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FACTORS AFFECTING FOR MOTIVATION OF TRADESMEN OF DEFENCE SERVICES

BY

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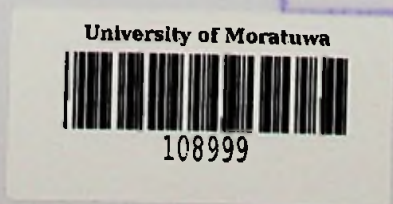
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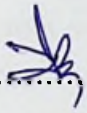
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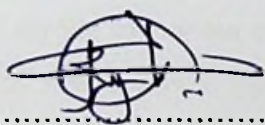
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Abstract

Motivation is one of the issues that has been debated in every field today. Answers have been searched for questions such as "What is motivation?", "How does one get motivated?", "What should be done to increase motivation?" etc. Motivation, basically has two dimensions (Anonymous I, 2010), one being "making employees work better, more efficiently and effectively" from the point of view of managers, the other being "enabling employees to do their jobs in the best way with enjoyment and desire" from the point of view of employees. In fact, the aim of all is the same: to maintain employees' effectiveness, efficiency and happiness in doing their jobs. This paper utilizes survey data collected from 100 tradesmen in the construction projects undertaken by Sri Lanka Army, Sri Lanka Navy and Sri Lanka Air Force. In this most commonly, utilized factors in various researches related to the motivation in the construction industry and few factors related to the Defence were considered. Twenty-four factors were included in the questionnaire and candidates were expected to indicate the level of significance against each question.

The sample size was determined from the research publication (Krekcie and Morgan 1970) to analyze the level of motivation and 100 tradesmen were selected as a representative sample, based on statistical theory of sampling. A total of 100 responses were received for the survey out of 100 questionnaire representing 100% response rate. The survey revealed that, the considered factors had real effect on motivation. "Permanent employment", "Entitlement for pension", "Protection against any disability during the work" and "On time payment of salary, etc." had come within top ten critical factors. The selected three factors which related to the Defence, such as "Protection against any disability during the work", "Ability to have entitled leave or any other emergency leave" and "Contribution from the organization for the family members protection" had come within the top ten critical factors.

Key words: Human Resource Management, Construction Workforce, Motivation, Permanent Employment, Productivity.

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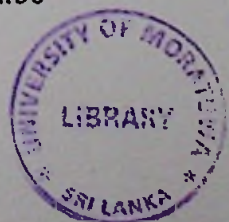


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ABBREVIATIONS AND ACRONYMS

Total Quality Management	TQM
Total Quality Control	TQC
International Organization for Standardization	ISO
Gross Domestic Product	GDP
Construction Motivation and Visualization Center	CMVC
Compound Annual Growth Rate	CAGR
Anno Domini	AD
Before Christ	BC

Chapter 1 INTRODUCTION

1.1 Background

The construction industry plays an important role in the economy of any country and it is same for Sri Lanka as well. Contribution of construction sector to Sri Lankan GDP in the year 2012 was 8.2%. (Economic Outlook SL,2012) The Construction industry is one of the key industries that can put any country on the fast track of development. For the past three decades in which Sri Lanka was engulfed in a conflict situation, what we witness was not a developing construction industry but a dying industry in the face of terrorism. Many efforts were taken, not to construct but to protect many of our structures such as bridges, roads and other infrastructure facilities. However, by the end of the civil war in May 2009, it has paved the way for the construction industry to bounce back and catch up with what they have missed for the past three decades. For the past four years, it has shown tremendous progress and has become a major contributor for the economic development of the country. (Observer, 26 Feb, 2012)

Sri Lanka Defence Services are large organizations where Sri Lankan government allocation for Defence amounts is Rs. 215.21 billion for 2011 which includes recurrent expenditure and expenditure for payment of wages for the Defence Services personnel. This is said to be a raise in Defence spending by 06% about a fifth of the national budget for the year 2011 and government needs to keep Defence spending high, despite the fact the ethnic war has ended, because of hefty installment payments on military hardware bought (Tribune, 2011). With the end of ethnic war Sri Lankan Defence Services has been entrusted more towards the construction sector in addition to the construction requirement for the Defence Services itself. This is a good sign because Defence Services personnel could be utilized for the development of the country since there is no way to reduce the number of personnel in Defence Services though the war is over (Observer, 26 Feb, 2012). Sri Lanka government allocation for Defence for year 2013 is Rs. 290 billion (Tribune 2012). This is mainly because any Defence Force is not in position to reduce the strength or stop enhancement depending on an one incident.

