8
9	Effective strategic planning activities	0.821	8
10	Fully utilize the construction team	0.815	9
11	Send clear and complete message to workers to ensure effective communication/Clear information and communication channels	0.813	10
12	Perform a preconstruction planning of project tasks and resources needs	0.812	11
13	Improving construction industry practices and techniques	0.812	11
14	Enhancing the professionalism of the industry	0.811	12
15	Assign project specific roles and responsibilities	0.803	13
16	Adopting an integrated approach to construction	0.774	14
17	Develop realistic estimates and forecasting	0.774	14
18	Improving contract award procedure by giving less weight to prices and more weight to the capabilities and past performance of contractors	0.764	15
19	Proper emphasis on past experience/ lessons learned	0.764	15
20	Continuous and effective communication of project objectives	0.764	15
21	Commitment by team members to pre-established project objectives	0.744	16
22	Assign the project team early	0.713	17
23	Encourage knowledge sharing	0.697	18
24	Increase training and development of all members of the team	0.692	19
25	Improve individuals/team performance quality through stakeholders development and training	0.667	20
26	Choose the right project delivery strategy	0.641	21

Accordingly, most relevant strategies are, 1. Proper project planning, scheduling and management, 2. Reducing maintenance cost should think at the initial stage of planning and designing, 3. Effective Site management and Supervision/Close monitoring, 4. Committed leadership and management, 5. Conducting frequent

progress meeting, 6. Use of experienced subcontractors, 7. Frequent coordination between the parties, 8. Effective strategic planning activities, 9. A collective championing effect for the final product with the team, 10. Fully utilize the construction team, 11. Send clear and complete message to workers to ensure effective communication / Clear information and communication channels, 12. Perform a preconstruction planning of project tasks and resources needs, 13. Improving construction industry practices and techniques, 14. Enhancing the professionalism of the industry and Assign project specific roles and responsibilities.

#### **4.4 Chapter Summary**

This chapter presented the result of questionnaire survey. It includes most critical categories of project management challenges with most responsible project players for those categories and project management challenges according to the frequency of occurrences and severity to the project failure and most relevant strategies/approaches to address challenges faced by project managers in mitigating project failures in relocation of underserved settlements in Sri Lanka.

## **CHAPTER 05**

### **DISCUSSION AND CONCLUSION**

#### **5.1 Introduction**

This chapter presents discussion & conclusion of the study based on the literature synthesis and the questionnaire survey. Further chapter presented the recommendations constructed on findings to address project management challenges faced by project managers in relocation of underserved settlement project.

#### **5.2 Discussion**

At the beginning of the chapter one, it explains background to the research study. Then it noted research question identified through the background and need to address that problem. Further chapter presented aim & objectives and research approach. In chapter two, it was reviewed the all theoretical aspects related to the study. The way of carried out this research from beginning to end was detailed in chapter three. The chapter four presented the information collected through questionnaire survey, data analysis and its findings.

As findings presented in previous chapter, 04 categories of most critical project management challenges in relocation of underserved settlement projects were identified. Accordingly, planning and management related category was ranked as most critical while cost related, time related and communication related categories were second, third and fourth respectively. But, seemingly cost, time and also communication network should be effectively planned and managed. Therefore, these three categories also can be considered under the “Planning and Management related” category.

The major category of planning and management related challenge includes set of challenges. They are lack of strategic project planning, not having change management strategy, lack of project integration management (Nassar and Elsayed, 2017; Hyatali & Pun, 2016; Taylor, 2015 & Nguyen and Chileshe, 2015), poor

coordination among project stakeholders (Othman, 2013; Taylor, 2015; Nassar and Elsayed, 2017), effective project risk mitigation management, improper project planning methods, failure to involve stakeholder to implement best approaches (Othman, 2013; Zuofa and Ochieng, 2014 & Ikediashi, Ogunlana and Alotaibi, 2014), wrong selection of project team (Othman, 2013 & Zuofa and Ochieng, 2014), unrecognition of importance of project management as a professional career as well as the lack of experience on project management (Nguyen and Chileshe, 2015; Othman, 2013 & Ikediashi, Ogunlana and Alotaibi, 2014).

