IDENTIFYING AND ANALYZING FACTORS THAT CAUSE FOR TURNOVER OF CONSTRUCTION TRADESMEN IN MILITARY SERVICES SRI LANKA

MASTER OF SCIENCE

IN

CONSTRUCTION PROJECT MANAGEMENT

KMDDB Kollalpitiya

Department of Civil Engineering

University of Moratuwa

June 2018

IDENTIFYING AND ANALYZING FACTORS THAT CAUSE FOR TURNOVER OF CONSTRUCTION TRADESMEN IN MILITARY SERVICES SRI LANKA

BY

KMDDB Kollalpitiya

Supervised by

Dr. Lesley L Ekanayake

"This dissertation was submitted to the Department of Civil Engineering of the University of Moratuwa in partial fulfilment of the requirements for the Master of Science in Construction Project Management**"**

Department of Civil Engineering

University of Moratuwa

June 2018

Declaration

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university to the best of my knowledge and believe it does not contain any material previously published, written or orally communicated by another person or myself except where due reference is made in the context. I also hereby give consent for my dissertation, if accepted, to be made available for photocopying and for inter library loans, and for the title and summary to be available to outside organizations.

....
Signature of candidate Date

The above particulars are correct, to the best of my knowledge.

....
Signature of Supervisor Date

Abstract

Human resource component of construction industry plays vital role in achieving project deliverable in time with expected quality and cost. Labour turnover is one of governing factors that contributes for project delays and cost over-run of today's construction industry in Sri Lanka with prevailing labour scarcity. Frequent changes of construction workforce in a construction project could incur additional burden to managers to maintain the consistency of construction progress.

Construction sector of Military Services in Sri Lanka is encountered with difficulties in skilled labour retention that is affecting the organizations' efficiency, quality of work, duration of projects and finally project cost. Though construction tradesmen in military services are offered with various facilities such as paid leave, free medical, uniforms, free meals and accommodation, advances, considerable monthly pay and other welfare facilities, a considerable amount of tradesmen are leaving the organization due to various unknown reasons. The main objective of this study is to identify the factors that cause for turnover of tradesmen in the construction sector of Military Services.

The research methodology involves both qualitative and quantitative methods that lead to triangular research design where both methods merge together to achieve research objectives. Qualitative method was used at the initial stage of the research study to gather primary and secondary data. The quantitative method is used to develop questionnaire and data measurements at the later stage of the study. The questionnaires were distributed among construction tradesmen, supervisors and site engineers and recorded responses separately. The tradesmen were selected proportionately to the tradesmen strength in tri forces and sample size was taken as 392 that allows for 95% confidential level. The sample size for supervisors and site engineers was selected as 95 and 72 which allow 90% confident level. The Relative Important Index (RII) was used to rank the factors according to the responses of tradesmen, supervisors and site engineers.

From the research it was identified the most significant factors that cause for turnover of construction tradesmen on the perception of employees, supervisors and site engineers. Three parties are in the opinion that being away from family and relatives, lack of recognition of trade/employment in the military, the current transfer system applied on tradesmen and social issues due to lack of knowledge on society are highly influenced for the turnover of construction tradesmen. The top management to ensure, the issues with respect to turnover of construction employees are addressed with much interest and dedication for the betterment of the organization.

Key words : labour turnover, military, deliverable, methodology, qualitative, quantitative

Acknowledgement

It is with great pleasue I offer my acknowledgement and gratitude to all the individuals who were involved and helped me in various ways to make this Msc a success. Many have supported me giving guidance and advices during my Msc journey and they highy deserve my gratutude.

I would like to thank Dr. Lesley L Ekanayake for his kind cooperation and guidance in helping me being the research supervisor to make this Msc dissertation a success. Further I would like to thank Commander of the Navy and Director General Civil Engineering of Sri Lanka Navy for allowing and facilitating me to follow the Msc course at the University of Moratuwa. My Msc colleagues at the Universty of Moratuwa who also helped me a lot during the preparation of research proposals at the initial stage and encouraging me to complete the research study.

Furthermore, I would like to express my sincere gratitude to all engineers, site supervisors and construction tradesmen of Sri Lanka Navy, Sri Lanka Army and Sri Lanka Air Force who were actively involved during the questionnaire distribution and data clollection process and assisted me to timely completion of the Msc Thesis. Finally I would like to thank all the staff of Department of Civil Engineering and staff of the main liabrary of University of Moratuwa for assisting me in providing necessary correspondents during the course period.

KMDDB Kollalpitiya

Department of Civil Engineering

University of Moratuwa

June 2018

Table of Contents

List of Figures

List of Tables

List of Abbreviations

CBSL	:	Central Bank of Sri Lanka
CCI	:	Chamber of Construction Industry
DCS	:	Department of Census and Statistics
GDP	:	Gross Domestic Product
DHQC	:	Defence Headquarters Complex
HR	:	Human Resources
ICTAD	:	Institute of Construction Training and development
ISIC	:	International Standard Industrial Classification
IT	:	Information Technology
KDU	:	Kothalawala Defence University
LKR	:	Lanka Rupees
PMI	:	Project Management Institute
RDA	:	Road Development Authority
RII	:	Relative Important Index
SLA	:	Sri Lanka Army
SLAF	:	Sri Lanka Air Force
SLN	:	Sri Lanka Navy
UDA	:	Urban Development Authority

Chapter : 1 Introduction

1.1 Background of the Research

Construction is a human dependent industry and the shortage of labour is one of the key factors in project delays (Pathirage, 2008). For any country construction plays a vital role in terms of its economy. Construction sector of Sri Lanka contributes 7.6% for its GDP in year 2016 (CBSL, 2016). Development of any country largely depends upon the construction industry and its boost generally helps to bring the country to a fast track of development. Sri Lankan construction industry was not developing during the last three decades in which the country was retrogressed with a conflict situation due to terrorism (Gunasekara, 2015). Many infrastructures such as bridges, roads, communication towers, buildings and facilities were destroyed due to the direct impact of terrorism. After the end of the civil conflict in the country in the year 2009 as a result of great leadership of the then government, it has facilitated the construction industry which emerged strongly to make progress of what they were lagging during past decades.

The tri forces involvement in the construction industry in Sri Lanka has also significantly increased with the development of infrastructure facilities in the country after ending the 30 year long civil conflict in year 2009 (Wikipedia, 2011). The major parties that comprised in the Military Services are Sri Lanka Army (SLA),Navy (SLN) and Air Force (SLAF) that undertakes many constructions in the country with equal contribution. These three organizations could be considered as Matrix organizations in the view point of management and handling construction projects in the country since, the major role of tri services is to maintain the law and order in the country in accordance with national policies (PMI, 2013).The Defence Service being the large organization of Sri Lanka, the government allocation for Defence amounts to LKR 285 Billion for year 2015 which includes capital and recurrent expenditure.

The tri forces have been utilized for various infrastructure development projects by the government of Sri Lanka in order to maximize the usage of resources available in the military. This is the best approach by the Government to utilize Service personnel for the development of the country as there is no way to reduce the number of personnel in Defence Service though the war is over (Gunasekara, 2015). The Defence Services Sri Lanka consists of professional technical units to steer the Defence team towards achieving construction deliverables that are entrusted by the

Government of Sri Lanka in terms of National Development. Mainly, Engineering units of tri forces are tasked to manage and handle construction projects of various capacities. Engineering Service Regiment of Sri Lanka Army, Civil Engineering Directorate of Sri Lanka Navy and Civil Engineering Department of Sri Lanka Air Force are the main units entrusted with responsibilities of all construction related matters within and outside the military establishments. The Mechanical and Electrical engineering unit and Procurement and Services units of tri forces also contributes for successful implementations of the projects. Currently Tri Forces carry out many small and medium size construction projects within and outside the military establishments including Defence Headquarters Complex (DHQC) Project at Akuregoda, Establishment of Southern Campus at Sooriyawewa for Kothalawala Defence University, Housing Projects under 'Api Wenuwen Api' programme and Infrastructure Development Project at Polonnaruwa district under 'Pibidemu Polonnaruwa' programme initiated by the Presidential Secretariat. All construction projects are required to be approved by the Ministry of Defence and National Planning Department prior implementation to ensure only essential projects that are complied with national/local authority requirements are undertaken. Skilled labour requirement for such projects are filled with directly recruiting people having required skills and experience under separate volunteer scheme. The unskilled labour requirement is fulfilled by the human resources available within the Military Services.

Skilled labour resource component of construction plays a vital role in achieving project deliverables within the allocated time with expected level of quality. Giving priority to human resources, military organizations always expect high performance and great achievements from their employees at ground level. The job satisfaction of construction workers has a significant effect on labour retention, commitment and performance. Happiness and motivation reflected their performance (Oshagbemi, 1999).Employee turnover is the frequency at which employees leave a company and need to be substituted by new or existing staff (Bilau, et al., 2015).Construction industry is an important sector which plays a great role in the country through the creation of employment, contributing to the Gross Domestic Product (GDP) of the country and provision of infrastructures such as highways, residential and commercial centres.

Considerable amount of labourers in tri forces who are directly involved in construction works are become deserters due to various reasons even though they

have given many attractive facilities such as paid leave, free medicals, uniforms, free meals and accommodation, advances, considerable monthly pay and other welfare facilities. Some labourers perform less than expected. These directly affect the progress of construction and delay in project deliverables. For these reasons, the main objective of this study is to identify the factors that cause for turnover of construction labourers in Defence Services.

1.2 Problem Statement

Lack of workers motivation on construction sites has been identified and this has contributed for high labour turnover (Gunasekara, 2015). Construction sector of Defence Services in Sri Lanka has encountered difficulties in skilled labour retention that is affecting the organizations' efficiency, quality of work, duration of projects and finally project cost. What are the factors that drive these skilled tradesmen to give their best to the organization? Are they satisfied with what they get? Great commitment and loyalty of employees in the organization is always become a driving force to move the organization forward (Oshagbemi, 1999).They always will to give the maximum to the organization going beyond the limit of their capacity. Good personnel feel motivated by their work and give the fullest support to the organization to be successful.

The desertion records of skilled construction workers attached to Directorate of Civil Engineering of Sri Lanka Navy from last five years is depicted in the Figure 1.1. It shows continuous decrease of number of desertion year by year, but significant number of skilled labours are still become deserters due to various reasons.

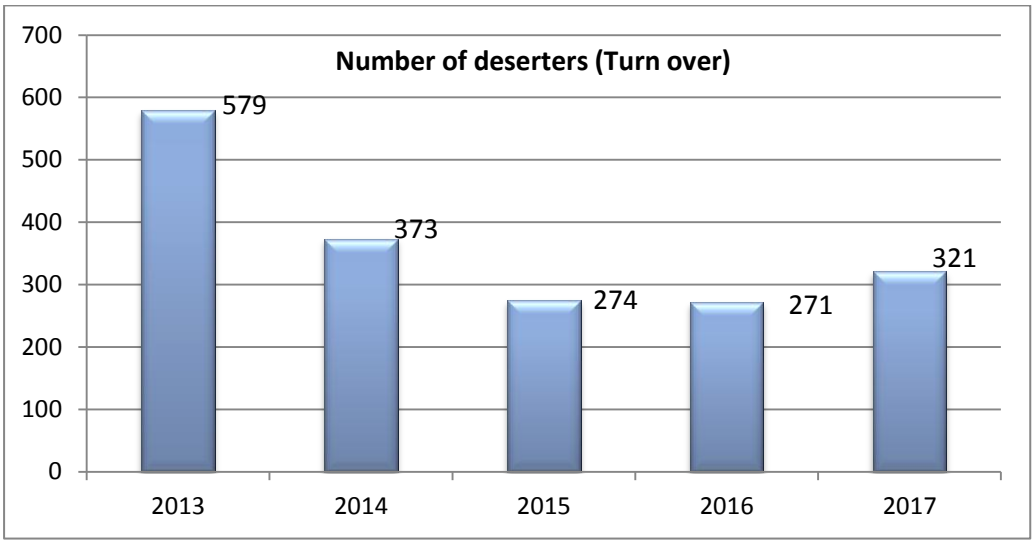


Figure 1.1 : Skilled labor turnover in last five years

(Source: Directorate of Civil Engineering SLN)

Similarly it has been reported that considerable numbers of construction tradesmen belongs to Sri Lanka Army and Air force permanently leave organization annually due to various unknown reasons.

1.3 Justification of the Study

Development of construction industry is a continuing process. The success of construction industry depends upon many factors and operational work force plays a vital role in achieving project deliverables in time keeping other constraints such as cost and quality at expected level at project completion. Of the eleven behavioural problems identified by Wijewickreme, with respect to operational workforce in construction industry in Sri Lanka, high labour turnover ranked as first major problem (Wijewickreme, 2010). The respect of the society for a lower level profession such as construction labours is very low. The society always expects one to start its carrier from few rungs above the ladder after getting good education, but there should be always people at the bottom of the rungs who are willing to fill the gaps at the bottom and who have not resources to start at higher level (Webb, 2007)

The shortage of the labourers has been identified as the one of key factors for project delays by many researches (Pathirage, 2008).Behavioural complications of construction workers have become the practise in the Sri Lankan construction

industry which could create stakeholder dissatisfaction (Chandradasa, 2011). The human problems cannot be seen from the surface view and in many cases; it is possible to see 'work' means 'pay'. But there are many other problems which can lead to create a negative impact on construction industry.

Achieving project objectives against project constraints, time, cost and quality is always a challenge and the major problem is managing human resources, especially operational workforce. Labour turnover is one of governing factors that contributes for project delays and cost over-run in today's construction industry in Sri Lanka with prevailing labour scarcity. The cost of labour turnover of key resources is high in financial and non-financial terms (Sutherland & Jordaan, 2004).Frequent changes of construction workforce in a construction project could incur additional burden to managers to maintain the consistency of construction progress. The loss of employee causes additional work stress and lowers motivation for other workers (Mamun & Hasan, 2017). Therefore it is always better to find ways and means to retain the skilled workforce within the organization. This study is focused on identifying and analysing factors that cause for construction labour turnover in Defence Services.

1.4 Research Objectives

The main objective of this research is to identify and analyse the factors that cause for skilled labour turnover in the construction sector of Defence Services Sri Lanka. The sub objectives of this research include,

- Identify the factors that affect for labour turnover and retention in the construction industry through literature.
- Identify the factors that are cause for turnover of construction tradesmen in Defence Services through pilot survey.
- Identify the most significant factors that cause for turnover of construction tradesmen in Defence Services on the perspective of construction workers, supervisors and site engineers.

1.5 Scope and Limitation

The scope of this research is limited to the tradesman in Defence Services who are recruited solely for construction projects carried out by tri forces. They are mainly deployed for non-mechanised work activities which are normally described as wet

traders (Wijewickreme, 2016). Wet traders include brick works, rendering, tilling, waterproofing, formworks, reinforcements etc.

The research is not covered the construction tradesmen who have been militarized with military training. They are also deployed for construction projects in Defence Services as they are possessed with required skills as construction tradesmen. Since, it is difficult to contact and meet those who have already left the organization to inquire the reasons and underline causes for the decision they have taken to leave, the peer workers or tradesmen were selected to gather information through the questionnaire. The tradesmen were selected proportionately to the tradesmen strength in tri forces and sample size was determined from the literature survey as 392 that allow for 95% confidential level (Isaac & Michael, 1995).Since it is not possible to select tradesmen in all trades in tri-forces, only mason, carpenter, bar-bender, plumber and painter trades were selected for the survey. The sample size for supervisors and site engineers was selected as 91 and 72 which allow 90% confident level. The finding of this research basically depends on the workers', supervisors' and site engineers' independent thoughts and the way they understand the issue.

1.6 Research Methodology

The research methodology consists of field survey and data analysis as described below

1.6.1 Field Survey

The field survey was basically involved design, development and administration of questionnaire to be distributed among construction workers, supervisors and site engineers. The sample size was selected according to the technique developed by Isaac and Michael, 1981. The questionnaire was developed through pilot survey and review of literature and from the experience I have gathered serving in the forces about 15 years as a civil engineer. The distribution of the questionnaire was conducted through randomly selected tradesmen of carpenter, mason, plumber, bar-bender and painter grades. The purposive sample was taken to distribute the questionnaire through supervisors and site engineers in order to obtain accurate and reliable information. The respondents were instructed to give their view for the given factors

according to the level of significance. The questionnaires were distributed personally for tradesmen and supervisors and through emails for site engineers.

1.6.2 Analysis of Data

The administered questionnaires were collected and required information was tabulated. The data was analysed to find out the following based on the influential factors.

1. To determine most significant factors that causes labour turnover in the view point of tradesmen, supervisors and site engineers.

2. To determine the level of significance of various factors that cause for turnover of construction tradesmen.

1.7 Organization of Chapters

This thesis consists of five chapters that are structured in the way it presents sequentially as integral part of whole dissertation.

Chapter 1:- Provides background information of the construction industry in Sri Lanka, construction sector of Defence Services and its role for National Development in the country in post war scenario. Further, this chapter describes on the problem statement and justification of the study. Finally highlights on the aim and objective of the study and brief description on the research methodology.

Chapter 2:- Explores the related literature on construction industry in Sri Lanka, construction labour force and history of construction industry. Literature further continues with describing of military, military concepts, military engineering, military construction, role of military engineers during war and post-war scenario and labour motivation. Finally describes the literature which is related to behavioural problems of construction employees such as absenteeism, turnover etc.