Construction projects are an important priority in Sri Lanka's national plans. The construction industry generally plays a vital role in a national economy due to the usage of its products such as roads, buildings and dams for the production of goods and services. In the global construction industry, site workers account for 40% of direct capital cost of large construction projects and there is the need to maximize the productivity of human resources (Thomas et al, 2004). Purpose of this research is to find the factors influencing Motivation of tradesmen of constructions done by Defence Forces.

1.2 Problem Statement

Lack of workers motivation on construction sites has been identified and this has contributed the high employee turnover (Thomas et al, 2004). This is a result of the difficulties in emphasizing the positive side of workers' motivation. These have generated numerous attempts over the years to enhance workers' motivation, as it is essential to eliminate the negative side of motivation, which may be more psychological.

Therefore, there is a need of tradesmen and other subordinates to be motivated by providing them with the right conditions and opportunities. A correlation exists between worker motivation and performance. Therefore, there is the need of worker to always feel that they are motivated in order to increase performance.

According to Thomas et al, 2004, an unsatisfactory work environment can have an adverse effect on worker motivation that tends to make minimal effort towards work thereby lowering performance. This has contributed low productivity that has been a major problem confronting the construction industry today, which has led to the declining productivity for the past decades. The labour cost component of direct capital cost of large construction projects gives the indication that there is the need of its maximum utilization in order to be productive.

1.3 Justification of Study

Construction industry development is a continuous process. Considering the needs, problems, and resource constraints and the nature of the industry, mere formation of an agency does not guarantee the success of construction industry development. For this competitive nature, regarding how an individual is looked after in



the organization is a matter and outcomes depend on how people in the industry are benefitted and in turn workers are motivated. There is therefore the need of tradesmen and other subordinates being motivated by providing them with the right conditions and opportunities. A correlation exists between worker motivation and performance. Therefore, there is a need for worker to feel motivated in order to increase performance.

Management of the construction industry is therefore, faced with the task of ensuring that a congenial working environment is established in order to motivate workers to stay and deliver their best. This will eliminate time overrun which is usually accompanied by cost escalation and hence the achievement of improved productivity.

With the establishment of Sri Lankan Defence Forces after the independence, they have been engaging with the constructions at various levels not only within the Defence but also in other important areas of the country. Before and during the three decades of ethnic conflict Sri Lankan Defence services was not considered as a part of the construction industry since the Sri Lankan Defence Forces did not take part in competitive construction industry. The reason for this is, Defence Forces considered it as a part of the Nation building. But with the end of the war Sri Lankan Defence Forces has been engaging with lot of large scale constructions all over the country. A large number of tradesmen have been recruited to the three Forces. Defence Forces is different from any other Government or private organizations because soldier is supposed to work in any part of the country at any time. There are lot of significant differences in the way some body in the Defence Forces has to contribute and the benefits receiving in turn. This study is therefore to find the factors affecting for the motivation of tradesmen in the constructions undertaken by Defence services.

1.4 Objectives

The main objective of this research is to identify motivational factors of the tradesmen in the Defence Forces. The sub objectives of the above study include;

1. To identify the most significant factors affecting for the motivation of the tradesmen in Defence Forces.
2. To identify the levels of significance of various factors affecting for the motivation.

1.5 Research Methods and Design

The methods and design adopted for the research is summarized as below.