Project planning is one of the prime skill sets in project management (El-sokhn and Othman, 2014 & Okoye, Ngwu and Ugochukwu, 2015). Kerzner (2009) elaborates on a view of why plans fail and also critical challenges to project failure. The majority of its factors include to the category of “Planning and management”. They are, plans encompass too much in too little time, financial estimates are poor, no one knows the ultimate objective; especially in relocation projects the target group do not aware about their new locations, major project stakeholders do not aware about milestone dates and also no aware about corporate goals at the lower organizational levels. These factors are significant in relocation projects. Sometimes plans are based on insufficient data and not enough time has been allocated to proper estimating scheduling. The all challenges mentioned above should be addressed by the project manager and the project management team.

The major category of cost related challenges consisting with set of other challenges regarding cost. They are delays in payment, cash flow difficulties, budget overrun (Othman, 2013; Ikediashi, Ogunlana and Alotaibi, 2014 & Nassar and Elsayed, 2017), bribery/corruption (Othman, 2013 and Muhwezi & Otim, 2014), uncontrolled expenses, remote project locations and rapid changes in the national economy (Othman, 2013 & Ikediashi, Ogunlana and Alotaibi, 2014). Apart from this, high cost for maintenance in multistoried housing schemes and material waste due to reworks are added through preliminary survey. These two factors are significant to relocation of underserved settlement projects in Sri Lanka.

The major category of time related challenges including change project requirements at later stages of the project life cycle by stakeholders, delays in design approval, improper decision making by the project team (Nguyen and Chileshe, 2015; Yadollahi et al., 2014) & Weerarartne, 2014), lack of cross-functional works( Yadollahi et al.,2014), rework due to mistakes, shortage of unskilled labor, professional and personal conflict, unrealistic deadlines and time pressure by the client, failure to understand client's requirements, equipment breakdown and adverse weather (Othman, 2013; Ikediashi, Ogunlana and Alotaibi, 2014 & Nassar and Elsayed, 2017). In addition to that, some challenges identified through preliminary survey and final questionnaire survey including more time need to training programs and time pressure on feasibility studies, especially for explore possible engineering and technical solutions.

The communication related challenges including poor coordination among project players, poor linkage in between project manager & all stakeholders and poor communication by the management about project goals (Othman, 2013; Ikediashi, Ogunlana and Alotaibi, 2014; Yadollahi et al., 2014 & Nassar and Elsayed, 2017). Project manager should have a strong communication plan to mitigate these challenges. As a first step, project manager should identify all stakeholders involved to the project and prepare stakeholder register.

As cost, time and communication challenges also to be effectively planned and managed, there should have a Cost/ budget plan, Time schedule and a Communication plan. Following factors are suggested to be taken into consideration in preparation of these plans.

*Cost/ budget plan:* cash flow of project, project design cost, material & equipment cost, project labor cost, project overtime cost, cost of rework, waste rate of materials, regular project budget update, cost control system, escalation of material prices and differentiation of currency prices.

*Time schedule:* feasibility studies, site preparation time, planned time for construction, time needed to rectify defects, average delay in regular payments and unavailability of resources.

*Communication plan:* management labor relationship, information coordination between owner & project parties, employee attitude and keeping stakeholder registry.

Additionally, its need to have plan for quality (Conformance to specification, (Un)availability of competent staff, Quality of equipment & raw materials, Quality assessment system and Quality training/meeting), maintenance, safety, risk and monitoring & evaluation also .

When consider responsible project players, project manager is the first responsible project player for planning & management, time, communication related challenges and client was responsible for cost related challenges while project manager remains second. Thus, project manager is more responsible than other players in mitigating project failures. Further previous chapter discussed 19 set of critical project management challenges considering frequency of occurrences and its severity to the project failure. In order to address those 19 challenges faced by project managers, 15 most relevant strategies are proposed.