Chapter 3:- Critically discusses the method and procedure adapted to achieve research objectives. Type of research methods practiced by researchers

and most suited research methods for related study are further discussed under this chapter. Finally it describes the justification of the research method implemented in this research.

Chapter 4:- Contains the data analysis and review. The data collected from tradesmen, supervisors and site engineers through administering questionnaires are analysed in order to find significant factors that cause for turnover of construction tradesmen. The literature and techniques used by past researchers were used to achieve research objectives.

Chapter 5:- Constitutes of research conclusion and recommendations. Under conclusion, researcher expresses the significant factors that are causes for labour turnover in construction sector of Defence Services on the perception of construction tradesmen, supervisors and site engineers. Further, make recommendations for project managers, higher authorities in tri forces to take possible action to minimize voluntary turnover in the construction sector of Defence Service. It identifies further research scope emanating from the research conducted.

Chapter : 2 Literature Review

2.1 Introduction

This chapter on literature review, it is intended to discuss and summarize various previous studies related to this research. Consequently, the literature starts with describing of the construction sector in Sri Lanka. The discussion further moves describing construction labour force, military construction, role of military for national development during war and after war, war theories and history of military construction. Subsequently the discussion is focused on key consideration of the research, which is 'turnover of construction tradesmen in Defence Services Sri Lanka'. Brief introduction on behavioural problems of construction labours, labour motivation, job satisfaction and job performance are also presented. Subsequently, the discussion focuses broadly on labour turnover in construction industry, turnover definitions and identification of factors that cause for high labour turnover from previous studies. Finally discussion is narrowed to the turnover of construction tradesmen in Defence Services in Sri Lanka and consequences thereof. The chapter is concluded after a discussion of various methods and theories adapted by previous researches on identifying underline factors that causes labour turnover in the construction sector.

2.2 Construction Sector of Sri Lanka

Sri Lankan construction industry was not developing during last three decades in which the country was retrogressed with a conflict situation due to terrorism. Many infrastructures such as bridges, roads, communication towers, buildings and facilities were destroyed due to the direct impact of terrorism. After the eradication of the brutal terrorist organization widely known as Liberation Tamil Tiger of Elam (LTTE) in the year 2009 as a result of the great leadership of the then government, it has facilitated the construction industry to immerge strongly and get ahead of what they lagged during past decades (Gunasekara, 2015).

Construction sector of Sri Lanka contributes 7.6% for its GDP in year 2016 which is higher compared to the 6.9% in year 2015 (CBSL, 2016). Development of any country largely depends upon the construction industry and its boost generally helps to bring the country to a fast track of development. The construction sector of Sri Lanka is boosting continuously from the year 2009 with the peaceful environment

created in the country after eradicating terrorism which prevailed nearly three decades. As per Central Bank annual report 2016, the value added to the GDP by the construction sector has a significant growth of 14.9% which is much higher than that of in year 2015.Large scale construction projects such as Colombo International Financial City, extension of Southern Expressway, Phase III of Colombo Outer Circular Highway project and emerging condominium apartments largely contributed to the expansion in construction activities. This growth was reflected in the significant increase in cement production and its imports which totally grew by 25.3 per cent in 2016 compared to 5.8 per cent growth recorded in 2015. The increase of Gross National income by construction industry at current market price during last five years is depicted in the Figure 2.1 (CBSL, 2016).

Table 2.1:Gross National Income by construction industry

Year	Gross National Income (LKR Billion)
2012	621.1
2013	715.5
2014	813.7
2015	828.4
2016	932.3

Source: Central Bank Annual Report 2016

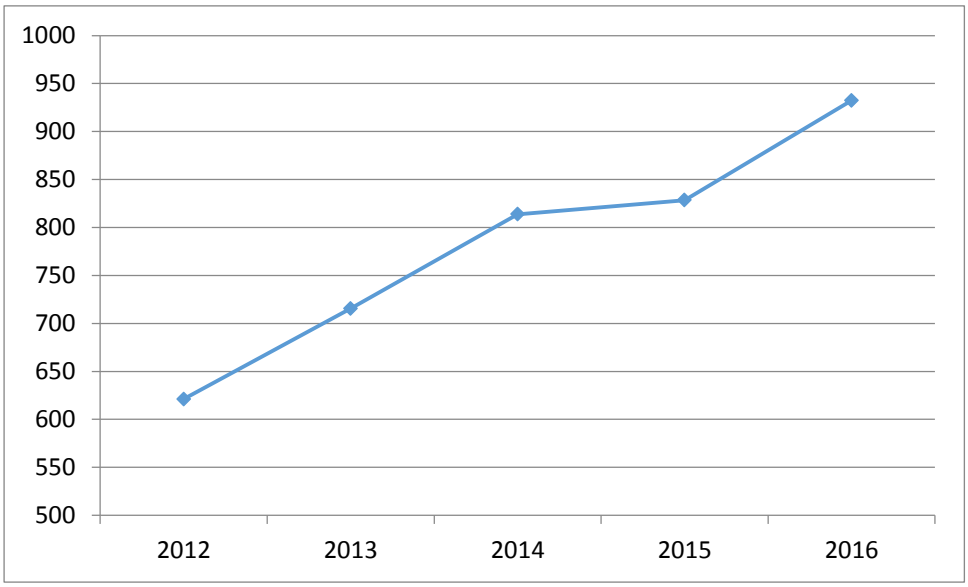


Figure 2.1 :The Gross National Income by construction industry

Source: Central Bank Annual Report 2016

Government sector organizations such as Chamber of Construction Industry (CCI) and Institute of Construction Training & Development (ICTAD) along with state owned and private sector construction organizations played a vital role in achieving development of construction sector. Initially construction sector of Defence services was utilized for construction of basic infrastructure facilities for those people who were badly affected due to war in Northern and Eastern parts of the country as other agencies were reluctant to work in those parts of the country until complete removal of landmines and clear access facilities.

ICTAD and Department of Census and Statistics (DCS) have adapted International Standards of Industrial Classification (ISIC) to classify the construction industry in Sri Lanka since the year 2014. Accordingly, subdivisions that comprise the total construction industry in Sri Lanka are described as follows.

- General Constructions
- Construction of residential buildings
- Construction of non- residential buildings
- Construction of roads, railways, tunnels, air field runner ways, bridges etc.
- Construction of utility projects
- Construction of other civil engineering projects

- Specialized Construction Activities
- Electrical wiring, plumbing, computer networks etc.
- Building completion and finishing
- Other constructions

The total estimated value of work done by all types of construction activities that comprise the local construction industry was LKR 397.8 Billion in year 2015. The highest contribution to this value has been made by the roads and railways construction sector which is LKR 192.5 Billion (DCS, 2015). The work done by each sector of local construction industry is depicted in the figure 2.2which shows construction sectors such as buildings, roads & railways that make the highest contribution to the local construction industry. This gives evidence that the Government of Sri Lanka effort to develop the infrastructure facilities such as roads, railways and buildings in the country which were not developed during last three decades due to the prevailed civil war in the country.

The total raw materials consumed by the construction sectors in year 2015 were LKR 220.8 Billion in value (DCS, 2015). River sand used in the industry significantly increased in price due to imposition of government regulation on sand mining to reduce illicit mining of the river beds to prevent environmental damage.

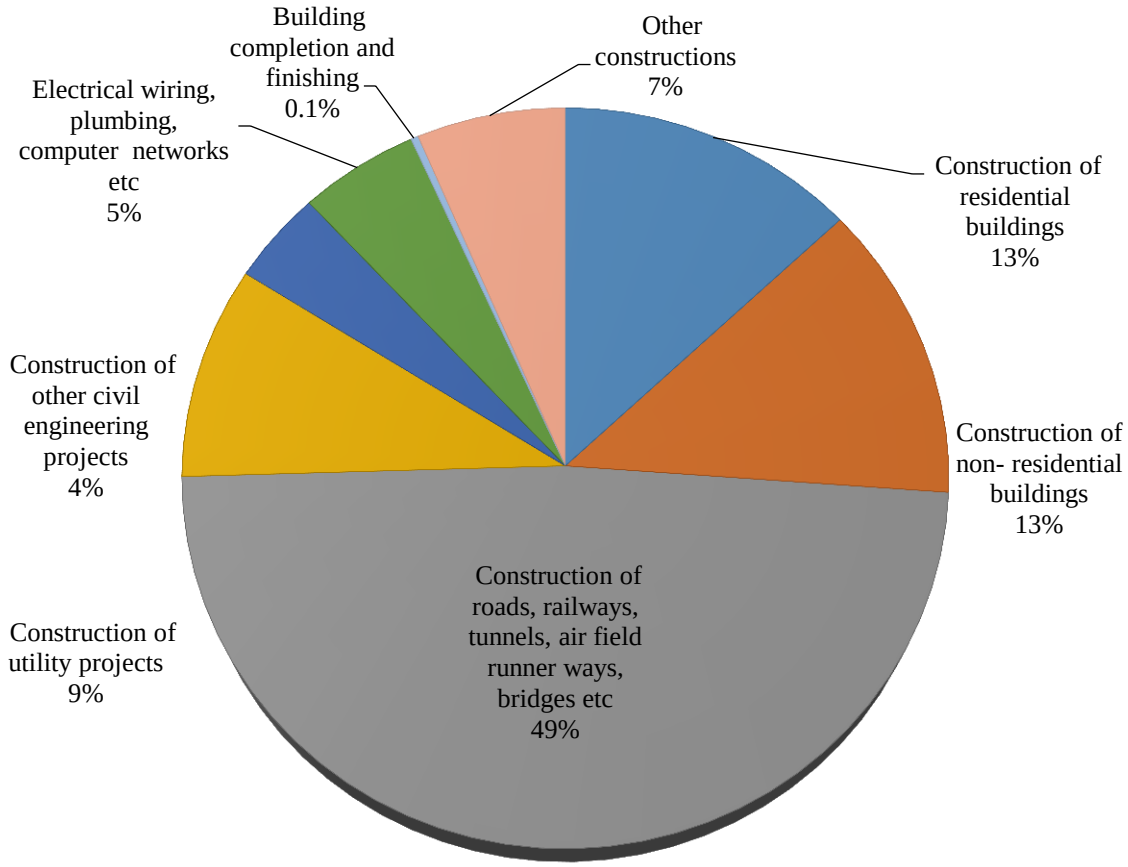


Figure 2.2 : The work done by each sector of local construction industry

(Source: Department of Census and Statistics Survey 2015)

Road Development Authority (RDA) of Sri Lanka is entrusted with the responsibility for the maintenance and development of National Highway Network and the planning, design and construction of new highways, bridges and expressways to enhance the existing network. Sri Lanka has one of highest road densities compared to other Asian countries. As per the Road Development Authority (RDA) of Sri Lanka, density figures indicate that the kilometre per population exceeds similar indicators for both Pakistan and Bangladesh. Consequently, traffic congestion creates restriction for the movement of passenger and cargo carriage. In order to overcome this Government policy is currently working on development and improving of roads and highway network in the country. Some of these projects have already been implemented under the management and supervision of RDA and Ministry of Highways.

2.2.1 History of Construction Industry of Sri Lanka

Major irrigation systems built by ancient Kings of Sri Lanka are evident that the technical knowhow of the ancient Aryan Sinhalese was possessed with at that time. The ancient Sinhalese outclassed in the construction of tanks (or reservoirs), dagobas (or stupas) and palaces in Sri Lanka, as evident from the ruins that shows a rich engineering and architectural competencies.

According to the historical descriptions, construction of giant sized reservoirs had been commenced in the 1st Century BC during the reign of King Wasabha (67-111 BC). As per the historical records the King had built 11 large reservoirs and two irrigation canals. As stated by Henry Perker, a British colonial irrigation engineer (1873-1904) in British Ceylon (1815-1948), the first great reservoir of the world ever constructed was Panduwewa (1360 acres) of Sri Lanka built by King Dappula II (807-812 AD). The talent and inventiveness of ancient Sinhala irrigation engineers is demonstrated by the invention of a Sluice, which is also called as 'biso kotuwa'. The biso kotuwa is similar to a valve pit which operates in the regulation of water out flow of the reservoir. With the invention of the Sluice by ancient Sinhala engineers paved the way for construction of large reservoirs that still rank among the best in the world. (Lakpura, 2010)

The words of King Parakrama Bahu I (1153-1186 BCE) "*Let not even a drop of rain water go to sea without benefiting man*" clearly portrays the objective and determination in the construction of irrigation systems in ancient Sri Lanka. The Sri Lankan history record, Culawansa that was written in the Buddhist language Pali, counts the works done by King Parakrama Bahu1 as a Provincial ruler of Western Sri Lanka and later Monarch of the whole country, he had built 163 major tanks, 2617 minor tanks, 3910 irrigation channels, 328 stone sluices and168 sluice blocks. Among the reservoirs he built Parakrama Samudraya (meaning: Sea of Parakrama) at Polonnaruwa is the biggest tank spread over 30square kilometres and surrounding embankment of 14 kilometres long. (Wikipedia, n.d.)

The dagobas,(Stupas) built by ancient Kings in the country, are unique for many reasons. They are probably the largest brick structures known to the contemporary world. Demala Maha Seya, which was not completed fully, had a circumference of 2,011 feet (613 m). Jetavanaramaya is the largest stupa constructed in any part of the world. It is over 120 metres (390 ft) in height and has a diameter of 367 feet (112 m).

The foundation is 252 feet (77 m) deep which is considered as the deepest foundation of the ancient world. It needed bricks that could bear the load of 368 pounds (167 kg). Jetavana was the third-tallest building in the ancient world. Abhayagiri (110 m) ranked fifth and Ruwanwelisaya (91 m) came seventh. The first, fourth and sixth places were held by the pyramids.

Cave temples had been used in Sri Lanka since ancient times; fine examples of these include the magnificent cave temple complex in Dambulla built by king Walagamba. Cave temples have preserved some of the best examples of Sinhalese art and Sinhalese architecture. The rock cave sheltered in the recess of the forests served the recluse Buddhist monks in performing their meditation chores and other religious observances. Such cave monasteries were utilized by the ruling kings of the time, chieftains and the people as well. As the years passed such cave shelters turned into len viharas (cave temples) and len avasas (residences of Buddhist monks). Such len (cave shelters), were donated by kings, queens and other royalty and nobility. Sigiriya built in the 5th century BCE was a combination of natural and man-made fortress built around a 200-metre-tall (660 ft) rock on which was the royal Sky Palace. It is world-renowned for the beautiful Sigiriya frescoes. This has been ranked as one of 7 wonders in the world due to its unique features and architecture. (Gunasekara, 2015)

2.3 Construction Labour

Human resource component of any industry is becoming the determining factor for success or failure of projects (Pathirage, 2008). Construction labour is an important human resource in the construction industry because, it integrates other resources such as materials, plant and equipment and other finance in order to build physical construction product (Widanagamachchi, 2013).Construction labour plays a key role in construction to bring the desires of employers supported by architects, engineers, quantity surveys, contract administrators in to reality (Wijewickreme, 2016).The dictionary meaning of construction labourers is defined as workers who do practical works using their hands. The construction labour is classified in to two parts such as skilled labour or tradesman and unskilled labour. Some of the tradesmen in this category are carpenters, plumbers, masons/brick layers, painters, electricians, mechanics, plant operators, crane drivers, bar benders, tillers etc. The unskilled labour, on the other hand is a category that does not possess special skill as tradesman. They perform work that requires no special training or experience to

perform work adequately. In the construction industry un-skilled labourers are assigned work such as cleaning, digging, concrete mixing, material handling and assisting tradesmen etc.

2.3.1 Construction Labour Force in Sri Lanka

The construction sector of Sri Lanka employs 7.8% of total workforce in the country. This comprises of approximately 617,000 of people including the sectors of electricity, gas, steam and air conditioning, water supply and sewerage according to the Central Bank of Sri Lanka annual report 2016 (CBSL, 2016). Generally, construction is a male dominated industry. In Sri Lanka female contribution in construction is about 3% (Pathirage, 2008).

Sri Lankan construction industry is currently facing a labour shortage as youth in the country is reluctant to work in the construction sector due to its arduous conditions of work, which often has to be done in the open air exposed to elements. With the development of the Information Technology (IT) sector, the schools leavers who are not qualified for higher education in the country prefer to join the IT sector and related job market. Construction worker is more of a migratory type labourer who has migrated from the countryside to the urban areas seeking employment. The demand for construction labourers has been increased with the construction boom in the country after the year 2009. It has been estimated that over one million of people would be required for the construction sector in order to increase the contribution of the construction sector for GDP up to 9% envisaged in year 2020 (Widanagamachchi, 2013). Most of the foreign contractors who are engaged in construction in Sri Lanka tend to get down more labourers from abroad in order to fulfil the labour requirement.

2.3.2 Operational Workforce of the Construction Industry

A worker in the construction industry who engaged in manual works apart from the planning or managing the project is also called as an operational worker. (Wijewickreme, 2016). A construction worker is a tradesman or labourer and, by tradition, is considered as an unskilled tradesman or a professional employed in the physical construction of built environment. The construction environment is hard and exposed to elements, thus construction workers are to be protected from possible head strikes, heatstroke, frostbite, other weather elements, hazardous contaminants.