1.5.1 Field Survey

The survey involved the design, development and administration of questionnaire. The sample size was determined according to the methods adapted in the past research papers and present tradesmen strength available in Tri Forces. Distribution of questionnaires was done through randomly selected tradesmen in various trades proportionately from Tri Forces. The questions were developed from information gathered from the review of literature and preliminary survey and from the experiences I have gained by working for last 19 years in the Defence. Respondents were asked to give their opinions according to various levels of their significance. The questionnaires were personally distributed and collected once they filled.

1.5.2 Analysis of Data

The administered questionnaires were gathered and all required data were tabulated. An analysis of summarized data was conducted by determining influential indication of importance index on the various reviewed factors as follows.

1. To identify the most significant factors affecting for the motivation of the tradesmen in the Defence Forces.

2. To identify the level of significance of various factors affecting for the motivation.

1.6 Scope and Limitation

Tradesmen were selected proportionately to the tradesmen strength available in Tri Forces. However due to limited number of sample (100 tradesmen from all Forces) it was not possible to select all types of tradesmen from Sri Lanka Navy and from Sri Lanka Air Force. All types of tradesmen were in the team whom were selected from Sri Lanka Army. The questionnaire was prepared based on the motivational factors to determine the level of motivation. The sample size was determined by the literature survey. The research finding is depended on the workers independent thoughts and the way they understood.

1.7 Organization of Chapters

The study was organized in five chapters.

Chapter 1:- Provides background information about the importance of motivation of tradesmen in the Defence services. This chapter elaborates on the problem statement and the justification of the study. It further highlights on the aims and objectives of the study as well as a brief on the research methods and the scope of the study.

Chapter 2:- Provides an overview of the construction industry and its contribution to the national economy. It also details the concepts of motivation and describes factors that influence motivation of tradesmen in the construction undertaken by the Defence.

Chapter 3:- Provides information about the methods and procedure of the study used to achieve the objective. This chapter provides background information of research methodologies and justification for the research method implemented for this research.

Chapter 4:- Presents the analysis and interpretation of findings of the survey. It further discusses the findings obtained in the survey.

Chapter 5:- Summarizes the procedure and findings of the research, its contribution, and offers recommendations for management action to ensure workers motivation.

Chapter 2 LITERATURE REVIEW

2.1 General

Motivation is one of the most important factors related to the human recourse concern with any construction project. There are many factors which affect to the individual motivation. The degree of importance of the motivational factor may be vary and depending on many other factors such as the working environment, culture, nature of the employment, etc.

What is it that drives employee motivation? More specifically, what is it that causes an employee to WANT to do his or her job? After all, the answer to this question is the key to the motivation of employees and employer happiness. And, even more important than knowing what it is that motivates an employee is whether or not this motivation is something that will cause an employee to go through the motions of doing the job or instil actual desire for a job well done in the employee's mind.

What should always be on every employer's mind if they are to be created effective, productive workforce? A lack of motivation is a true killer, as anyone certainly knows.

Money has become a commonly used priority term in society to uplift the motivation. And, often, this is the basis for what most people think is at the top of the list for employee motivation. But, is it?

Naturally, higher pay is never frowned upon. There is not a person in the world that couldn't use more money. Between bills, children, higher education, and personal desires, among many other reasons, money is a factor that can never be ignored. It is a need that we must all have filled.

Many companies use money as incentive for motivation. Is this wrong? Not necessarily. Big pay raises and bonuses are always something that a person can use and these are things that will certainly never be turned down. Cash is a motivator that will always be popular. And, if possible, money is always a good choice to use for employee motivation because who doesn't like money?



But, money should not be the ONLY tool used from the toolbox of motivation. There are many other choices for motivational increase. In fact, many employees who claim money, is the only thing that will drive their motivation higher do so because there is a lack of any other form of compensation. This frame of mind adheres to the comment so often heard is well, they better pay me more money or give me a bonus because I'm sure not getting anything else out of working here. In other words, there sure isn't anything else the employee is receiving that even remotely resembles compensation to increase motivation.

2.2 Construction Industry

Construction Industry is a booming industry and remains so with the continuation of the development process especially in the developing countries. With the process of development, the migration of people takes place from the rural to urban areas. This phenomenon is most significantly observed in the "Asian Tiger" countries, China and India. Thus, the Construction Industry is also on a rise in such countries.