- **Strategies to address planning and management related challenges**

Not only for the relocation projects, in the whole construction industry, the ultimate target is to complete the project on time, within estimated budget, with the required quality framework and achieve other project objectives. According to the purview of respondents, ensuring proper project planning, scheduling and management was ranked as first approach to address many project management challenges especially in the case of relocation of underserved settlements in Sri Lanka. Similar to this, project management tools, project planning methods and techniques used to project planning, scheduling and management which play a vital role in the effective management of a project. This finding confirm by previous studies also. Under this approach, proper planning of time and cost are fundamental considerations and also regarded as most important parameters for measuring project success. Proper performance of time and cost can lead to a significant amount of time and cost overrun which is global phenomenon.

As researches stressed that, managing a project includes identifying project requirements, establishing clear and achievable/ realistic project objectives, balancing the competing demand for time, cost and quality, adapting the specifications, plans and approach to the different concerns and expectations of the various stakeholders.

- **Strategies to address time and cost related challenges**

Almost all construction projects associate with the challenge of impossible deadlines, time pressure for feasibility studies and allocating less time for project planning. This can result in a loss of productivity. Although this challenge has categorized under the time related category, allocating reasonable time for each and every project activity is to be done at the project planning stage. Therefore, it can be addressed through ensuring proper project planning, scheduling and management. As respondents reveal this challenge should be address by the project manager. Hence, project manager is there to respond unreasonable requests and negotiate a more realistic deadline. Inevitably, Time is money for owners, constructors and users of the end product.

- **Strategies to address Communication related challenges**

Committed leadership and management is vital aspect in project management. It requires some kind of competencies including skills to manage human resources, ability to lead change and personnel skills of best achievement, motivation and persistence. Researches also proved that this strategy will make high effect to make project success. “Managing a construction project successfully requires an assortment of skills, including interpersonal ability, technical competencies and cognitive aptitude, along with the capability to understand a situation and people and then to dynamically incorporate appropriate leadership behaviors” (Okoye, Ngwu & Ugochukwn, 2015). As authors further categorize skills into six areas: communication, organizational, team building, leadership, coping and technological



skills. But some researches argue that nothing happens without humans. Hence, most important skills for project managers are planning, team building and leadership.

In the case of developing nations, like Sri Lanka, its construction industry doesn't recognize its greatest asset: people. Too much talent and potential are simply wasted because of lacking commitment including respect for all participants in process, fair wages, safety & health facilities for the workers and commitment to training and development of a committed and capable workforce.

Currently, the construction industry also fails to recognize the significance that suppliers can make in significant contribution to innovation. This is very common for relocation projects also. It cannot afford lack of commitment to continue and it cannot afford not to get the best from the entire project team. Hence, ensuring committed leadership and management is a critical to successful implementation of a project that includes commitment by both management and employees.

As literature reveals poor or lacking communication is a morale killer and it causes project delay. According to the findings of questionnaire survey, project manager is the responsible project player for this category of challenges. Hence, it is up to the project manager to keep effective communications and feedback open between upper management and team leaders, as well as with other stakeholders, also a formal communication plan is imperative. Effective communication means deliver the right message, at the right time, in the right format to the right person.

In addition to above, it can be noticed that there are some other challenging factors related to the social aspect of underserved settlements to be addressed by the project manager. In the case of relocation projects, consideration of community's livelihood is also vital in the relocation process for the project success. Project manager should provide guidance and assistance to re-establish their livelihood at the new locations. Similarly, project manager and the team should give attention on their original locations, their physiological situations, socio-cultural background, and their opportunities to getting free or cheap services, sense of security, and distance to the city. The dwellers live in underserved settlements always like to be in together with

their neighbors. Hence it is essential to keep their existing social connections and togetherness with community organizations.

Project manager should get involvement of target group at the early stages of project planning in order to reflect their requirements and aspirations. At the same time, getting involvement of local level political groups also vital throughout the process to address challenges in mitigating project failures. These factors also related to the project planning and management.

### **5.3 Conclusion**

Many projects are failed due to inability to achieve time, cost and quality requirements expected by the client. This situation can be frequently noted in construction industry also. Although previous studies revealed that most of construction project are failed due to time, cost and quality failure, it differs from relocation of underserved settlements projects. In the case of relocating underserved settlements, project managers are faced many challenges in mitigating project failures which are related to “Planning and Management”. Hence, project management challenges and project failure factors related to the “Project Planning and Management” is significant in relocation of underserved settlements projects.