Therefore they always wear protective hard hats, safety boots, hand gloves etc. The behavioural problems of operational workforce in the construction industry of Sri Lanka have been identified as root causes for less productivity. The research conducted by Sujeewa Wijewickreme (Wijewickreme, 2010)has identified 11 behavioural issues that connected with operational workforce; such problems are

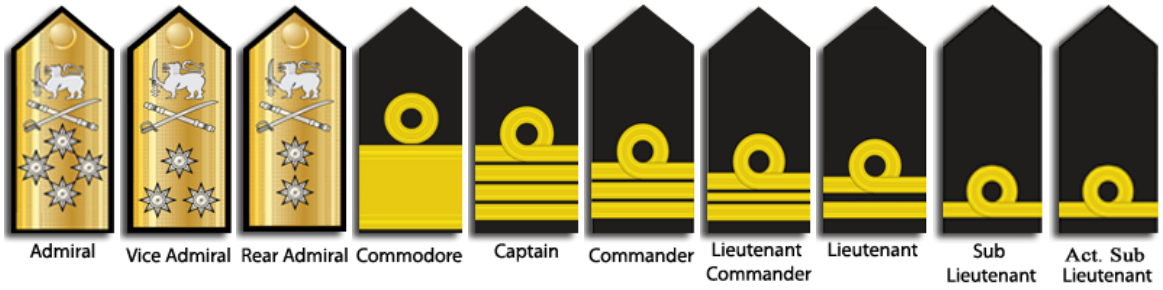
1. High labour turnover
2. Poor quality of workmanship
3. Temporary or irregular attendance
4. Lack of trade knowledge and skills
5. Lack of cost concerns
6. Irresponsibility and lack of reliability
7. Unfair demand for wages
8. Adamant behaviour and lack of loyalty
9. Reluctant to learn and training
10. Carelessness and safety concerns
11. Unethical impulsive demand

2.4 Military and War Concepts

The military is the armed forces responsible for securing and defending a country. The armed forces mainly consist with Army, Navy, Air force and in some countries Marines and the Coast Guard. The main task of the military is described as defence of the state, its citizens and the prosecution of war against another state or organization. The word military in English is derived from the word 'military'. It came from the Latin militaries (from Latin miles, meaning soldier) through French. The military organization is considered as strict hierarchy divided by military ranks. The ranks are normally grouped in descending order of authority as officers, non-commissioned officers and personnel at lower ranks. The rank titles vary by military branch and country, but rank hierarchy is common to all state armed forces worldwide. The commissioned officers ranks of tri forces in Sri Lanka are depicted in the figure 2.2.

Commissioned Officers - Sri Lanka Army

Commissioned Officers - Sri Lanka Navy



Commissioned Officers - Sri Lanka Air Force

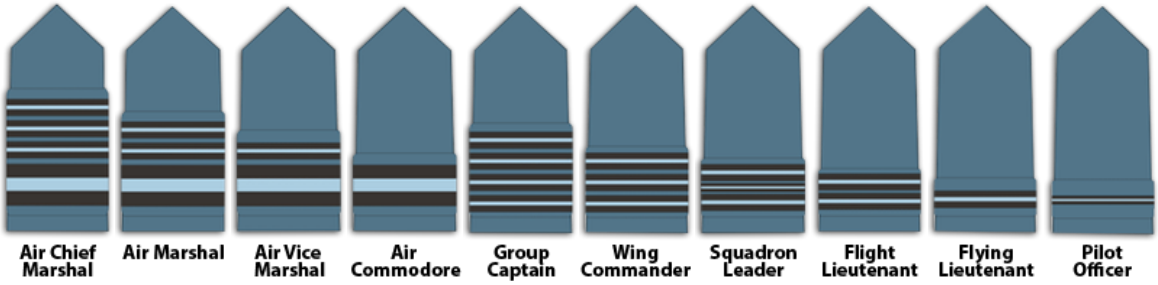


Figure 2.3: The equal ranks of commissioned officers of tri forces in Sri Lanka

(Source: Sri Lanka Navy official web site)

People were originally peaceful but went into war as human society transformed into new phases of history, and war between humankind roused in stages, from armed raids to a political expression of early nationalism. Wars continued with the ownership of land, the rise of towns, and with authoritarian kings. Kings wanted more power and possessions without concern of other factors or from whom they would get

it. War had beginnings that were not necessarily linked to a previous war. (Senadeera, 2015)

War is an organized, armed, and often a prolonged conflict that is carried on between states, nations, or other parties. War should be understood as an actual, intentional, and widespread-armed conflict between political communities. It is therefore defined as a form of violence. The set of techniques used by a group to carry out war is known as warfare. An absence of war (and other violence) is usually called peace. Meantime wars can be classified according to its nature of incident as Civil Wars,Guerrilla Wars, Wars Of Independence,Invasions, Religion-Based Wars,Wars Of Succession, Insurgency, Class or Caste War, Cold War and so on. The period of war also depends on complexity of the problem and the capabilities, tactics used by the parties involved in war. There is an argument that war should always be the last resort. The just war theory emerged to justify reason to begin a war equally apply the rules of war to all. The just war tradition is divided into three sets of principles as indicated below (Harp 2011 cited in Senedeera 2015).

1. ***jus ad bellum*** which describes how an entity should resort to war. A just war must be initiated by a political authority within a political system that allows distinctions of justice. The reason for going to war needs to be just and cannot therefore be solely for recapturing things taken or punishing people who have done wrong. The just causes most frequently mentioned include self-defence from external attack, the defence of others from such actions, the protection of innocents from brutal, aggressive regimes and intervention to protect life of innocent life.

2. ***jus in bello*** prescribes how soldiers should fight in war. Just war conduct should be governed by the principle of distinction. The acts of war should be directed towards enemy combatants, and not towards non-combatants caught in circumstances they did not create. The prohibited acts include bombing civilian residential areas that include no military target and committing acts of terrorism or reprisal against civilians. An attack cannot be launched on a military objective in the knowledge that the incidental civilian injuries would be clearly

excessive in relation to the anticipated military advantage (principle of proportionality).

3. ***jus post bellum*** describes the rights and duties of belligerents to react one another once the war is over. A state must only terminate a war under the conditions agreed upon in the above criteria. Revenge is not permitted. The victor state must also be willing to apply the same level of objectivity and investigation into any war crimes its armed forces may have committed. The terms of peace must be made by a legitimate authority and must be accepted by a legitimate authority.

2.4.1 Military Engineering

Generally military organizations consists of many units such as combat, combat support, combat service support and other branches which all are aligned to a single mission of the military (Young, 2010).Engineering units of military place a vital role as combat support service in providing necessary engineering and technical assistance for combat units. The original meaning of the word engineer was one who constructs military engines. It is an accepted belief that the first engineers were military engineers, employed by the State or Empire, who concerned themselves with subjects such as roads, bridges, and fortifications (Senadeera, 2015).

Military engineering is defined as art and practice of designing and building of military works and structures, construction and maintaining of military transportation and communications (US Department, 2005). Military engineering is the oldest of the engineering skills that was pioneered by the profession of civil engineering. Contemporary military engineering can be split in to three main tasks:

1. Combat engineering or tactical engineer support at the battle field.
2. Strategic support by the execution of works and services needed in the communications zones, such as the construction of airfields and depots, the improvement of ports and road and rail communications, and the storage and distribution of fuel.
3. Ancillary support, which includes construction, fortification, camouflage, demolition, surveying, and mapping. They build bases, airfields, depots, roads, bridges, port facilities, and hospitals. In

> peacetime military engineers also carry out a wide variety of civil-works programs. (Lotha & Gloria, 2016)

During classical and medieval eras, it can be found that excellent work done by the then military engineers, such as hill forts constructed in Europe during the late Iron Age, massive fortresses built by Persians in Europe, pontoon bridge built by the engineers of Persian king Xerxes across the Hellespont (Dardanelles). The Great Wall of China is the greatest ancient defensive work ever built by military engineers in the 3rd century BC to protect China's northern frontier from its brutal neighbours. This wall is about 6400 km long and became one of seven wonders in the world. The Romans were outstanding ancient military engineers in Western world and their excellent works can still be witnessed throughout Europe and the Middle East. The military garrison town built by Romans that was protected by parapets, trenches and interconnected military roads is the best example. Romans also built giant walls like the Chinese to protect their Empire and famous of these being Hadrian's wall in Britain which is 117 km long and was built to defend northern frontier from Scots . The urban civilization in Europe collapsed with the fall of Romans Empires in the Middle Ages and new fortifications were built using the motte (earth) on the continent in 10th and11th centuries BC . These fortifications mainly consisted of a high embankment of earth encircled by wooden trellis, trenches and embankments (the bailey), with a wooden tower occupying the central embankment. They were replaced by stone-built castles that served as both military strongholds and centres of administration. Medieval engineers were very talented at mining operations, by which tunnels were driven under the walls of castles and their timbering set afire, causing the masonry overhead to collapse. The Technological development which took place in the 19thcentury changed the nature of military engineering resulting the Napoleonic wars. The British and French military engineers were the first to use the electric telegraph in the Crimean war (1853-1856). With the development of the railway system in the world, the military engineers became more responsible for construction and maintenance of the railway system and control of rail movement of troops and materials. The military engineering schools established in Europe in 19th century offered technical training for graduates and they became the finest technical elite in industrialized nations. When European countries colonized largely in the region of Africa, Asia, and Australia, military engineers were given more responsibilities for exploration and mapping of these regions and for construction of public buildings and utilities, roads, bridges, railways, telegraph networks, irrigation projects, harbours and

maritime defences. Military engineers faced huge challenges during World War II which they never experienced ever before. Hundreds of airfields and airstrips had to be built to enhance the air power of the military. Air attacks and surveillance took place immensely during World War II (Gulmartin, et al., 2010).

2.4.2 Military Construction

Military construction which is also called as MILCON is defined as any construction, alteration, development, conversion, or extension of any kind carried out with respect to a military installation (Gunasekara, 2015). Military installations could be taken place within or outside military establishment. Military engineers specialized in civil constructions are basically involved with the military constructions which can be either for military or public use.

2.4.3 Contribution of Military for National Development

After any kind of war against a terrorist group or other state, the devastation for both parties is huge in terms of physical, social and economic environment. The lost incurred for both parties cannot be quantified and that is beyond reasonable assessment and estimation. The post war period is basically considered as the interval after war as long as it is not resumed. The actions initiated by any state aftermath of war includes managing economic recovery and long term development, returns of refugees and displaced persons, reconstructing of social and economic infrastructure, security sector reforms, rebuilding of political institutions to deal with human rights and accountability issues (Senadeera, 2015). The repercussions faced by the society during and after the war are

1. Loss of human resources due to deaths, casualties and migration
2. Destruction of infrastructure facilities such as electricity, water, telephones and road network
3. Weakening of government institutions such as military, security forces and other administrative bodies.
4. Destruction happened to communities due to displacement.
5. Loss of harmony and diminishing of trust between communities
6. Arising of human rights issues.

7. Political instability and uncertainty of future of citizens.

With the end of three decades long ethnic war, the major challenge faced by the government of Sri Lanka was to re-instate the normalcy in the country restoring the massive damage taken place during the war. The government of Sri Lanka has initiated many projects and programs to bring the country to the fast track of development and to maintain normalcy in the country.

During the war period, tri-forces of Sri Lanka time to time had to capture various areas and keep control of said areas. Engineering units of the tri-services had to engage with the operation by providing accommodation, water supply and electricity for the military and civil personnel in the particular areas. This work was purely temporary in nature and there were hardly any new constructions. Tri-forces engineers' involvement for construction during this period was very little and no major constructions were carried out. However maintenance of buildings and minor constructions were carried out by tri-forces within the military bases and areas under their control.

With the end of the ethnic war in the year 2009, the Sri Lanka's military of 300,000 personnel have engaged in non-military activities which made accusation of militarization by the public. The Military was involved with large scale property development by running of roadside cafes, restaurants and other facilities. The military started to build roads, bridges, houses, stadiums and other government buildings such as Southern campus for Kothalawala defence University (KDU) and Defence Headquarters Complex at Pelawatta. The Urban Development Authority (UDA) being the governing body of Sri Lanka to initiate mega construction projects at billions of Rupees was taken over by the Ministry of Defence in year 2010 realizing the strength of human resources within the military. In the year 2011, the Ministry of Defence was named as the Ministry of Defence and Urban Development which was given a budgetary allocation of Rs.230 billion in the year 2011. (Gunasekara, 2015)

Since year 2010, the military forces have been utilized for various infrastructure development projects by the government of Sri Lanka in order to maximize the usage of resources available in the military. This is the best approach by the Government to utilize Service personnel for development. The Defence Services of Sri Lanka consists of professional technical units to steer the Defence team towards achieving construction deliverables that is entrusted by the Government. Mainly, Engineering

units of tri forces are tasked to manage and handle construction projects of various capacities. Engineering Service Regiment of Sri Lanka Army, Civil Engineering Directorate of Sri Lanka Navy and Civil Engineering Department of Sri Lanka Air Force are the main units entrusted with responsibilities of all construction related matters within and outside the military establishments. The Mechanical and Electrical engineering unit and Procurement and Services units of tri forces also contribute for successful implementations of the projects. Currently Tri Forces carries out many small and medium size construction projects within and outside the military establishments including Defence Headquarters Complex (DHQC) Project at Akuregoda, Establishment of Southern Campus at Sooriyawewa for Kothalawala Defence University, Housing Projects under 'Api Wenuwen Api' programme and Infrastructure Development Project at Polonnaruwa district under 'Pibidemu Polonnaruwa' programme initiated by the Presidential Secretariat. All construction projects are required to be approved by the Ministry of Defence and National Planning Department prior to implementation to ensure only essential projects that are complied with national/local authority requirements are undertaken. Skilled labour requirement for such projects are filled with directly recruiting people having required skills and experience under separate volunteer scheme. The unskilled labour requirement is fulfilled by the human resources available within the Military Services.

2.4.4 Construction Labour Force in Military

Skilled labour requirement for construction projects carried out by the military are filled with directly recruiting people having required skills and experience under a separate volunteer scheme. They are mainly deployed for non- mechanised work activities which are normally described as wet trades (Wijewickreme, 2016). Wet trades include brick works, rendering, tilling, waterproofing, formworks, reinforcements etc. The unskilled labour requirement is fulfilled by the human resources available within the Military Services. The construction tradesmen who have been militarized with military training are served as junior and senior level supervisors, technical officers and foreman in the form of construction team. Try forces consists of 19150 skilled tradesmen of various grades such as mason, carpentry, plumber, painter, aluminium fitter, welder, etc. The majority is from mason and carpentry grades. It possesses around 1000 supervising staff and 250 civil and building service engineers at various capacities and levels.

It is always a challenge to any construction firm to achieve project deliverables within the project constraints of time, cost and quality. Human resource component of the construction plays a vital role in achieving this goal. Therefore, the labour productivity has become governing factor for timely completion of the project. The higher labour productivity cannot be expected without providing basic needs and requirements of the workers to a satisfaction level. In this context, motivation of workers has been identified as one of the major factors which can be stimulated the productivity in the construction industry (Barg, et al., 2014).

2.5 Job Satisfaction and Performance

Employee satisfaction plays an important role in retaining and attracting more workers into the construction industry. Employee turnover arises as a result from job dissatisfaction of individual employee in the workplace. But job dissatisfaction is not the only reason of quitting the job by employees. There are many other reasons and underline factors that cause turnover. Researches have defined job satisfaction in many ways. Studies done by Oshagbemi explained job satisfaction as "*a person's positive emotional reaction to his or her job*". An employee who is having high level of job satisfaction has positive feelings about his or her job. Every organization require to see their employees are performing at higher level and keep them motivated to get maximum output for continues success (Oshagbemi, 1999). Different kind of theories on job satisfaction could be identified in literature like Affect Theory, Dispositional Theory, Two factor theory and Job Characteristics Model. Nelson described that job satisfaction of an employee is priceless. The frustrated and unhappy employees do not give their best to the organization that could affect the efficiency and performance of the organization. When the employees in public organizations are satisfied, then their performance will definitely be improved. Hertzberg described that employees have two types of needs: hygiene and motivator which have been used widely by many researchers to measure job satisfaction. Salary, job security, benefits, supervision and working conditions are hygiene factors that are considered as basic needs connected to the work of employees. The motivator factors are concerned with the nature and consequences of work, such as responsibility, authority, advancements and achievements (Akeel & Subramanium, 2012).

Abdulla, et al (2013) had carried out a study to evaluate job satisfaction and job performance of employees in Small and Medium sized construction firms in Nigeria

and found that satisfaction with co-workers ranked highest with mean score of 3.62 (Abdulla, et al., 2013).Giritli, et al (2013) has done investigation in to job satisfaction and organizational commitment of construction workers in the Turkish construction sector. The study revealed that solid relationship exists between job satisfaction and organizational commitment (Giritli, et al., 2013)

2.6 Labour Motivation

Motivation has been defined in many ways. It has been defined as "*providing a drive act to satisfy needs or desires*" (Barg, et al., 2014). The motivation is the "*programming the personnel with a unity of purpose and maintaining continuous harmonious relationship among all people*" (Widanagamachchi, 2013) Motivation is a method by which productivity can be enhanced. Many factors for motivation have been identified which are basically categorized under two areas that is organizational and economic factors. Economic factors have high priority over organizational factors when it comes to motivation of construction workers (Khan, et al., 2012).

Workers in any organization need something to keep working. In most occasions, the salary of the employees is enough to keep him/her working for an organization. However, it has been revealed that the salary alone is not enough for a worker to perform well and stay in the organization and needs some more benefits to give the maximum to the organization. In this context, motivation is one which could be useful to motivate workers towards achieving high productivity (Widanagamachchi, 2013). Construction workers always perform manual labour which involves repetitive usage of hands, fingers wrists, arms at worksite exposing to the elements that is considered hard and difficult compared to other works. Therefore, construction workers are required to arrange a kind of means as a treatment for their physical and mental relaxation.