2.2.1 Global Construction Industry

The last three years have been full of uncertainty for many in the engineering and construction industry. However, one constant is the insatiable demand for energy and infrastructure in all forms, which is causing a fundamental shift in focus for nearly all players in the engineering and construction sector. The 'old' imperatives of commercial, residential and industrial building projects have taken second place in many geographies to energy, natural resources, transportation, communication and technology and other vital civil and social infra structure projects.

Engineering and construction companies are changing to meet the growing demands of infrastructure with the traditional general engineering providers and contractors giving way to larger more diversified businesses with specialized skills. Winning new contracts is increasingly about having the right expertise, so the battle for skilled resources is likely to intensify even further, with a possible rise in acquisitions to buy that expertise. New infrastructure projects are likely to be on a huge scale, particularly in emerging markets such as India, China and Brazil, so size and global reach will also be a matter.

The latest fall in the global market has been extremely severe, and construction has been knocked more severely than any other industry. The industry forecast shows that the most vibrant development for construction will come from emerging markets like China, India, South and Central America, Middle East, Africa, Asia Pacific and parts of Eastern Europe. On the other hand, the developed countries will only grow from 4.2 trillion dollar market to a 5.7 trillion market. As an outcome of this conflicting development, up-and-coming markets will make up more than half of the global construction market by the end of the next decade. India and China are expected to show the highest growth in construction over the next decade and China is expected to lead the world construction industry by 2020. Because of the existing constraints on public capital, India is looking for increases in private financial support in the provision of much of the new infrastructure required. Japan is likely to spend a significant amount in construction expenses by 2015 as the tsunami and earthquake rebuilding efforts take place. Saudi Arabia, the largest construction market in the Middle East is estimated to grow vigorously because of rising oil prices across the world.

The Construction industry consists of establishments largely involved in the construction of homes, commercial buildings, and infrastructural projects. Regardless of the difficult economic situation, the global construction industry saw a growth throughout the past five years and the market is predicted to reach US Dollars 8,929 billion in 2017 with a CAGR of 7.3% during the next five years. Because of urbanization, globalization, infrastructure revitalization and the growing needs of developing megacities, construction in budding markets is estimated to double in a decade and will become a 6.7 trillion dollar industry by 2020, accounting for some 55% of global construction output.

World Construction Industry is one of the biggest industries in the whole world. The contribution of this industry towards the global GDP revolves around one-tenth of the total amount. World Construction Industry is also a potential employment generator and provides work to almost 7% of the total employed person in the whole world. The extent of this industry has become so vast that the energy, in the form of electricity or fuel, consumed by it hovers around two-fifth of the total energy consumed all over the globe. The resources that are utilized in World Construction Industry is also staggeringly high and itself consumes fifty percent of the total world resources.



World Construction Industry is the base of the world economy, which is achieved through the construction of real estate properties (both residential and commercial), bridges, tunnels, roads, railway tracks, compartments, airports etc.

World Construction Industry has come up as a basis for judging the performance of the economic condition of a country. This industry is not a homogeneous entity but has heterogeneous characteristics which are detailed in the following: - The World Construction Industry that is concerned about constructing real estate properties for both residential and commercial purposes is categorized under the group General Construction. Any type of building constructions are categorized under this head. World Construction Industry that is involved in the production of specialized items in the real estate properties are categorized under Specialty trade section. World Construction Industry is also involved in building bridges, roads, etc.

2.2.2 Significance of the Constructions in Sri Lankan Economy

With the independence from British Colonial rule in 1948, over the five decades of post independence, the traditional agriculture based economy has slowly been proliferating to a manufacturing based economy. After that in previous decade, construction industry has contributed 6-7% to GDP (Central Bank 2002).

During 2009, Sri Lanka's construction sector recorded a growth rate of 5.6% while its contribution to Gross Domestic Product (GDP) stood at Rs. 366,248 Million, which is 7.6% of the GDP and ranks is 7th among 13 major sectors contributing to the GDP of the country.