As finding of this research study, highly critical project management challenges are planning and management related, cost related, time related and communication related respectively. Besides, cost, time and communication related challenges also can be identified under “planning and management” as these three categories of challenges also should be effectively planned and managed. Similarly, social aspect of relocation projects should be addressed by the project manager in mitigating project failures. Accordingly, consideration of community’s livelihood is vital in the process of relocation. Project manager should provide necessary guidance and assistance to re-establish their livelihood at the new locations while keeping their existing social connections and togetherness with community groups. Other important point is getting involvement of target group and local level political groups

at the early stages of project planning. As aim of this research study, it proposed set of strategies to address challenges faced by project managers in mitigating project failures in relocation of underserved settlements and the way to implement those strategies in Table 5.1.

Table 5.1 – Proposed Strategies to address Project Management Challenges in Relocation of Underserved Settlement Projects

Top ranked project management challenges	Most relevant strategies	Propose ways to implement strategies
<ul style="list-style-type: none"> <li>▪ Not allocating reasonable project duration</li> <li>▪ Wrong selection of project team</li> <li>▪ Poor quality of construction materials</li> <li>▪ Frequent design changes/ frequent changes in user requirements</li> <li>▪ People affected by the project are not involving to the decision making process</li> <li>▪ Lack of strategic project planning</li> </ul>	<ul style="list-style-type: none"> <li>▪ Proper project planning and scheduling</li> </ul>	<p>Gather project requirement</p> <p>↓</p> <p>Define the project scope &amp; Develop project team accordingly</p> <p>↓</p> <p>Identify risks — Analysis — Plan — Track — Control</p> <p>↓</p> <p>Estimate (Resources+ Cost)</p> <p>↓</p> <p>Schedule</p> <p>↓</p> <p>Plan Monitoring &amp; Evaluation strategy</p> <p>↓</p> <p>Document lessons learned from previous projects</p> <ul style="list-style-type: none"> <li>▪ Allocate enough money for planning</li> <li>▪ Allocate enough time for project planning</li> <li>▪ Set project quality measurements &amp; project control</li> </ul>
<ul style="list-style-type: none"> <li>▪ Time pressure on feasibility studies, especially for explore possible engineering and technical solutions</li> </ul>	<ul style="list-style-type: none"> <li>▪ Develop realistic estimates and forecasting</li> </ul>	<p>Define project activities</p> <p>↓</p> <p>Arrange activity sequences</p> <p>↓</p> <p>Identify risks/uncertainties</p> <p>↓</p> <p>Estimate activity durations &amp; resources needed</p> <p>↓</p> <p>Develop time schedule</p>

<ul style="list-style-type: none"> <li>▪ Neglect of the significance of project planning process</li> </ul>	<ul style="list-style-type: none"> <li>▪ Enhancing the professionalism of the industry</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ensure professional ethics &amp; standards</li> <li>▪ Improving professionalism through professional practices, relationships &amp; knowledge</li> </ul>
<ul style="list-style-type: none"> <li>▪ Lack of funding for project preparation (Planning &amp; scheduling, Feasibility studies)</li> <li>▪ Budget overrun</li> </ul>	<ul style="list-style-type: none"> <li>▪ Develop realistic estimates and forecasting</li> </ul>	<p>Define project activities</p> <p>↓</p> <p>Identify parallel activities</p> <p>↓</p> <p>List out priorities</p> <p>↓</p> <p>Identify risks</p> <p>↓</p> <p>Estimate costs for identified activities</p> <p>↓</p> <p>Determine the budget</p>
<ul style="list-style-type: none"> <li>▪ High cost for maintenance</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reducing maintenance cost should think at the initial stage of planning and designing</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Ignorance of lessons learned</li> </ul>	<ul style="list-style-type: none"> <li>▪ Proper emphasis on past experience/ lessons learned</li> </ul>	<ul style="list-style-type: none"> <li>▪ Extract lessons learnt from past (what went right, what went wrong, what needs to be improved)</li> </ul>
<ul style="list-style-type: none"> <li>▪ Lack of project management skills in project team</li> </ul>	<ul style="list-style-type: none"> <li>▪ Assign project specific roles and responsibilities</li> </ul>	<ul style="list-style-type: none"> <li>▪ Develop project team according to the project scope</li> <li>▪ Increase skills &amp; project management knowledge of team members through training program</li> </ul>
<ul style="list-style-type: none"> <li>▪ Selecting a reliable sub-contractors</li> </ul>	<ul style="list-style-type: none"> <li>▪ Use of experienced subcontractors</li> </ul>	<ul style="list-style-type: none"> <li>▪ Improving contract award procedure by giving less weight to prices &amp; more weight to capabilities and past performance of contractors</li> </ul>
<ul style="list-style-type: none"> <li>▪ Unskilled labor shortage</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fully utilize the construction</li> </ul>	<ul style="list-style-type: none"> <li>▪ Identify each person in the team as a great asset to the</li> </ul>