2.6.1 Motivation Theory

There are many theories of motivation that have been developed by various intellectuals. The theories of motivation that applied to construction workers are clearly outlined and summarized by (Hewage, 2007) and (Widanagamachchi, 2013)in their research work and those are briefly described as follows.

1. Maslows hierarchy of needs theory which describes that humans are having various needs which can be arranged in ascending order with respect to priority of each. The lowest order needs must be fulfilled prior to people become concerned with higher order needs.
2. Herzberg motivational theory demonstrates that a person's satisfaction with the work is ascribed to job itself while dissatisfaction is ascribed to work environment.
3. Adams' equity theory explains that people are motivated and are to be treated equitably avoiding favouration for friends or selected people.
4. Herzberg's two factor theory explains that employee's satisfaction and level of performance can be increased if the organizations they are working fulfil the safety and social needs of them.
5. Reinforcement theory describes that continues performance of employees could be achieved with reinforced behaviour.
6. Hygiene motivation theory discusses that hygiene factors; company policies, supervision, interpersonal relations, working condition and salary affects people's attitudes about work. Job dissatisfaction among employees will be created with the absence of hygiene factors.

2.6.2 Motivation of Construction Tradesmen in Defence Services Sri Lanka

A study has been carried out by Gunasekara to find factors affecting for motivation of construction tradesmen in the Defence Services Sri Lanka and 24 factors have been identified that affect motivation of construction tradesmen. Out of these factors, the following were ranked as the top 10 severe factors that affect motivation of tradesman in Defence Service (Gunasekara, 2015).

1. Permanent Employment
2. Entitlement for retirement pension
3. Protection against any disability during the work
4. On time payment of salary
5. Medical facilities
6. Discipline of work environment
7. Opportunity for improvement of trade

8. Contribution for the family members protection
9. Ability to go for entitle leave or any other emergency leave
10. Salary compared to the other organization.

Motivation of employees is essential to increase performance and achieve higher productivity. However, behavioural issues of the employees are also directly affecting the productivity. It has been identified 11 behavioural issues, out of which labour turnover has been ranked as first major issue (Wijewickreme, 2010).

2.7 Labour Turnover

The human resources component of the construction industry plays a vital role in achieving project deliverable in time with expected quality and cost. One of major challenges faced by the constriction organization is to develop the skills and abilities of human resources and retaining them over a considerable period in the organization (Bilau, et al., 2015). High labour turnover has been identified as one of major behavioural problems of the operational work force in the construction industry in Sri Lanka which directly affects productivity and stakeholder satisfaction (Wijewickreme, 2010).

Labour turnover is defined in many ways by various researchers. Mamun and Hassan explain that labour turnover is described to a situation where employees leave the organization due to various reasons that affect the organization negatively. Appelbaum defines labour turnover as the frequency of losing employees by an employer (Appelbaum, November 2000). Employee turnover is the rate at which employees leave the organization and need to be replaced by new staff (Bilau, et al., 2015). When employees leave the organization it may affect not only the organization but also the existing workforce. It is said that high labour turnover may be injurious to the productivity of a company, if skilled workers regularly leave the company that increase the comparative percentage of an apprentice workforce. It is always better to maintain a balance between apprentices and skilled workers in the organization (Wijewickreme, 2016). The common formula used for calculation of human resource turnover of an organization is

$$\% \text{ of HR Turnover} = \left(\frac{\text{Nly}}{(\text{Nby} + \text{Ney})/2} \right) 100$$

Where,

Nly: Number of employees who left during the year

Nby: Number of employees at the beginning of the year

Ney: Number of employees at the ending of the year

Employees' turnover can be calculated by dividing the amount of employees that leave the organization per year by the average amount of employees in that same year multiplied by 100 to denote it in percentage. As per the perception of human resources management and organization behaviour, employer turnover is the rotation of employees around the labour market (Holman, August 2006). It is said that turnover rate of private sector organizations are higher than that of state sectors. In Bangladesh, average annual labour turnover rate of government sectors is 8.9% whereas, turnover rate of private sectors is about 27% (Shamsuzzoha & Shmon, 2010). The research done by Rajapakse on labour turnover of garment industry in Si Lanka has revealed that during the periods of 2000 to 2012, the average monthly labor turnover rate of garment industry in Sri Lanka where more female workers are employed is 6.6 percent. The average labour turnover worked out per factory is about 60 per cent per annum. The labour migration within the industry is concerned; the net number of persons leaving the industry each year is estimated as 25 per cent (Rajapakshe, 2017). The research conducted by Kottawatta has identified that average labour turnover of apparel sector in western province per month is 5.9% and absenteeism is recorded as 8.5% per month (Kottawatta, 2015). As per the Labour Demand Survey conducted by Department of Census and Statistics, the maximum average resignation was recorded from 'Sewing Machine Operators' in garment sector in year 2015 to 2017 which is 44.2% (DCS, 2017). Similarly, it is said that employee turnover rate of IT sector and Banking sector of Sri Lanka is considerably high compared to state sector organizations.

Employee's turnover occurs due to many different reasons. At times employees are attracted to new jobs and compel them to leave the old occupation. Employees are also pushed to leave the job due to dissatisfaction in their place of work. The poor relationship between employees and management can also be main reasons for employees' turnover. It is very rare that employee turnover takes place in an

organization where employees are happy and paid a high salary compared to others. Lack of job security, opportunity for training and development are also causes for volunteer turnover (Shamsuzzoha & Shmon, 2010). For any organization retaining hardworking and talented employees in the organization is very important in terms of social and economic concerns. Employees' retention policies are targeted addressing various needs of employees to enhance their job satisfaction and reduce the cost of hiring and training new staff. Many researchers have accredited the theories of employees' retention as an important topic to discuss. Previous studies have revealed that factors such as attractive salary, good working environment, job security, training and development, good interpersonal relationship are key motives that can lead to retain employees in the organization (Mamun & Hasan, 2017).

In the construction industry job satisfaction of employees is very critical when studying the human behaviours. The job satisfaction is an emotional feeling and belief that people have about their current job and if job satisfaction of employees are studied properly, measures could be taken to enhance the job satisfaction which will produce significant benefits to the organization. Therefore it is required to assess the rate of employees' turnover in the construction firm and its effects on job performance and productivity. The loss of skilled and talented employees could deteriorate the productivity. This will impose additional work stress and lower motivation for the remaining employees. It will also be negatively impacting the employees' group morale (Bilau, et al., 2015).

2.7.1 Consequences of Turnover

Consequences of turnover may be positive or negative to the organization depending on the type of turnover. Sometimes, organizations experience turnover situations where high-skilled and high-performance employees remain in the organization while low skilled and poor- performance employees leave the organization. This situation is termed as functional turnover that make positive consequences to the organization as mobility can lead to organizational renewal and change. In contrast, there are situations where high-performance employees are leaving the organization while poor- performance employees remain in the organization. This situation is termed as dysfunctional turnover which make negative consequences to the organization (Sutherland & Jordaan, 2004). Dysfunctional turnover causes direct and indirect costs to the organization. Direct costs are short term expenses that occur with

the resignation of the employee and can be quantified. The direct costs include recruiting cost, advertising cost, applicant expenses, agency fees and office expenses. Indirect costs include less productivity, loss of knowledge and the diminishing of the morale of remaining employees, impact on reputation of the organization and customer dissatisfaction (Bilau, et al., 2015).

2.7.2 Voluntary Turnover

Voluntary turnover occurs when employees leave the organizations at their own willingness. This move is initiated by the choice of an employee. The employees take decisions to quit employment in the organization that they are in without the consent of the employer. Some employees initiate termination of employment themselves as the job is not fit for them. Voluntary turnover takes place due to lack of job satisfaction, alternative job opportunities and job stress. However voluntary turnover can be predicted and controlled (Mamun & Hasan, 2017).

2.7.3 Involuntary Turnover

Involuntary employees' turnover is a termination of employment relationship with the decision of employer. Employer takes a decision to discharge of an employee from its current job in the organization. Involuntary turnover occurs in the events of death, retirement and dismissal of an employee. Involuntary turn over cannot be controlled and managed. In a situation where an employee decides the termination of the job with the consent of the employer to attend his or her family matter such as looking after seriously ill family member that cannot be done being in the current job is regarded as involuntary turnover as employee has no any control over that (Bilau, et al., 2015).

2.7.4 Avoidable and Unavoidable Turnover.

Employee turnover can be avoided by proper recruiting, assessing and motivating employees efficiently and effectively (Mamun & Hasan, 2017). There is no exact way of how to deal with employee turnover. There are various factors that cause turnover. It contains personal factoring, job related factors, working environment and external factors. It is said that voluntary turnover could be avoided with proper employee

retaining policies and recruiting. In contrast, unavoidable turnover describes that life decision of an employee to move to a new area or job transfer for a spouse that extends beyond an employer's control (Bilau, et al., 2015).

2.7.5 Factors that Cause for Turnover

Labour turnover arises as results from job dissatisfaction of an individual employee in the workplace. But job dissatisfaction is not the only reason of quitting the job by employees. There are many other reasons and underline factors that cause turnover. When employees possessed with high skills and capabilities that are in demand, they try to obtain more benefits and high salary. Therefore it is required to identify and understand the employees who leave the organization due to dissatisfaction in the workplace and those who quit the job due to other reasons (Mamun & Hasan, 2017). The managers who wish to make decisions to minimize high labour turnover, should understand the underline causes, quantify the problem and identify the possible solutions. Many researchers have attempted to identify contributing factors for labour turnover in addition to dissatisfaction and other causes of turnover. There are various factors that contribute to the employee turnover and following leading underline factors that cause acts of turnover have been identified from the literature.

1. **Job satisfaction**. It is described that job satisfaction is the happiness at the workplace. Unhappy employees are always dissatisfied with what they are offered and they say their desire and needs are not fulfilled at the workplace. It is said that job satisfaction is a factor of employee motivation, employee morale and goal achievement (Bilau, et al., 2015).The job satisfaction of construction workers has significant effect on labour retention, commitment and performance. Happiness and motivation reflected their performance (Oshagbemi, 1999).A little appreciation can go a long way in job satisfaction of employees (Nelson, 2006).

2. **Salary/pay**. Pay is described as something that is given in exchange of service rendered in the organization. It plays a significant role in retaining and rewarding high quality employees at the expense of overall labour cost of the organization. Pay is the critical factor in

labour turnover. If an employee is paid with less salary and insufficient financial rewards, he or she tends to leave the organization. It is said that major cause for job dissatisfaction is the poor pay scale and at the same time good pay can enhance the job satisfaction and retention of employees (Mamun & Hasan, 2017).

3. **Role Stressors**. There are three role stressors that are found in employees perceptions at work environment. These are role conflict, role ambiguity and role overload. Role conflict is a situation where, an employee is given two or more sets of aims or targets which are incompatible and cannot be performed simultaneously. Role ambiguity occurs when an employee is doubtful how to perform a job. This normally results due to undefined management policies in the organization. Role overload occurs when additional variants are added to the work environment. Work-family conflict is also considered as role of overload, where pressure of the two role conflict and one or both areas in need of consideration (Bilau, et al., 2015).

4. **Poor Employee Training.** Training is a method used to enhance the knowledge of employees on the job and related works. When employees are put in to the new jobs, they need to be familiarized to the job, its duties and what is expected from them. Training is to be incorporated suitable methods to assure that training meets organizational needs. Poor performance from employees could be seen if certain essential trainings are not offered to employees.

5. **Fringe Benefits.** Indirect rewards and incentives given to an employee or group of employees as part of organizational membership which has an effect on employees' retention and performance. Fringe benefits are critical at the organizational level in attracting, training and motivating employees who wish to continue works to achieve organizational goals. The lack of fringe benefits in an organization will cause for leaving employees from the organization that results for high labour turnover (Mamun & Hasan, 2017).

6. **Alternative Employment Opportunity**. Alternative employment opportunity is the perception or insight of employees of the availability of job alternatives. Perception is something that cannot be controlled as it is closely linked with the external environment such as availability of vacancies and employment rate. There is a close relationship between availability of job opportunities and voluntary turnover. Employees having higher educational background sighted more employment opportunity considering their qualification over the less educated employees. This perception tends to make turnover intentions of employees in an organization that will lead for high labour turnover (Albert, 2007).

7. **Working Environment**. Good working environment makes the workplace for employees to work with adequate facilities. If the working environment is poor due to lack of basic facilities such as proper ventilation, rest room, lavatory, drinking water, safety equipment, workers will not like to work for a long time. In addition, bad manager or supervisor makes the working environment worse leading to employees to leave the job (Mamun & Hasan, 2017).

8. **Influence of co-workers**. It is said that if, the perception of co-workers desires to leave the job more employees themselves want to leave too. That is co- workers intentions have a great impact on other employees decisions.

9. **Career promotion**. The lack of promotions and responsibilities of ordinary work can lead for turnover intentions of employees. This factor is considered as one of most significant aspects that causes for employee motivation. Improper and ineffective performance assessment to promote employees in the organization can result to increase the turnover intention due to perception of job unfairness. It is revealed that lack of promotional and career development opportunities in the organization negatively affects for retaining employees in the organization (Etornam, et al., 2017).

2.7.6 Turnover of Construction Tradesman in Defence Services Sri Lanka

Construction sector of Military Services in Sri Lanka is encountered difficulties in skilled labour retention that is affecting the organizations' efficiency, quality of work, duration of projects and finally project cost. Tri forces consists of around 19150 skilled tradesmen of various trades such as carpenter, mason, plumber, aluminium fitter, bar bender, painter etc. and the majority represents mason and carpenter grade tradesmen. These tradesmen are recruited solely for construction work under special scheme and offered with various facilities that prevail in the tri forces, such as foods, accommodation, retirement benefits, paid leaves, free medicals, free transportation etc. The basic salary of these construction tradesmen is about Rs. 45000.00 per month and net salary is more than 60,00.00 per month which is considerably higher compared to other private sector construction firms with other non-financial benefits. They are allowed 8 days leave per month. However, it has been reported that significant number of skilled labourers are become deserters due to various unknown reasons that results time over-run of projects. According to the records of Directorate of Civil Engineering of Sri Lanka Navy an average of 364 tradesmen are leaving the organization annually. The desertion records of construction tradesmen belong to Sri Lanka Navy are shown in the table 2.2 below. The turnover rate of construction tradesmen in SLN is about 7% which is seem less compared to other private sector construction firms. The state sector organizations are facing difficulties in recruiting construction workers to fulfil the void created as a result of labour turnover due to government policies and restrictions imposed on recruiting of construction workers as and when required. Therefore it is much important to retain the construction employees within the organization as it is not easy to replace them with new.

Table 2.2 : Desertion records of construction tradesmen in SLN

Year	Number of Desertion
2013	579
2014	373
2015	274
2016	271
2017	321

Source: Directorate of Civil Engineering -SLN

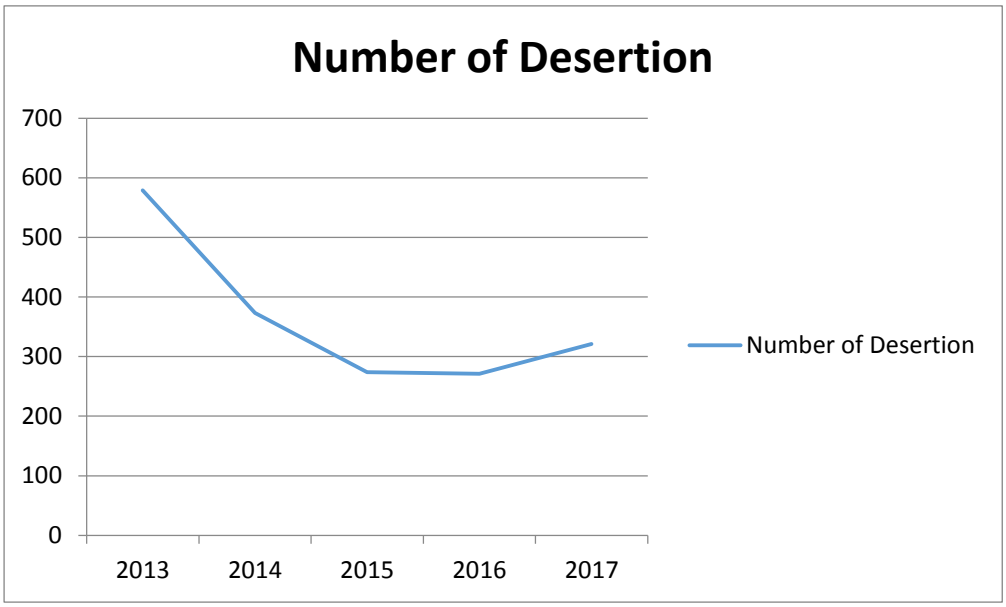


Figure 2.4 :Rate of desertion of construction tradesmen in SLN

Similarly, it has been reported that considerable number of construction tradesmen in Sri Lanka Army and Air force are leaving the organization due to various unknown reasons. Exact figures of turnover records in SLA and SLAF cannot be obtained as these are maintained as confidential due to arising of unnecessary issues on disclosure that could affect negatively for the image of the organization. However being a military officer in the technical division in SLN, I was able to discuss these issues with Military engineers in peer organizations and was able to obtain required details informally.