Direct Employment in the construction sector stood at 562,000 persons (7.4% of Total Employment) while the industry's contribution to Gross Domestic Fixed Capital Formation was 70.0%. With the end of three-decade ethnic conflict, due to massive development endeavors by the government and private sector in 2012, the construction industry has recorded a phenomenal growth of over 17 % in their third quarter of 2011 versus 11 % in the corresponding period of 2010. "Growth in the construction industry has been second only to the tourism sector, due to spillover effects of mega infrastructure development programmes, housing and post war reconstruction and resettlement processes taking place through-out the country. (Central Bank of Sri Lanka 2009)

Table 2-1Main Economic Indicator

Year	Growth Rate %
2002	2.4
2003	5.5
2004	6.6
2005	8.9
2006	9.2
2007	9.0
2008	7.8
2009	5.6
2010	8.5
2011	11
2012	17

(Central Bank of Sri Lanka Annual Report 2009)

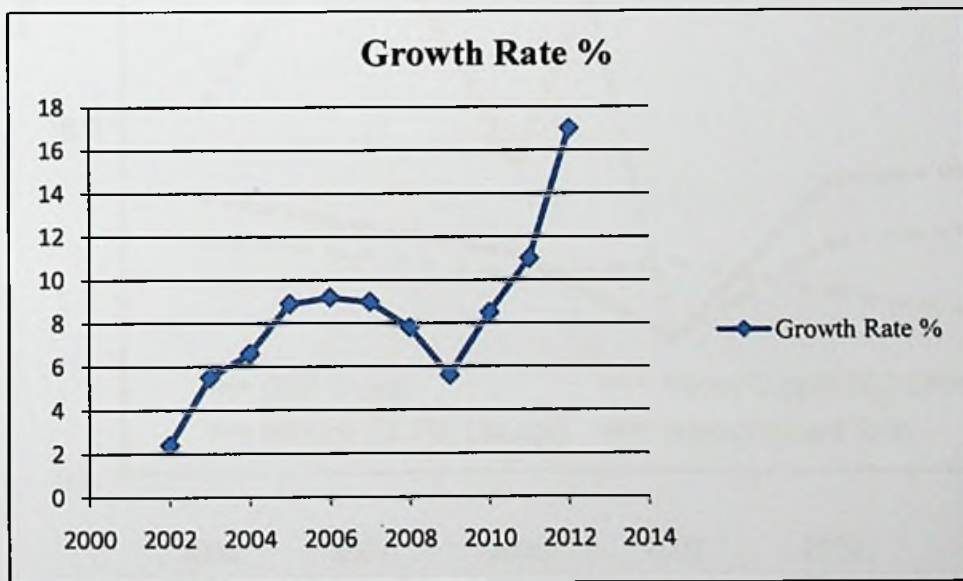


Figure 2-1Main Economic Indicator

Source of Information: Department of Census & Statistics/Central Bank of Sri Lanka

The construction industry is complex in its nature because it comprises large numbers or parties as owners (clients), contractors, consultants, stakeholders, and regulators. Despite this complexity, the industry plays a major role in the development and achievement of society's goals. However, in Sri Lanka, the construction industry places a vital role in economical and physical development. Further, in Sri Lankan economy construction is the fourth highest sector after services, manufacturing and

agriculture. The construction industry in Sri Lanka constitutes over 09.8% of the Gross Domestic Product and has witnessed a steady growth for the last years. The following graphical representation against “GDP Growth”, “Money Supply (M₂) Growth”, “Inflation (CCPIN Change)” and “Unemployment Rate” shows there is a rapid improvement regarding the discussed areas after Year 2009 that is after the end of ethnic war.