	team	project
		<ul style="list-style-type: none"> <li>Increase skill levels of employees</li> </ul>
<ul style="list-style-type: none"> <li>Poor communication by the management about project goals</li> <li>Poor, missing incomplete project requirement given by the top level</li> <li>Poor coordination among project stakeholders/ Poor linkage in between project manager &amp; all stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Continues and effective communication of project objectives</li> <li>Send clear and complete message to workers to ensure effective communication/Clear information and communication channels</li> <li>Ensure team have enough information to perform tasks, make them accountable</li> </ul>	<p>Identify stakeholders</p> <p>↓</p> <p>Prepare stakeholder register</p> <p>↓</p> <p>Plan communication</p> <p>↓</p> <p>Deliver right message to the right person at the right time</p> <p>↓</p> <p>Manage stakeholder expectations</p> <p>↓</p> <p>Report performance</p>

## 5.4 Recommendations

The following recommendations are made based upon the findings of the research.

- As stated in previous chapter, time, cost & communication related challenges are identified as planning & management related category. Therefore, it is essential to have a cost/ budget plan, time schedule and a communication plan. Also project manager should give attention on social aspect of people live in underserved settlements from start to end of the project.
- Preparing a realistic time schedule and work accordingly is essential to avoid project delays and reduces the risk of escalating costs. Similarly, time spent on each and every activity increases project success. On the other hand, inadequate analysis and planning will lead to the project failure. Hence, Stick to project schedule is essential as time is always money and also it is considered as a fundamental measure in project performance.
- Clients are recommended to select contractors and consultants based on merit and not based on relationships. The selection criteria for contractors could include their financial capacity, relevant experience in the industry, existing contract capacity, and manpower and resource commitment in addition to bid price.
- The right selection of project team is highly recommended. The success of a project extremely depends on the strength and eligibility of selected project team. If not, time and cost spent for planning of a project is completely wasted.
- Contractor (Project manager) should hire a highly experienced financial manager to advise on how to allocate financial resources based on progress of work completed to date.

- It is recommended to project manager to extract the lessons learned from past records and disseminate them among the project team. Similarly, articulate key learning points before closing project and utilize these learning aptly for future development projects.
- Project management in the organization has to be developed to a higher level and the responsibility of project management team should be appreciated to ensure higher percentage of project success.

### **5.5 Further Researches**

While carrying out this research study, it was identified some areas to be addressed through further studies as stated below.

- This research was only limited to study project management challenges in relocation of underserved settlement in Sri Lanka. It is possible to address challenges faced by contractor and client also because these two project players are recognized as second and third responsible parties for most critical challenges of project management categories.
- In addition to “Planning and Management” related challenges, communication related challenges also make highly influence on project failures, not only for relocation projects but other construction or development projects also. Hence, it is worthy to study how to ensure effective communication towards project success while mitigating challenges associated with it.
- Also study the importance of the concept of “Project Management” and approaches to enhance the professionalism within industry as another strategy to mitigate project failures.