No research and literature were found purely on construction employee turnover in the construction industry in Sri Lanka. However De Siva, et al. (2008) found that labour turnover is the one of challenges faced by the construction industry in Sri Lanka. Wijewickreme (2010) describes 11 behavioural issues of the operational workforce in the construction industry in Sri Lanka, and labour turnover is ranked as the first major behavioural issue of construction workforce. In the same research Wijewickreme (2010) has identified the following difficulties that operational workforce experienced at the workplace that could result for labour turnover intentions. These issues are negatively effect on the construction industry in Sri Lanka.

1. Poor retirement benefits

2. Dissimilarities in salary scales
3. Grey areas in career development
4. The temporary nature of occupation
5. Lack of social recognition
6. Non availability of recreational facilities
7. Being away from families and relatives
8. Political and social influence
9. Safety and sanitary facilities
10. Interpersonal relationship
11. Lack of trouble free communication
12. Influence from dependence
13. Improper gender balance
14. Behaviour of immediate supervisors

2.8 Chapter Summary

This chapter on literature review described the related literature on construction industry in Sri Lanka, construction labour force and history of construction industry. Further described of military, military concepts, military engineering, military construction, role of military engineers during war and post-war scenario and labour motivation. Finally describes the literature which is related to main topic of labour turnover in construction industry and underline causes.

Chapter : 3 Research Approach and Methodology

3.1 Introduction

Chapter 2 of this report discussed the comprehensive literature with respect to construction industry, construction labourers, motivation and labour turnover. After discussing the theoretical status of the research problem, the major objective of this chapter is to describe whole research process including research description, research approach and methods.

According to the Oxford Dictionary, meaning of research is a 'careful study of a subject, especially in order to discover new facts or information about it'. Research refers to a search for knowledge. It is said that research means different things to different people. Many researchers admit that research is an advantageous way of undertaking careful inquiry and mode of thinking that provides principal and procedures. Research is also considered as approaches that go through various activities for discovering ranges of strategies, techniques and procedures to achieve desired objective of the researcher (Wijewickreme, 2016). Research is a scientific exploration for relevant information or atopic. It comprises defining of problems, formulating hypothesis, collecting and evaluating data, making judgments and reaching conclusions (Gunasekara, 2015). There are mainly three types of research; Exploratory, Descriptive and Causal. Exploratory research is conducted to clarify and define the nature of the problem and it does not provide conclusive evidence. Descriptive research describes characteristics of a population or phenomenon and there is some understanding of nature of the problem. Causal research is conducted to identify cause and effect relationship.

3.2 Research Approach

Mainly there are two types of research approaches called deductive and Inductive. In deductive approach, the researcher narrows down the broad subject in to a more definite central point. This is also called top down approach. The Inductive approach is the opposite of deductive approach that starts from specific observations to broader theories (Wijewickreme, 2016). This research that is aimed at identifying underline factors that cause for turnover of construction tradesmen in try forces Sri Lanka comes under the deductive approach type. The researcher from the literature describes the present status of construction industry, challenges face by the industry,

construction workforce, behavioural issues of construction workers, labour motivation. Then the topic narrow down and discuss labour turnover and retention. Finally discusses the labour turnover issues in construction sector of tri forces Sri Lanka to reach research objectives. Considering the nature of the research, both qualitative and quantitative study adopted for research methodology to determine underline reasons for employee turnover and significant level of each.

3.3 Research Methods

Selection of a suitable research method is vital in achieving research objectives and it depends on the nature of research problem (Wijewickreme, 2016). The main objectives of this research as described in chapter 1.4 of this thesis are to identify underlined factors that cause for employee turnover in construction sector of Defence Services and to determine level of significance of each factor. Therefore, it is required to identify reasons for labour turnover through literature and field survey to construct questionnaire to be distributed. This is the qualitative method that is used at the initial stage of the research study. The quantitative method is used to develop questionnaires and data measurements at the later stage of the study. The research methodology involves both qualitative and quantitative methods that lead to triangular research design where both methods merge together to achieve research objectives(Southerland & Jordaan, 2004).

3.3.1 Qualitative Method

Qualitative research method involves verbal or word expressions in the process of information gathering with respect to subject matter of the research through the interviews and discussions in order to understand the human behaviour and perception on the issue (Creswell, 2009). In this research the qualitative method was used at the initial stage of the study to identify the variables or factors that lead for skilled labour turnover in the construction sector of tri services through the face to face interviews with construction tradesmen, supervisors and site engineers. Thirty factors were surfaced that could lead the turnover from the interviews which included some dependent variables. However, finally fifteen independent variables were selected that directly cause for labour turnover from further interviews with senior engineers, project managers of the construction sector of the Defence Services.

3.3.2 Quantitative Method

Quantitative method is a numerical expression derived from the study of a sample of the population to determine tendencies and opinion of the population (Lawrence & Neuman , 2000). In this study questionnaire were developed such that responses could be analysed using numerical tools. Respondents were asked to express their agreement on the statement in the questionnaire giving points on a five Likert-type scale starting 1 for highly not significant, 2 for not significant, 3 for neutral, 4 for significant, 5 for highly significant. The results or outcome completely depend on the perception of the each respondents and the extent to which they understand the issue.

3.4 Research Objectives

The purpose of the research is to find answers to the questions through the application of scientific procedures. The main aim of the research is to find the truth or reality which is concealed and not discovered yet (Gunasekara, 2015). Each research study has its own scientific purpose. The following describes the purpose of different type of researches (wisdomjobs international Ltd., 2017).

1. **Exploratory or formulative research studies**: To gain familiarity with a phenomenon or to achieve new insights in to it.
2. **Descriptive research studies**: To describe accurately the characteristics of a particular individual, situation or a group.
3. **Diagnostic research studies**: To determine the frequency with which something occurs or with which it is associated with something else.
4. **Hypothesis testing research studies**: To test a hypothesis of a causal relationship between variables.

3.5 Research Process

The research process of this study which is based on the research method consists of following stages. Problem discovery and problem definition, exploratory research, selection of research method, sampling, data gathering, data processing, interpretation of findings, conclusions and report. The problem discovery and problem definition of this study are described in Chapter 1.2 to 1.4 of this report. The main problem

identified was high turnover of construction tradesmen in Defence Services. The Chapter 2 of this thesis describes the secondary data and literature survey.

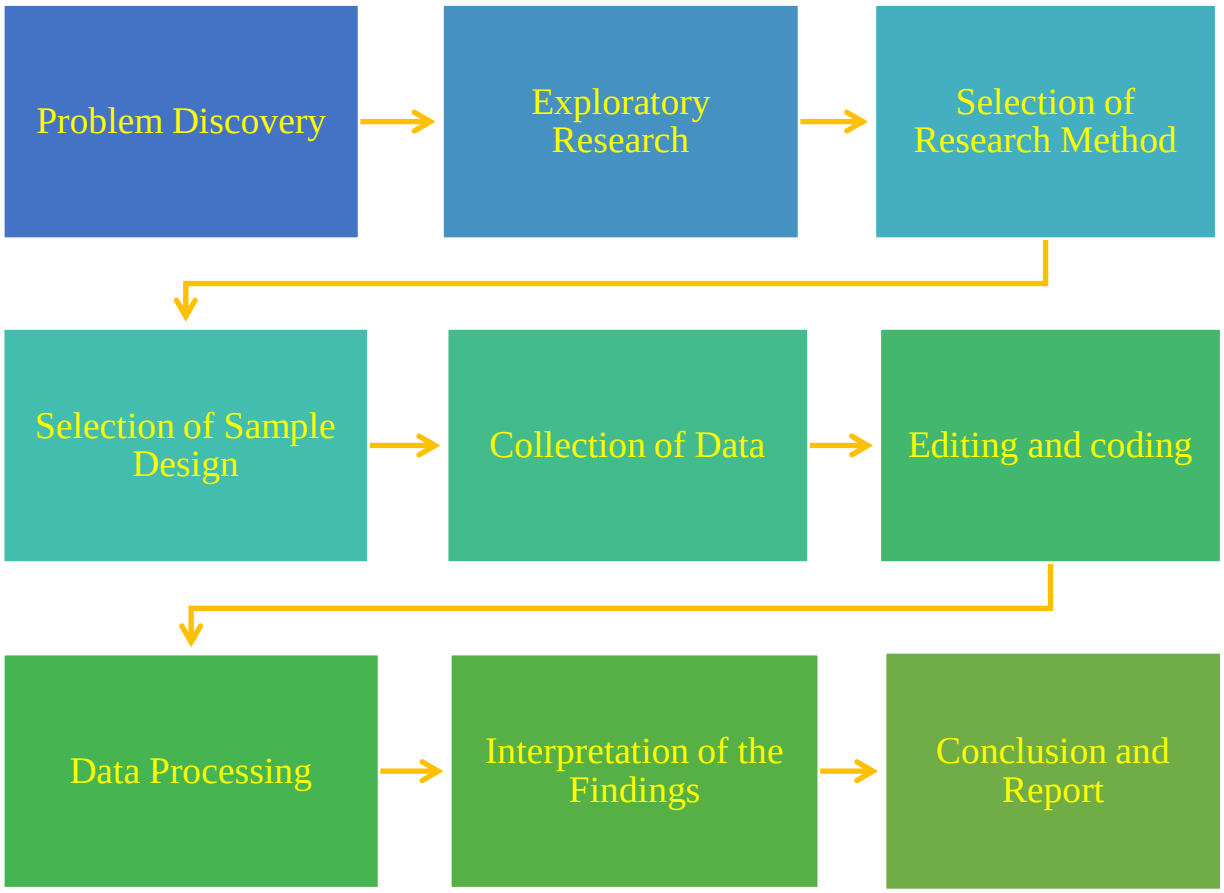


Figure 3.1 : Stages of the Research Process

(Source: Bukvova (2009). Available in http://sprouts.aisnet.org/9-29)

3.5.1 Population

The population in this research consists of three groups in the construction sector of Defence Services; construction tradesmen, immediate supervisors and site engineers. As per the research objectives, it is required to identify the factors that cause labour turnover and rank the factors to determine most significant factors on the perspective of tradesmen, immediate supervisors and site engineers. Tri forces consists of nearly 19000 skilled tradesmen of various grades such as carpenter, mason, plumber, welder, steel fixer, painter etc. and majority represents mason and carpenter grade tradesmen. Therefore number 19000 was taken as the population of construction tradesmen. The

population size for supervisors and site engineers is taken separately as 2000 and 250 considering number currently served in the active service in tri forces.

3.5.2 Sampling and Sample Sizes

Sampling is described as the selection of a lesser number of units from a larger group or population (Ellen, 1998). Sample size is always a proportion of the population. Determining the sample size depends on the purpose of the study, information users and resource availability. In this research purposive sampling method was adapted to choose the samples from the construction sector of tri forces. The tradesmen were selected proportionately to the tradesmen strength in tri forces and sample size was determined from table 3.2 developed by Issac and Michael as 392 that allows for 95% confidential level (Isaac & Michael, 1995). Since it is not possible to select tradesmen in all trades in tri-forces, only mason, carpenter, steel fixer, plumber and painter, welder trades were selected for the survey. The sample size for supervisors and site engineers was selected as 95 and 72 which allow 90% confident level considering the credibility of the information that could be expected and time serving.

3.5.3 Design Questionnaire

Three sets of structured questionnaires were designed to administer among construction tradesmen, supervisors and site engineers (Refer Appendix A, B and C).The responses of tradesmen were compared against the responses received from supervisors and site engineers in order to assure credibility of the answers provided by the tradesmen. The each set of questionnaires consists of two parts. In the first part of the questionnaire the respondents were asked to indicate personnel details such as age, service period and other related details. The latter part of the questionnaire the respondents were asked to rank the variables that cause for the turnover of construction tradesmen in the tri forces considering the extent to which an individual agrees on the given statement. The respondents provided responses giving points to each variable from 1 to 5 on Likert-type scale noting how important each variable with related to turnover of construction tradesmen. The finding of this research basically depend on the workers', supervisors' and site engineers' independent thoughts and the way they understand the issue.

3.5.4 Administering of Questionnaire

Three sets of structured questionnaires developed were administered among the tradesmen, site supervisors and engineers separately. The tradesmen were given one week time to give responses to the questionnaire. They were clearly briefed and explained personally the purpose of the study and how to fill and give answers. The tradesmen were selected from tri forces considering their experience, seniority and level of understanding with consulting site supervisors and engineers. The main construction project sites where tradesmen from all three forces working together such as DHQC project, Pibidemu Polonnaruwa project, housing projects and project sites within the command headquarters of each force were selected to gather information. The tradesmen were informed and educated that information you provide will be treated as confidential and used only for analytical purpose. The questionnaires were distributed among site supervisors in tri forces and allowed one week to respond to the questionnaires. The questionnaire for engineers was distributed through emails and they were given one month period to respond. However, the duration had to be extended up to two months for site engineers due to poor response during the given month.

3.5.5 Data Analysing Techniques

The data collected from responses of construction tradesmen, supervisors and engineers was analysed with the data analytical tool called 'Relative Important Index' (RII) to determine the significant level of each factor. This technique is widely used by the researchers for relative ranking of the identified factors and the following formula is used to calculate the RII (Khan, et al., 2012).

$$\text{Relative Important Index, } \mathbf{RII} = \frac{\sum \boldsymbol{\mu}}{\mathbf{A} \times \mathbf{N}}$$

Where, μ is weighting given to each factor by the respondents ranging from 1 to 5

A is the highest weight available to rank the factor, in this case it is 5

N is the total number of respondents

The Relative Important Index value that gives answers between 0 and 1 determines the relative effectiveness of each factor that cause for turnover of construction

tradesmen. The Relative Important Index value of the identified factor is closure to unity means it is more significant to labour turnover.

Table 3.1: Recommended sample sizes for two different precision levels

(Source: Isaac and Michael, 1981, Powell, E.T, 1998)

Population Size	**Sample Size**		**Population Size**	**Sample Size**	
	95% Confidence Level	**90% Confidence Level**		**95% Confidence Level**	**90% Confidence Level**
100	81	51	5000	370	98
125	96	56	6000	375	98
150	110	61	7000	378	99
175	122	64	8000	381	99
200	134	67	9000	383	99
225	144	70	10000	385	99
250	154	72	15000	390	99
1000	286	91	20000	392	100
2000	333	95	25000	394	100
3000	353	97	50000	397	100
4000	364	98	100000	398	100

3.6 Chapter Summary

This chapter has presented the research approach and research process adopted in this research study. Further described the research method used to reach the research objectives. Also discussed the techniques used for determination of sample size from the known population.

Chapter : 4 Discussion and Analysing of Results

4.1 Introduction

The chapter 3 of this study described the research methodology. This chapter discusses the finding of the study which was aimed at determining and analysing factors that cause for turnover of construction tradesmen in tri forces on the perspective of tradesmen, immediate supervisors and site engineers.

4.2 Survey Findings

A total of 392 questionnaires from the type A, 91 questionnaires from type B and 72 questionnaires from type C were administered among selected construction tradesmen, supervisors and site engineers in the construction sector of tri forces. The table 4.1 shows the details of questionnaire distribution with response rate.

Table 4.1: Questionnaire distribution and responses received

Target Group	Questionnaire Type	Questionnaire Distribution			No of Responses	Response rate
		SLN	SLA	SLAF		
Construction Tradesmen	A	200	100	92	390	99%
Immediate Supervisors	B	40	35	16	90	99%
Site Engineers	C	40	22	10	70	97%

4.3 Demography of Data Collected

The data collected was further studied to determine demographic variation of the responses. The responses from target group A; that is construction tradesmen in tri forces were further grouped in to the tradesmen grade as shown in Figure 4.1. The responses from target group B and C were grouped according to the Forces they are in as shown in Figure 4.2 and Figure 4.3.