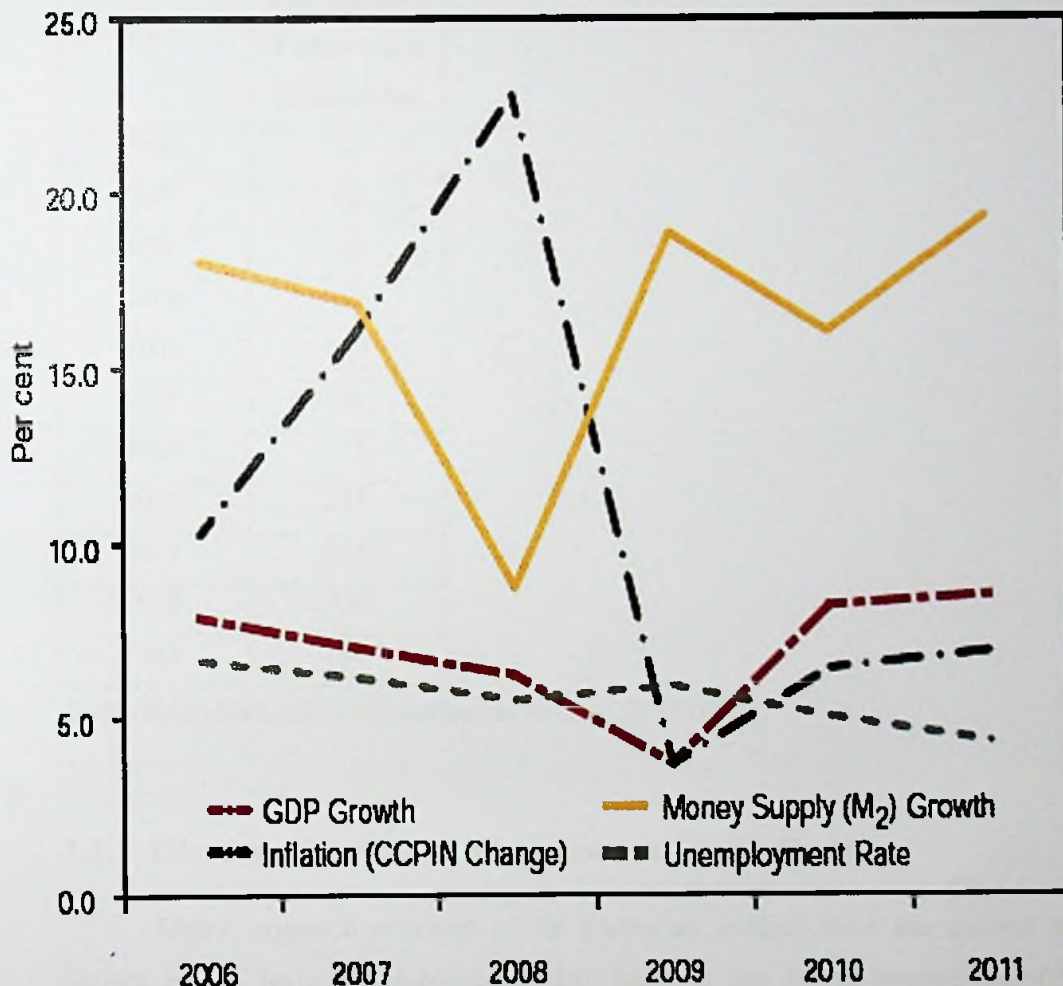
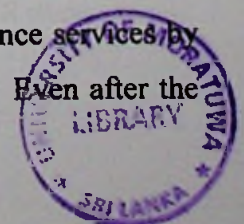


Figure 2-2GDP Growth Comparison

Source of Information: Department of Census & Statistics/Central Bank of Sri Lanka

The Sri Lanka Armed Forces is the overall unified military of the Democratic Socialist Republic of Sri Lanka encompassing the Sri Lanka Army, the Sri Lanka Navy, and the Sri Lanka Air Force. They are governed by the Ministry of Defence (MOD). The three services have around 400,000 active personnel conscription has never been imposed in Sri Lanka. Concern about the budget allocation for the Defence services by 2009 it is almost four times compared to the budget allocation in 2003. Even after the



end of ethnic war in 2009 it is observed no reduction has been occurred in budget allocation due to the Government has to maintain the same military force even after the end of civil war.