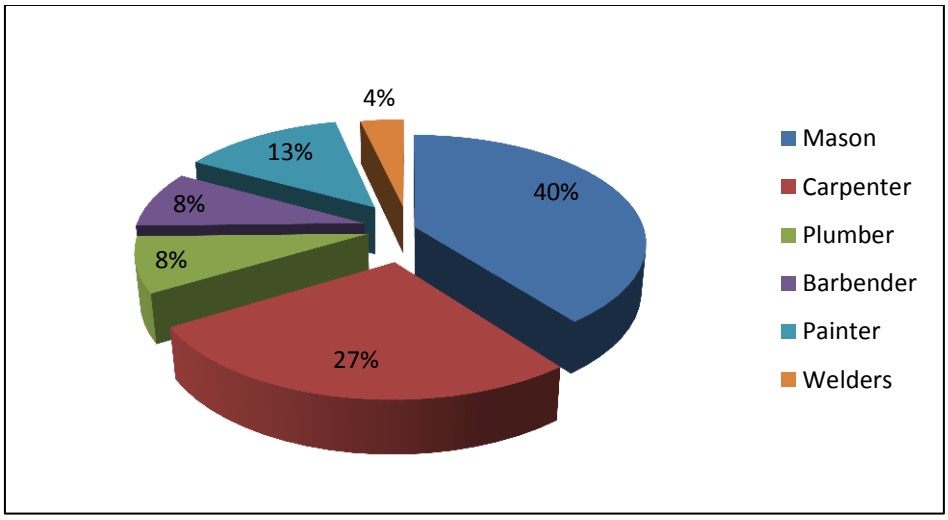


Figure 4.1: Responses received from tradesmen with grade

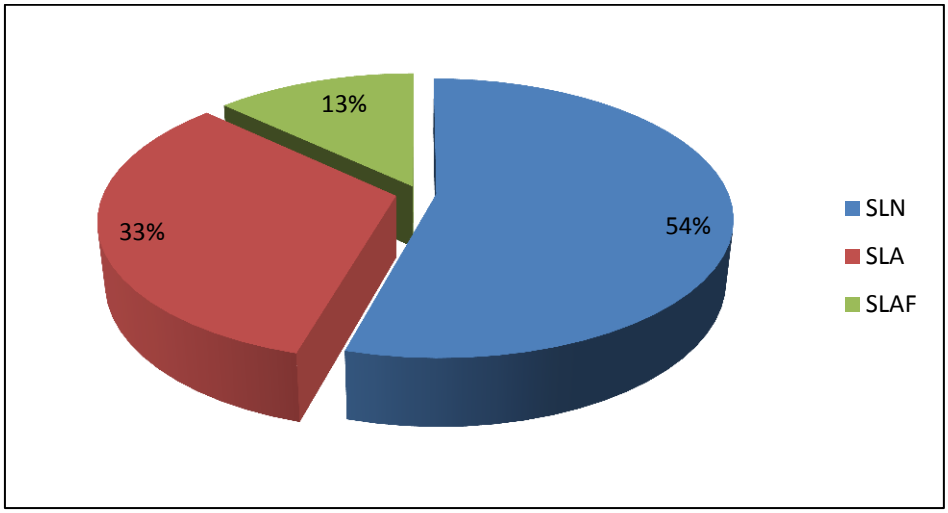


Figure 4.2 :Responses from site supervisors of each Defence Service

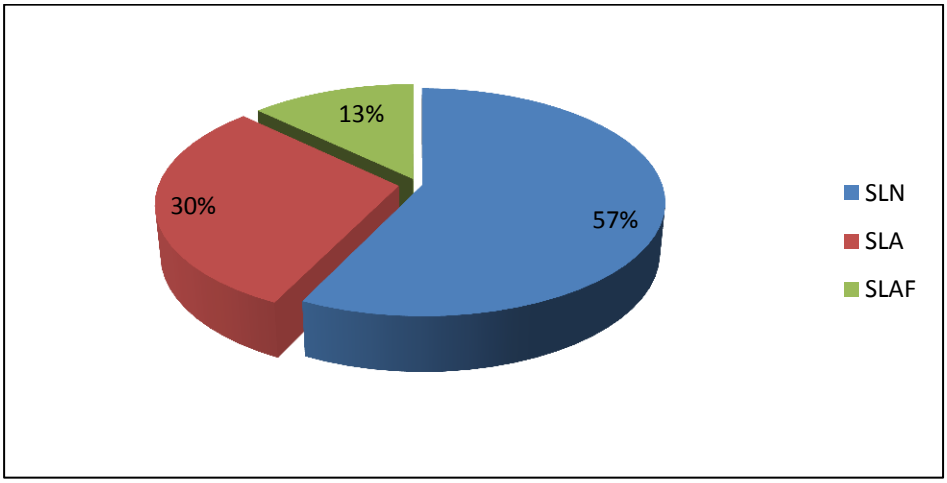


Figure 4.3 : Responses received from engineers of each Defence Service

4.4 Analysis of Data Collected

The data collected through questionnaire survey was analysed separately as per the responses received from construction tradesmen, immediate supervisors and site engineers in Defence Services. The respondents were asked to rank the variables that cause for the turnover of construction tradesmen in the tri forces considering the extent to which an individual agrees on the given statement. The respondents provided responses giving points to each variable from 1 to 5 on Likert-type scale noting how important each variable with related to turnover of construction tradesmen.

4.4.1 Data collected from the responses of construction tradesmen

The variables that were identified as causes for turnover of construction tradesmen are tabulated in the Table 4.2 with the number of responses that given points from 1 to 5 noting how important/applicable of each variable. The model category which received maximum responses is shaded.

Table 4.2 Summary of data collected from construction tradesmen

Variable	Highly not affecting (!)	Not affecting (2)	Neutral (3)	Affecting (4)	Highly affecting (5)
Lack of recognition of the trade/employment	28	28	76	143	115
The temporary nature of the occupation	92	67	75	86	70
Behaviours of immediate supervisors	26	19	96	144	105
The lack of appreciation for the job done	114	46	74	85	71
Social issues due to lack of knowledge on society and people behaviours	90	58	71	95	76
The current leave procedure and lack of opportunity to take leave on urgent situation	104	69	72	85	60
Being away from family and relatives	48	46	82	122	92
Overtime works beyond normal working hours	118	69	72	75	56

Plenty of job opportunities available in the country	140	90	64	54	42
Lack of trade knowledge and skills	152	90	58	50	40
Reluctance to work under rules and regulations	161	60	61	60	48
Unsolved personal and duty related issues	89	36	79	108	78
Had to perform duties which are not relevant to the own trade and skills.	40	38	81	131	100
Influence from others than supervisors	140	62	66	70	52
The current transfer system applied on tradesmen	43	21	88	135	103

4.4.2 Data collected from the responses of immediate supervisors

The data collected from the immediate supervisors through questionnaire survey were recorded and tabulated in the Table 4.3. The immediate supervisors have expressed their view/agreement on the each variable giving points ranging from 1 to 5 noting the level of influence of each factor for the turnover of tradesmen. The model category of each statement is shaded.

Table 4.3 Summary of data collected from immediate supervisors

Variable	Highly not affecting (!)	Not affecting (2)	Neutral (3)	Affecting (4)	Highly affecting (5)
Lack of recognition of the trade/employment	5	7	11	35	32
The temporary nature of the occupation	32	12	15	15	16
Behaviours of immediate supervisors	31	14	12	16	17
The lack of appreciation for the job done	38	15	12	12	13
Social issues due to lack of knowledge on society and people behaviours	15	13	10	28	24

The current leave procedure and lack of opportunity to take leave on urgent situation	27	14	12	18	19
Being away from family and relatives	13	5	9	32	31
Overtime works beyond normal working hours	30	13	11	17	19
Plenty of job opportunities available in the country	19	9	11	26	25
Lack of trade knowledge and skills	39	16	11	13	11
Reluctance to work under rules and regulations	41	17	13	10	9
Unsolved personal and duty related issues	15	8	11	29	27
Had to perform duties which are not relevant to the own trade and skills.	25	14	10	21	20
Influence from others than supervisors	20	15	14	18	23
The current transfer system applied on tradesmen	23	12	14	20	21

4.4.3 Data collected from the responses of site engineers

The summary of data collected from the questionnaire distributed among site engineers is given in the Table 4.4. The site engineers have expressed their view on the importance of the each variable that cause for turnover giving points on a Likert-type scale. The model category for which maximum responses received is shaded.

Table 4.4 Summary of data collected from site engineers

Variable	Highly not affecting (!)	Not affecting (2)	Neutral (3)	Affecting (4)	Highly affecting (5)
Lack of recognition of the trade/employment	9	6	7	32	16
The temporary nature of the occupation	25	20	10	9	6
Behaviours of immediate supervisors	9	13	10	24	14

The lack of appreciation for the job done	22	17	7	16	8
Social issues due to lack of knowledge on society and people behaviours	2	4	9	35	20
The current leave procedure and lack of opportunity to take leave on urgent situation	19	16	15	10	10
Being away from family and relatives	1	3	8	38	20
Overtime works beyond normal working hours	11	10	12	23	14
Plenty of job opportunities available in the country	8	10	8	29	15
Lack of trade knowledge and skills	8	21	11	13	17
Reluctance to work under rules and regulations	7	11	10	27	15
Unsolved personal and duty related issues	23	19	12	10	6
Had to perform duties which are not relevant to the own trade and skills.	10	21	13	15	11
Influence from others than supervisors	8	20	15	15	12
The current transfer system applied on tradesmen	6	8	7	31	18

4.5 Calculation of Relative Importance Index (RII) Values

The Relative Importance Index value for each variable that identified as causes for tradesmen turnover of Defence Services was calculated using the equation 4.1which is a widely used method by previous researchers. The answers lie between 0 and 1 and the highest value represents the most significant factor that influence highly for the issue.

4.5.1 Calculation of RII values based on responses of construction tradesmen

The RII value calculated against each factor based on the responses received from construction tradesmen is tabulated in the Table 4.2.The results show the significant level of each factor that has been identified as cause for tradesmen turnover on the perception of remaining peer tradesmen in tri forces.

Table 4.5:RII values of each factor based on the responses of construction Tradesmen

	Description	RII
1	Lack of recognition of the trade/employment in the Force	0.748
2	The temporary nature of the occupation	0.587
3	Behaviours of immediate supervisors	0.745
4	The lack of appreciation for the job done	0.576
5	Social issues due to lack of knowledge on society and people behaviours	0.605
6	The current leave procedure and lack of opportunity to take leave on urgent situation	0.563
7	Being away from family and relatives	0.684
8	Overtime works beyond normal working hours	0.539
9	Plenty of job opportunities available in the country	0.481
10	Lack of trade knowledge and skills	0.465
11	Reluctance to work under rules and regulations prevailed in the Military	0.484
12	Unsolved personal and duty related issues	0.626
13	Had to perform duties which are not relevant to the own trade and skills.	0.709
14	Influence from others than supervisors on work activities at site	0.514
15	The current transfer system applied on tradesmen	0.720

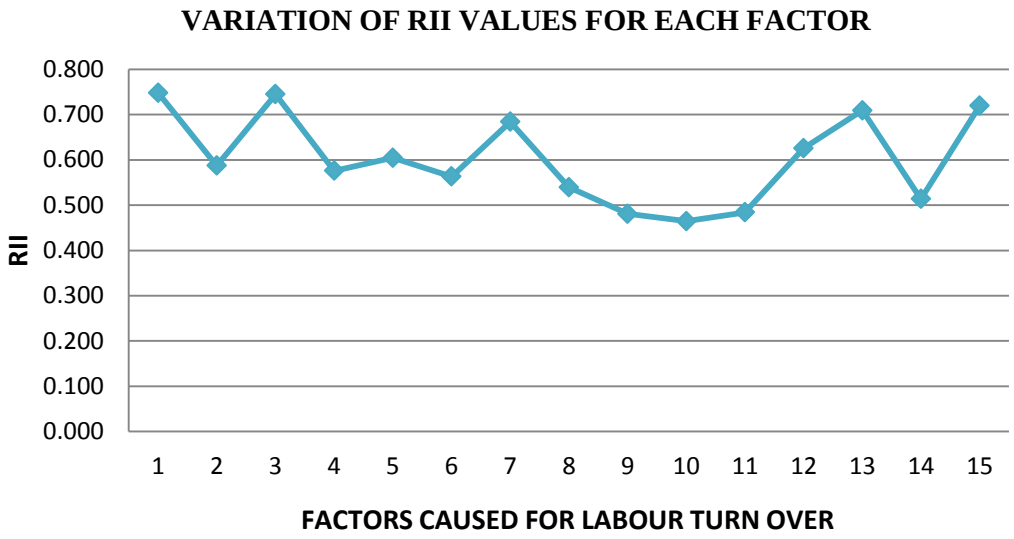


Figure 4.4: Graphical representation of RII value variation of each factor

4.5.1.1 Descending order of factors identified according to RII

The factors that were identified as causes for turnover of construction tradesmen in tri forces were arranged in descending order according to the RII values calculated for each factor on the perception of remaining tradesmen and shown in table 4.3. The lack of recognition of the trade/employment in the Force was ranked as most significant factor on the perspective of construction tradesmen. Behaviour of immediate supervisors was ranked as the second most significant factor.

Table 4.6 : Descending order of factors identified according to RII

	Description	RII
1	Lack of recognition of the trade/employment in the Force	0.748
2	Behaviours of immediate supervisors	0.745
3	The current transfer system applied on tradesmen	0.720
4	Had to perform duties which are not relevant to the own trade and skills.	0.709
5	Being away from family and relatives	0.684
6	Unsolved personal and duty related issues	0.626
7	Social issues due to lack of knowledge on society and people behaviours	0.605

8	The temporary nature of the occupation	0.587
9	The lack of appreciation for the job done	0.576
10	The current leave procedure and lack of opportunity to take leave on urgent situation	0.563
11	Overtime works beyond normal working hours	0.539
12	Influence from others than supervisors on work activities at site	0.514
13	Reluctance to work under rules and regulations prevailed in the Military	0.484
14	Plenty of job opportunities available in the country	0.481
15	Lack of trade knowledge and skills	0.465

4.5.1.2 Top seven factors that causes labour turnover

According to the RII values of each factor, the most significant factors were identified on the perspective of construction tradesmen and top seven factors are tabulated in the Table 4.4 below. Lack of recognition of the trade/employment in the Force, Behaviour of immediate supervisors and the current transfer system applied on tradesmen were ranked as the first, second and third significant factors.

Table 4.7 : Top seven factors that cause for turnover of construction tradesmen

	Description	**RII**
1	Lack of recognition of the trade/employment in the Force	0.748
2	Behaviour of immediate supervisors	0.745
3	The current transfer system applied on tradesmen	0.720
4	Had to perform duties which are not relevant to the own trade and skills.	0.709
5	Being away from family and relatives	0.684
6	Unsolved personal and duty related issues	0.626
7	Social issues due to lack of knowledge on society and people	0.605

4.5.2 Calculation of RII values based on responses of immediate supervisors

The RII values of the variables that were calculated from the responses of immediate supervisors of the construction sites in tri forces are tabulated in Table 4.5. The results

show the level of significant of each variable with the perception of site supervisors. It could be seen that the perception of tradesmen and site supervisors on the level of significance of each variable that can lead for employee turnover is varied according to how they understand and ascertain the issue.

Table 4.8 :RII values of each factor based on the responses of immediate supervisors

	Description	RII
1	Lack of recognition of the trade/employment in the Force	0.782
2	The temporary nature of the occupation	0.536
3	Behaviour of immediate supervisors	0.542
4	The lack of appreciation for the job done	0.482
5	Social issues due to lack of knowledge on society and people behaviours	0.673
6	The current leave procedure and lack of opportunity to take leave on urgent situations	0.573
7	Being away from family and relatives	0.740
8	Overtime work beyond normal working hours	0.560
9	Plenty of job opportunities available in the country	0.664
10	Lack of trade knowledge and skills	0.469
11	Reluctance to work under rules and regulations prevailed in the Military	0.442
12	Unsolved personal and duty related issues	0.700
13	Had to perform duties which are not relevant to the own trade and skills.	0.593
14	Influence from others than supervisors on work activities at site	0.620
15	The current transfer system applied on tradesmen	0.609

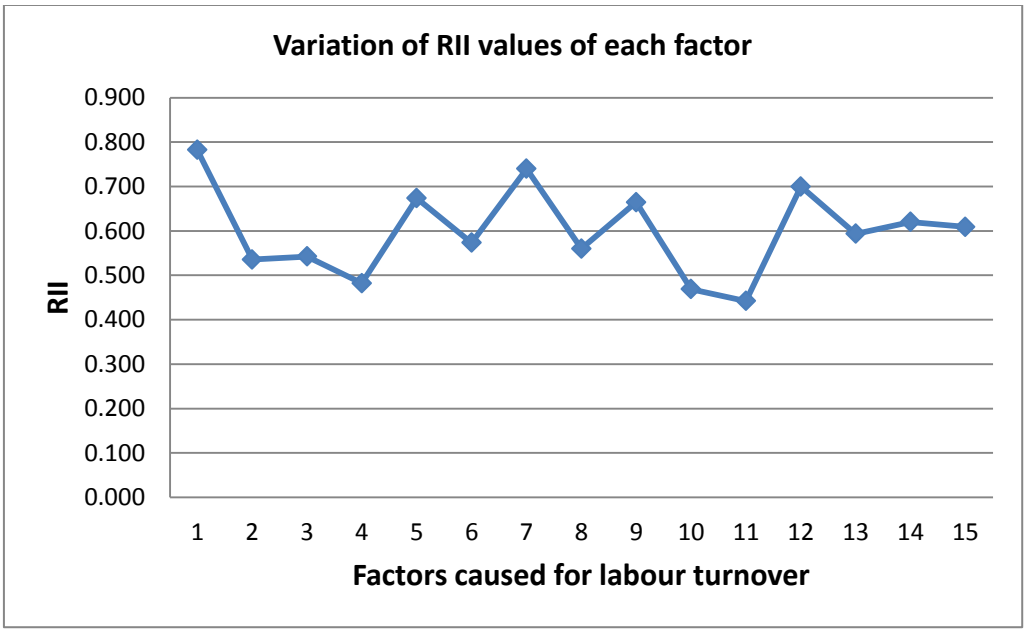


Figure 4.5 :Graphical representation of RII value variation of each factor

4.5.2.1 Descending order of factors identified according to RII

The factors that were identified as causes for turnover of construction tradesmen in tri forces were arranged in descending order according to the RII values calculated for each factor on the perception of site supervisors are shown in table 4.6. The lack of recognition of the trade/employment in the Force was ranked as most significant factor on the perspective of immediate supervisors too. Behaviour of immediate supervisors was ranked as the second most significant factor.

Table 4.9 :Descending order of factors identified according to RII

	Description	RII
1	Lack of recognition of the trade/employment in the Force	0.782
2	Being away from family and relatives	0.740
3	Unsolved personal and duty related issues	0.700
4	Social issues due to lack of knowledge on society and people behaviours	0.673
5	Plenty of job opportunities available in the country	0.664
6	Influence from others than supervisors on work activities at site	0.620
7	The current transfer system applied on tradesmen	0.609
8	Had to perform duties which are not relevant to the own trade and skills.	0.593

9	The current leave procedure and lack of opportunity to take leave on urgent situations	0.573
10	Overtime work beyond normal working hours	0.560
11	Behaviour of immediate supervisors	0.542
12	The temporary nature of the occupation	0.536
13	The lack of appreciation for the job done	0.482
14	Lack of trade knowledge and skills	0.469
15	Reluctance to work under rules and regulations prevailed in the Military	0.442

4.5.2.2 Top seven factors that causes for turnover with respect to perception of supervisors

According to the RII values each factor, the most significant factors were identified on the perspective of site supervisors and top seven factors are tabulated in the Table 4.7 below. Lack of recognition of the trade/employment in the Force, Being away from family and relatives and Unsolved personal and duty related issues were ranked as first, second and third significant factors.

Table 4.10 : Top seven factors that cause for turnover of construction tradesmen

	Description	**RII**
1	Lack of recognition of the trade/employment in the Force	0.782
2	Being away from family and relatives	0.740
3	Unsolved personal and duty related issues	0.700
4	Social issues due to lack of knowledge on society and people behaviours	0.673
5	Plenty of job opportunities available in the country	0.664
6	Influence from others than supervisors on work activities at site	0.620
7	The current transfer system applied on tradesmen	0.609

4.5.3 Calculation of RII values based on responses of site engineers

The RII values of the variables that were calculated from the responses of site engineers of the construction sites in tri forces are tabulated in Table 4.8. The results show the level of significant of each variable with the perception of site engineers. It could be seen that the perception of tradesmen, site supervisors and site engineers on the level of significance of each variable that can lead for employee turnover is varied according to how they understand and ascertain the issue.

Table 4.11 :RII values of each factor based on the responses of site engineers

	Description	RII
1	Lack of recognition of the trade/employment in the Force	0.714
2	The temporary nature of the occupation	0.460
3	Behaviour of immediate supervisors	0.660
4	The lack of appreciation for the job done	0.517
5	Social issues due to lack of knowledge on society and people behaviours	0.791
6	The current leave procedure and lack of opportunity to take leave on urgent situations	0.531
7	Being away from family and relatives	0.809
8	Overtime works beyond normal working hours	0.654
9	Plenty of job opportunities available in the country	0.694
10	Lack of trade knowledge and skills	0.629
11	Reluctance to work under rules and regulations prevailed in the Military	0.691
12	Unsolved personal and duty related issues	0.477
13	Had to perform duties which are not relevant to the own trade and skills.	0.589
14	Influence from others than supervisors on work activities at site	0.609
15	The current transfer system applied on tradesmen	0.734

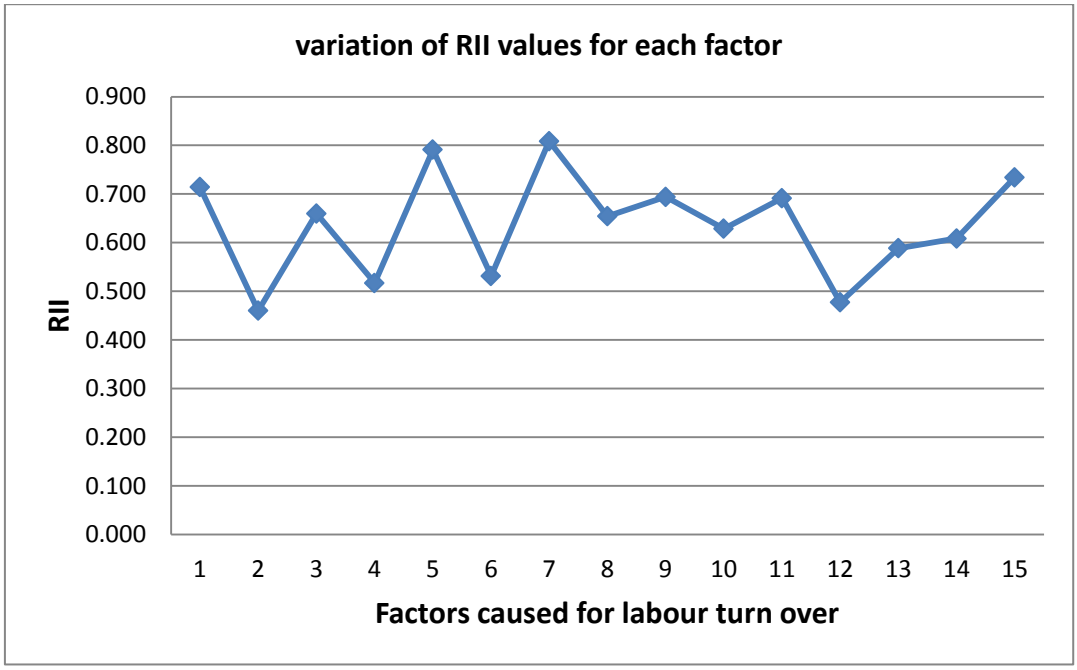


Figure 4.6 :Graphical representation of RII value variation of each factor

4.5.3.1 Descending order of factors identified according to RII

The factors that were identified as causes for turnover of construction tradesmen in tri forces were arranged in descending order according to the RII values calculated for each factor on the perception of site engineers are shown in table 4.9. 'Being away from families and relative's was ranked as the most significant factor on the perspective of site engineers. 'Social issues due to lack of knowledge on society and people behaviour was ranked as the second most significant factor**.**

Table 4.12 : Descending order of factors identified according to RII

	Description	RII
1	Being away from family and relatives	0.809
2	Social issues due to lack of knowledge on society and people behaviours	0.791
3	The current transfer system applied on tradesmen	0.734
4	Lack of recognition of the trade/employment in the Force	0.714
5	Plenty of job opportunities available in the country	0.694
6	Reluctance to work under rules and regulations prevailed in the Military	0.691

7	Behaviour of immediate supervisors	0.660
8	Overtime work beyond normal working hours	0.654
9	Lack of trade knowledge and skills	0.629
10	Influence from others than supervisors on work activities at site	0.609
11	Had to perform duties which are not relevant to the own trade and skills.	0.589
12	The current leave procedure and lack of opportunity to take leave on urgent situation	0.531
13	The lack of appreciation for the job done	0.517
14	Unsolved personal and duty related issues	0.477
15	The temporary nature of the occupation	0.460

4.5.3.2 Top seven factors that causes for turnover with respect to perception of site engineers

According to the RII values each factor, the most significant factors were identified on the perspective of site engineers and top seven factors are tabulated in the Table 4.10 below. Lack of recognition of the trade/employment in the Force, Being away from family and relatives and Unsolved personal and duty related issues were ranked as first, second and third significant factors.

Table 4.13 : Top seven factors that causes for turnover on the perception of site engineers

	Description	**RII**
1	Being away from family and relatives	0.809
2	Social issues due to lack of knowledge on society and people behaviours	0.791
3	The current transfer system applied on tradesmen	0.734
4	Lack of recognition of the trade/employment in the Force	0.714
5	Plenty of job opportunities available in the country	0.694
6	Reluctance to work under rules and regulations prevailed in the Military	0.691
7	Behaviours of immediate supervisors	0.660

4.6 Discussion of factors that causes for labour turnover on the perception of tradesmen

Out of 15 variables that have been identified as causes for construction labour turnover in Defence Service, following seven factors were ranked as top seven on the perception of existing construction tradesmen. They have given the responses for the questionnaire distributed believing that these factors have significant effects on leaving of their peer workers from the organization. The level of significance was determined with the aid of Relative Importance Index values. The top five factors ranked as per the responses of construction tradesmen are discussed below.

1. Lack of recognition of the trade/ employment in the force
2. Behaviour of immediate supervisors
3. Current transfer system applied on tradesmen
4. Had to perform duties which are not relevant to the own trade and skills.
5. Being away from family and relatives
6. Unsolved personal and duty related issues
7. Social issues due to lack of knowledge on society and people behaviours

Lack of recognition of the trade/ employment in the force

Construction tradesmen in Defence Services are placed at the lower level in the hierarchical structure in the organization thus making them feel that they are not recognized and respected. Being a military organization, tri forces cannot lift their position up from the present level in order to maintain command and control structure which is highly hierarchical. Respect for a lower level grade is very less in tri a force which eventually leads to create frustration among lower level workers. Sometimes, those who are at lower level such as construction tradesmen, feel discriminated and neglected irrespective of their hardworking and untiring efforts towards the success of the organization. The tradesmen who cannot tolerate this unfair situation try to quit his job. They expect that their work and grades are to be appreciated always. It is important to recognize the values of the construction tradesmen who are in the lower level in the organization in terms of their contribution for the successful completion of projects. Military forces are always appreciated by the government for their great contribution for uplifting living condition of the public by way of implementing lot of social responsibility projects in the country. Construction tradesmen in the try forces

are the driving force behind success of every construction projects. Therefore, military forces have to take necessary action to recognize the values and great contribution of construction tradesmen to make them feel that they are an important part of the organization.

Behaviour of immediate supervisors

Immediate supervisors are the first chain of communication for the construction tradesmen at sites. The behaviour of supervisors could be affected for the employee satisfaction at work place positively and negatively. Many employees confirm that supervisor's behaviour affect employee well- being at workplace. According to the perception of construction employees, the behaviour of supervisors influence highly for employee turnover. Being in the military organization, construction tradesmen are under 'Command and Control' of the supervisors which is sometimes overruled by supervisors seeking undue advantages from employees under him. The attitudes and knowledge of supervisors are always affected for maintaining a good working environment at site. Most workers prefer to work in a friendly environment where all have a clear understanding of each other knowing their responsibilities and obligations. Supervisors are to be good leaders of the tradesmen in the site and must show the fair and impartial behaviour towards all workers under him. They should not make any influence for employee under him seeking undue advantages. Sometimes supervisors assign work to employees under him which cannot be accomplished in a given period of time. This will lead for stress among construction employees that could affect performance and outcome. Therefore it is essential to educate supervisors on man handling, task assigning, addressing issues of employees and how to be a good supervisor. They should treat employees equally and always facilitate them to work with good physical and psychological conditions. Construction labour plays a vital role in construction projects to achieve organizational goals and retaining them in the organization is imperative. Supervisors must identify and understand the skill level of each employee under them and assign work accordingly. They should build up good relationships with employees so that duty related and personal problems of employees could be addressed with the help of the management of the organization.

Current transfer system applied on tradesmen

All construction tradesmen in Defence Services are under specified transfer system which implements at a regular period. However, sometimes due to operational and

service commitments these tradesmen are transferred to another project or area for a shorter period. Most workers prefer to work in one construction site or military establishment as long as possible and are reluctant to change their place of work frequently. The reasons for this have been identified as willingness to work in an area or a site near to their hometown which makes them to visit families and relatives frequently, dislike to work in an area where there are no sufficient facilities are available, reluctant to leave their peer workers who have been working as a team in the present workplace, fear and uncertainty of the duties and working environment of the new workplace and change of planned leave period in which important domestic events may have been planned. It is observed that some of the cases where construction tradesmen are leaving the organization when they are about to transfer from one workplace to another in different areas because of one or more reasons indicated above. Therefore it is required to get the consent and willingness of the construction employee prior to transfer from one place to another and they should be informed well in advance the date of transfer so that they can prepare for the transfer and plan their family matters in advance.

Had to perform duties which are not relevant to the own trade and skills

Skilled tradesmen are always willing to perform work related to their trade and skills. They are reluctant to perform duties which are out of their field of expertize. However, being in the military organization, sometimes they have to perform various other duties in a situation where, their service is required for urgent service and operation commitment. Sometimes they are utilized for cleaning programs, and other supportive work for military troops in urgent situations. Site supervisors used skilled tradesmen for other unskilled labour works at site when there is no sufficient labour available at site for cleaning, loading and unloading building materials, material lifting and various other non- trade activities. Some tradesmen are reluctant to do these activities and try to escape such works. This may lead to create the workplace unhappy for some tradesmen who are not willing to do other works beyond their field of expertize and may decide to quit the job.

Being away from families and relatives

Most of the construction tradesmen in tri forces are working away from their families and relatives. They are able to visit families and relatives only once in a month when leave is granted. However they are given intermediate leave in urgent situations to attend family related matters. Some tradesmen who are having family issues request leave frequently which cannot be granted due to the prevailing leave regulating system. In such a situation employees tend to quit job and leave organization to give priority for family issues without thinking importance of the present job. Most employees prefer to work in an area or a project site located close to their home or village seeking opportunity to visit family and relatives frequently. However, every tradesman cannot be given such opportunities as project sites in tri forces are scattered all over the country and tradesmen have to work in such projects. Some project sites are located in areas where distance from home is very far and no facilities available at least to contact their families. Also they face difficulty to go home within a few hours in an urgent situation to attend family matters. Therefore it is essential to consider the home town of each tradesman and give opportunities to work in project sites located close to their home or village so that they are able to maintain the balance between work and family life. In such a way if organizations can support employees to control commitment at home, the intention of leaving the organization by employees could be avoided.

4.7 Discussion of factors that causes for labour turnover on the perception of supervisors

Following seven factors were ranked as top seven on the perception of site supervisors out of 15 variables that have been identified as causes for construction labour turnover in the Defence Services. They have given the responses for the questionnaire distributed believing that these factors have significant effects on leaving of their workers from the organization. The level of significance was determined with the aid of Relative Importance Index values. The top five factors ranked as per the responses of site supervisors are discussed below.

1. Lack of recognition of the trade/employment in the Force
2. Being away from family and relatives
3. Unsolved personal and duty related issues

4. Social issues due to lack of knowledge on society and people behaviours
5. Plenty of job opportunities available in the country
6. Influence from others than supervisors on work activities at site
7. The current transfer system applied on tradesmen

Lack of recognition of the trade/employment in the Force

This was ranked as the most significant factor for tradesmen turnover on the view of existing construction tradesmen too. Both supervisors and tradesmen are of the view that 'Lack of recognition of the trade/employment in the force' is affected significantly for employees to leave the organization. The low respect from others and lack of social recognition of the employment causes to quit the job and start something new thinking that respect from society could be earned more. The reasons for employees leaving the organization on the above fact were discussed lengthily in chapter 4.5 above.

Being away from family and relatives

Being away from families and relatives is considered highly influence for employee turnover on the view point of supervisors as well. Supervisors believe that employees who are working away from their families have uncertainty that how their family matters be arranged at home with the absence of them at home. This will further worry employees when there are some family issues which cannot be attended alone by the spouse or parents. Those employees who are very highly dedicated and connected to their family try to quit his or her job in situations where family related issues get aggravated. Being away from family will lead to create a work life conflict as organization cannot support to employees to maintain work life balance giving opportunities attend family matters frequently. Work-family conflict is of two types; work-to-family conflict which is workplace issues intervene family and family-to-work conflict which means home issues interrupt work (Aslam, R., et al., 2011). The human being is most valuable asset of the organization as all other assets are dependent on human beings for its proper utilization. Therefore retaining them in the organization is essential addressing their issues and supporting them to maintain good work and family life. Therefore the top management has to consider giving opportunities to employees to work close to their home or village to reduce turnover intentions.

Unsolved personal and duty related issues

Construction employees who are working in tri forces are under military and civil law of the country. Sometimes, misconduct, breach of discipline takes them on charge. Absenteeism, away from workplace without permission, quarrels with peer workers, bringing and use of drugs are some misconduct frequently reported from construction employees. When employees are alleged of being involved one or more of above cases, he or she is taken on charge as per the law of the military. The employee is kept under special observation and imposed restrictions on his movement and stop leave and liberty. There are instances where considerable time period is taken to conclude the charge and impose a penalty, till such time the employee has to remain in the workplace of the military base. In the case of absenteeism, pay is held till the charges against the employee are concluded.

Sometimes employees are entrapped with some other unwanted activities outside the workplace which are considered illegal and become offenders. They request permission to go away from the workplace frequently to sort such issues or to appear before courts. Most of such cases are dragging for long period and the management cannot support employees always to solve such issues. In such situations, employees tend to quit the job and leave the organization to solve his personal issues.

Social issues due to lack of knowledge on society and people behaviours

We all are living in a society which is of various forms and complex in nature. It is important to learn how to live in a society by acquiring required knowledge that is basically received from our parents, teachers and elders. However due to lack of knowledge of society we are living, most people are deceived by others and entrapped in illegal affairs. Most of construction employees in tri forces are less educated people and knowledge on society and people behaviour is very less. Therefore they tend to get deceived by others and entrapped with unlawful affairs. This may lead to create unnecessary issues for which the organization cannot support. It has been reported that some construction employees are engaged in illegal business when they are at home on leave and get caught by the Police creating unnecessary troubles that could lead to leave the job. Therefore it is important to educate these employees on society and how to live in harmony with others. They should be taught on how to be a

disciplined and responsible citizen in the country without being entangled with unnecessary affairs.

Plenty of job opportunities available in the country

Immediate supervisors believe that plenty of job opportunities available in the country affects highly for employee turnover. Employees leave the organization seeking a better job in another organization. But it is difficult get a better job opportunity that is competitive and depends on the level of education and experience. It is observed that personnel with a higher educational background and experience are more qualified to get alternative job opportunities. The construction industry in Sri Lanka is now on the developing phase and lot of job opportunities available for construction tradesmen with various facilities. Therefore, construction tradesmen in tri forces are trying to find better jobs which are paid more. However, only a few tradesmen are able to find a job which is fit for them. Pay is not always the determining factor for job satisfaction at a work place. The construction tradesmen are offered various facilities by the military organizations which cannot be estimated on monetary terms though pay is little less than other construction companies in the country.

4.8 Discussion of factors that causes for labour turnover on the view of site engineers

The seven factors that were ranked as top seven on the perception of site engineers are indicated below. They have given the responses for the questionnaire distributed believing that these factors have significant effects on leaving of their workers from the organization. The level of significance was determined with the aid of Relative Importance Index values.

1. Being away from family and relatives
2. Social issues due to lack of knowledge on society and people behaviours
3. The current transfer system applied on tradesmen
4. Lack of recognition of the trade/employment in the Force
5. Plenty of job opportunities available in the country
6. Reluctance to work under rules and regulations prevailed in the Military
7. Behaviours of immediate supervisors

The site engineers believe that 'Being away from family and relatives' is highly influential for employee turnover in tri forces and ranked as the first factor. As discussed in chapter 4.5 and 4.6 above, construction employees who work away from their families have uncertainty that how their family matters be arranged at home with the absence of them at home. This will further worry employees when there are family issues which cannot be attended alone by the spouse or parents. Those employees who are very highly dedicated and connected to family try to quit their job in situations where family related issues get aggravated.

4.9 Summary of research findings

The level of significance of the factors that have been identified as causes for employee turnover of construction sector of Defence services Sri Lanka is varied on view points of peer employees, immediate supervisors and site engineers. But all three parties agreed that the following factors have significant effect on turnover of construction tradesmen. The figure 4.7 shows how each party has expressed their view on the identified variables that causes for turnover. The seven severe factors based on the perception of three parties are merged together to identify common factors that could lead for turnover of construction tradesmen.

1. Being away from family and relatives.
2. Lack of recognition of the trade/employment in the Force.
3. The current transfer system applied on tradesmen.
4. Social issues due to lack of knowledge on society and people behaviours.

4.10 Chapter Summary

This section described the analysis of the data collected from each respondent that is from construction employees, supervisors and site engineers. The Relative Important Index (RII) was used as a data analysing technique which widely used by previous researchers to analyse the data collected. Finally, the researcher identified the most significant factors that cause for turnover of construction tradesmen in Defence Services on the perception of construction employees, supervisors and site engineers.

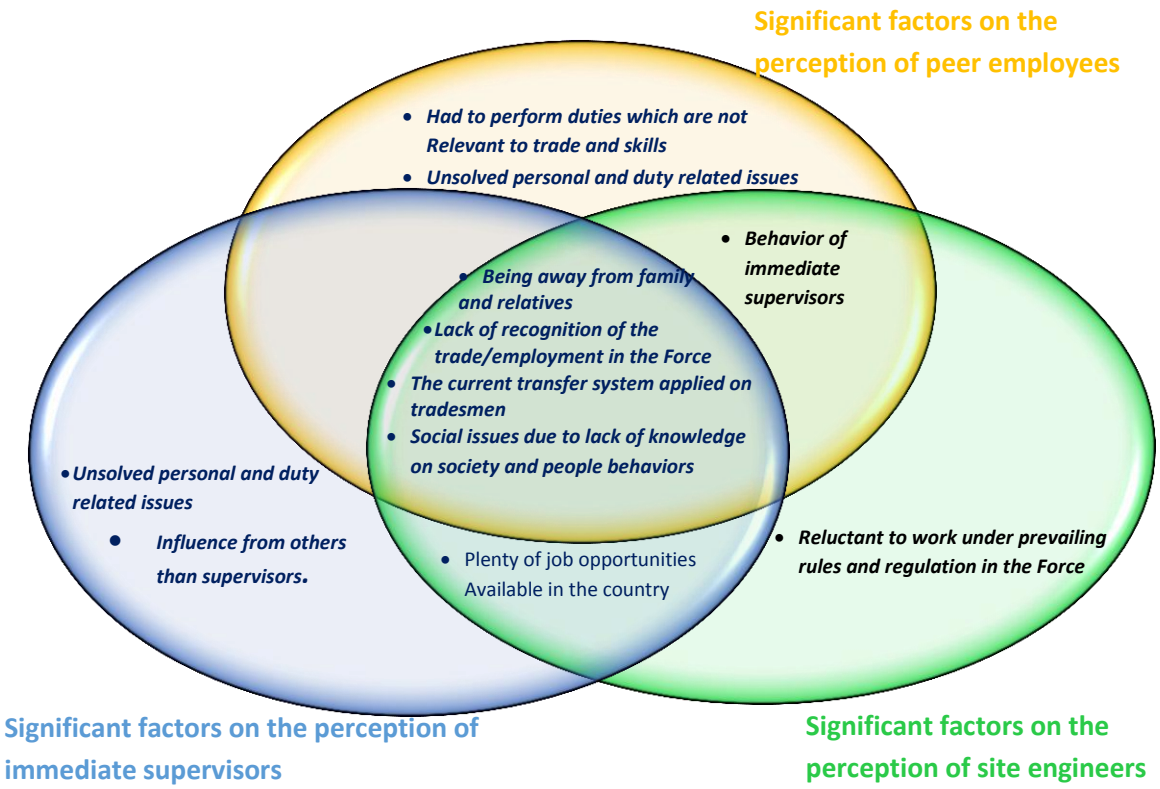


Figure 4.7 : Summary of research findings

Chapter : 5 Conclusion and Recommendation

5.1 Research conclusion

The research study identifies fifteen factors that are causes for turnover of construction tradesmen of tri-forces in Sri Lanka. The factors were ranked according to the view point/perception of peer construction tradesmen, immediate supervisors and site engineers with the help of Relative Importance Index. Three parties are in the opinion that being away from family and relatives, lack of recognition of trade/employment in the military, the current transfer system applied on tradesmen and social issues due to lack of knowledge on society are highly influenced for turnover of construction tradesmen. The level of significance of factors that cause for turnover is varied with the view point of peer employees, supervisors and site engineers. The peer employees believe that the lack of recognition of the trade/employment in the military force is most significant factor which ranked as first. The behaviour of immediate supervisors was ranked as second. The immediate supervisors are in the opinion that the recognition of the trade/employment in the military and being away from family and relatives are most significant factors for turnover of tradesmen. The site engineers understand that being away from family and relatives is most significant factor that causes for turnover which ranked as first. The social issues due to lack of knowledge on society and current transfer system have been ranked as second and third significant factors on the perception of site engineers.

Turnover of construction employees is considered as a serious issue for any construction organization which disturbs to maintain steady and successful operation. The military organization has experienced lot of issues with respect to turnover of construction tradesmen. Shortage of manpower, project delays and additional stress and workload on existing employees are some of such issues. It is not easy to replace the tradesmen for those who quit the job regularly with government regulations and time and cost involvement to mould new. Therefore, it is important that top management to understand the issue and root causes for turnover in order to take appropriate action to minimize turnover. Managing turnover successfully can achieve desired goals in the organization. The research study has identified the causes for turnover of construction tradesmen and top management of the construction sector of tri-forces are required to pay attention on those issues and make a strategy which could be implemented to reduce turnover. The turnover cannot be minimized to zero

as there are some employees who wish to rotate in the labour market seeking better opportunities though the organization provides sufficient facilities.

5.2 Recommendation

The top level management of the construction sector of tri-forces is to understand the issues of turnover of construction tradesmen and impact on the same for steady and successful operation of construction projects handled by the military. The factors that have been identified as most significant to turnover of construction tradesmen need to be analysed and addressed to take action to minimize turnover. The construction tradesmen have become essential human resources for construction sector and retaining them in the organization is imperative to achieve project targets within the constraints of cost, time and quality. The top management to ensure, the issues with respect to turnover of construction employees are addressed with much interest and dedication for the betterment of the organization. Therefore, the followings are recommended to consider by the top management of the construction sector of tri-forces to reduce turnover.

1. Providing opportunity construction tradesmen to work in project sites closer to their home town as long as possible which could enable them to maintain a balance between work and family life.
2. Take necessary action to recognize the values and great contributions of construction tradesmen to make them feel that they are important part of the organization and uplift the position in the organization.
3. Educate and train supervisors on man handling, task assigning, addressing issues of employees and how to be a good supervisor in order to maintain good association between supervisor and employee.
4. Implement training programs to educate employees on society and how to live in harmony with others. They should be taught on how to be a disciplined and responsible citizen in the country without being entangled with unnecessary affairs.
5. Proper divisional system is to be in place to take problems of employees to higher authority for seeking solution and advice.
6. Educate construction tradesmen on the facilities and the benefits offered by the military being the government organization compared to other construction

companies and retirement benefits through thepension as lifelong social security system.

5.3 Future works

This research study was basically aimed at identifying and analysing factors that cause for turnover of construction tradesmen in tri-forces in Sri Lanka. The study concluded with identifying most significant factors for turnover on the perception of peer employees, site engineers and supervisors. This study has not covered the effect on turnover of construction employees on job performance and productivity. Therefore one can start a study to determine and analyse the effect of turnover on job performance and productivity of the construction sector of tri-forces as a future study.

In this study, the construction tradesmen were asked to express their agreement on the identified reasons and causes for their peer tradesmen leaving the organization, as it was very difficult to contact and meet those who have left the organization to obtain information and inquire reasons for leaving the organisation. However, if interested one can start a study focusing the construction tradesmen who have left the organization which need much effort and time to contact and meet and obtain necessary information through the questionnaire. But, information obtained will be more accurate and reliable.

5.4 Chapter Summary

The construction tradesmen have become essential human resources for construction sector and retaining them in the organization is imperative to achieve project targets within the constraints of cost, time and quality. The top management to ensure, the issues with respect to turnover of construction employees are addressed with much interest and dedication for the betterment of the organization. The factors identified as causes for turnover of tradesmen need to be clearly studied and understood by the top management to take appropriate action to minimize turnover.

References

Abdulla, A., Abdulquadri, B., Enegbuma, W. I. & Ali, K. N., 2013. *Evaluation of Job Satisfaction and Performance of Employees in.* s.l., Researchgate.

Akeel, A. & Subramanium, I. D., 2012. Comparison of Job Satisfaction of Employees in Public and Private Sector Organizations: Evidence from Two Libyan Companies. *Australian Journal of Basic and Applied Sciences.*

Albert, A., 2007. *Training Environments, Work Attitudes, and Turnover Intentions.* [Online] Available at: http://onlineliabrary.wiley.com

Appelbaum, November 2000. An analysis of the utilization and effectiveness of non-financial incentives in small business.

Aslam, R., Shumaila, S., Azar, M. & Sadqat, S., 2011. Work-Family Conflicts: Relationship between Work-Life Conflict and Employee Retention. *Interdisciplinary Journal of Research in Business,* Vol 1(2).

Barg, J., Ruparathna, R., Mendis, J. & Hewage, K. N., 2014. Motivating Workers in Construction. *International Jurnel on Construction Enginnering,* 9 July, Volume 2014, p. 1.

Bilau, A., Ajagbe, M. A., Sholanke, A. B. & Sani, T. A., 2015. Impact of Employee Turnover in Small and Medium Construction Firms. *International Jurnal on Engineering Research and Technology,* Vol 04(Issue 02).

CBSL, 2016. *Annual Report,* s.l.: s.n.

Chandradasa, V. &. E., 2011. *Developing Psychological Contract to Sustain Construction Industry Workfoce,* Moratuwa: s.n.

Creswell, J. W., 2009. Research Design : Qualitative, Quantitative, and Mixed Methods Approaches.

DCS, 2015. *Survey of Construction Industry Sri Lanka,* Colombo: Ministry of National Policies and Economic Affairs.

DCS, 2017. *Sri Lanka Labour Demand Survey,* Colombo, Sri Lanka: Ministry of National Policies and Economic Affaires.

Ellen, T., 1998. Sampling. *Program Development and Evaluation,* p. 8.

Etornam, K., Francios, M, Patience, A.N.B. & Mathias, K.W.D., 2017. The Effect of Employee Turnover on The Performance of Zoomlion Ghana Limited. *Jurnel of Bissiness & Ecconomic Development,* Volume Vol 02.

Giritli, H., Sertyesilisik, B. & Horman, B., 2013. An investigation into job satisfaction and organizational commitment of construction personnel. *Global Advanced Research Journal of Social Science,* January, Volume Vol. 2(1), pp. 001-011.

Gulmartin, J., Baumer, W.H. & Mackdonald, C.B., 2010. *Fortification Military Science.* [Online]
Available at: https://www.britannica.com/technology/fortification
[Accessed 21 August 2017].

Gunasekara, P., 2015. *Factors Affecting For Motivation of Tradesmen of Defence Services,* Moratuwa, Sri Lanka: University of Moratuwa.

Harp, J., 2011. *The Evolution of the Trinity a 21st Century Hybrid War Theory,* Philadelphia: U.S. Army War College.

Hewage, K., 2007. *Construction Productivity improvements by worker motivation,* Calgary, Canada: s.n.

Holman, K., August 2006. *Turnover, the real bottom line, Public and voluntary turover in the workplace,* s.l.: s.n.

Isaac, S. & Michael, W., 1995. Handbook in Research and Evaluation,. In: San Diego: EdITS.

Khan, R., Umer, M. & Khan, S. M., 2012. *Effect of Basic Mitivational Factors on Constrction Workforce Productivity in Pakistan,* NED University of Engg. & Technology: Researchgate.

Kottawatta, H., 2015. The HRM Practices on Job Satisfaction of Operational Workers in the Apparel Industry in Colombo District, Sri Lanka. *Human Resource Management Journal,* Volume Vol. 03, No. 02.

Lakpura, 2010. *Ancient Irrigation in Sri Lanka.* [Online]
Available at: https://lanka.com/about/ancient-irrigation/
[Accessed 15 June 2017].

Lawrence & Neuman , W., 2000. Social Science Research Methods: Qualitative and Quantitative Approaches.

Lotha & Gloria, 2016. *Military engineering.* [Online]
Available at: https://www.britannica.com/technology/military-engineering
[Accessed 20 June 2017].

Mamun, C. & Hasan, M. N., 2017. Factors affecting empolyee turnover and sound retention stratergies in business organization.. *Problems and Perspective in Management,* Vol 15(1).

Nelson, N., 2006. A Little Appriciation Can Go Long Way Towards Employee Job Satisfaction. *Wiley DO 10,1002/ert 20094*.

Oshagbemi, T., 1999. Overall job satisfaction: How good are single vs. multiple-item measures?. *Journal of Managerial Psychology.*

Pathirage, A., 2008. *Asia Construction Conference.* Tokyo, Institute of Construction Training and Development.

PMI, 2013. *PMBOK Guide.* Fifth ed. Pennsylvania: Project Management Institute.

Praveen, R., Niththiyananthan, T., Kanarajan, S. & Dissanayake, P., 2010. Understanding and Mitigating the Effects of Shortage of Skilled Labour in the Construction Industry Sri Lanka.

Rajapakshe, W., 2017. An Analysis of Major Factors Affecting Labor Turnover in the Apparel Industry in Sri Lanka: Policy Alternations for Solving the Problem. *International Journal of Academic Research in Economics and Management Sciences.*

Ram & Padmakumar, D., 2013. Relationship between Job Satisfaction and Job. *International Journal of Academic Research in Economics and Management Sciences,* March.Volume 2.

Senadeera, A., 2015. *Role of Information system in post war reconstruction in Sri Lanka,* Moratuwa, Sri Lanka: University of Moratuwa.

Shamsuzzoha, A. & Shmon, M. R. H., 2010. *Employee Turnover - a Study of its Causes and Effects to Different Industries in Bangladesh,* s.l.: s.n.

Sutherland, M. & Jordaan, W., 2004. *Factors affecting the retention of knowledge workers,* Department of Human Resource Management, Rand Africaans University: s.n.

US Department, 2005. *Dictionary of Military and Associated Terms.* [Online]
Available at: https://www.thefreedictionary.com
[Accessed May 2018].

Webb, R., 2007. *How At- Risk Youth can Develpop a Carrier and Be Productive,* s.l.: s.n.

Widanagamachchi, U., 2013. *Motivation of Construction Labour in Sri Lanka,* Moratuwa, Sri Lanka: University of Moratuwa.

Wijewickreme, S. P., 2010. *Motivation of Blue collar workfoce in Sri Lankan construction Industry,* Moratuwa: Unpublished Msc Desertation.

Wijewickreme, S. P., 2016. *A Framework for Providing a LifelongSocial Security System for the Operational Workforce in the Construction Industry in Sri Lanka,* University of Salfold: s.n.

Wikipedia, 2011. *https://en.wikipedia.org/wiki/Sri_Lanka_Armed_Forces.* [Online]
Available at: https://en.wikipedia.org
[Accessed 15 June 2016].

Wikipedia, n.d. *Ancient_constructions_of_Sri_Lanka.* [Online]
Available at: https://en.wikipedia.org/wiki/Ancient_constructions_of_Sri_Lanka
[Accessed 15 JUNE 2017].

wisdomjobs international Ltd., 2017. *www.wisdomjobs.com.* [Online]
Available at: http://www.wisdomjobs.com
[Accessed December 2017].

Young, G., 2010. *Military engineering.* [Online]
Available at: https://www.britannica.com/technology/military-engineering
[Accessed 20 June 2017].

Appendices