Table 2-2Budget Allocation for Defence

Year	Appropriated Endowment (Billion) Rs.
2003	52
2004	62
2005	64
2006	82
2007	140
2008	166
2009	175
2010	273
2011	214
2012	230
2013	290

(South Asia | Sri Lanka Defence budget to Soar, 2013-05-21)

2.2.3 History of Sri Lankan Construction Industry

Major irrigation schemes of Sri Lanka as evident from the earliest written records in the book of Mahawansa, date back to the fourth century BC (Parker, 1881;Brohier, 1934). The purpose and determination in the construction of the irrigation systems are depicted by the words of Parakrama Bahu, the Great king, 1153–1186 AD: *"Let not even a drop of rain water go to the sea without benefiting man"*.

The Sri Lankan Chronicle, the Chulavamsa which was written in the Buddhist canonical language Pali, enumerates his works both as a provincial ruler in western Sri Lanka and later as the monarch of the whole country. He either built or restored 163 major tanks (reservoirs), 2,617 minor tanks, 3,910 irrigation channels, 328 stone sluices

and 168 sluice blocks, besides repairing 1,969 breaches in embankments. Among the reservoirs he built was the tank at Polonnaruwa, called on account of its size the Parakrama Samudra (translation: Sea of Parakrama). With an area of 30 km² and an enclosing embankment 14 kilometers long, it irrigated nearly 100 km².

The final achievements were highlighted by Sir Henry Ward, former Governor of Ceylon: It is possible that in no other part of the world are there to be found within the same space, the remains of so many works of irrigation which are at the same time of such great antiquity and of such vast magnitude as Ceylon. Probably no other country can exhibit works so numerous and at the same time so ancient and extensive within the same limited area as this Island. (Irrigation 2010)

The dagobas or stupas are distinctive for many reasons. They are probably the largest brick structures known to the pre-modern world. *Demala Maha Seya*, which was never completed, had a circumference of 2011 feet. The foundation is 252 feet deep, the deepest known foundation of the ancient world.

Cave temples had been used in Sri Lanka since ancient times, fine examples if these include the magnificent cave temple complex in Dambulla built by king Valagamba. Cave temples have preserved some of the best examples of Sinhalese art and Sinhalese architecture. In the years gone by of monarchy rule in ancient Sri Lanka the rock cave shelters cloistered in the recess of the forests served the recluse Buddhist monks in performing their meditation chores and other religious observances. Such cave hermitages were patronized by the ruling kings of the time, chieftains and the people as well. As the years passed such cave shelters turned into *lenviharas* (cave temples) and *lenavasas* (abodes of Buddhist monks). Such *len* (cave shelters) were gifted by the kings queens and other nobles of the royalty. Foremost among such noble chieftains were the *paramukas* (chieftain of royal rank holding multiple designations). (T.G.Kulathunga 2004)

2.3 Military Constructions

Any construction, alteration, development, conversion, or extension of any kind carried out with respect to a military installation. Also called MILCON.

Many military installations are known as "forts" although they are not always fortified. Larger forts may be called "fortresses"; smaller ones were once known as "fortalices". The word "fortification" can also refer to the practice of improving an area's Defence with defensive works. City walls are fortifications but are not necessarily called fortresses.

The art of setting out a military camp or constructing a fortification traditionally has been called "castramentation" since the time of the Roman legions. The art/science of laying siege to a fortification and of destroying it is commonly called "siege craft" or "siege warfare" and is formally known as poliorcetics. In some texts this latter term also applies to the art of building a fortification.

Fortification is usually divided into two branches: permanent fortification and field fortification. Permanent fortifications are erected for leisure, with all the resources that a state can supply of constructive and mechanical skills and are built of enduring materials. Field fortifications for example breastworks are extemporized by troops in the field, perhaps assisted by such local labour and tools as may be procurable and with materials that do not require much preparation, such as earth, brushwood and light timber, or sandbags (see sangar).

There is also an intermediate branch known as semi-permanent fortification. This is employed when in the course of a campaign it becomes desirable to protect some locality with the best imitation of permanent Defences that can be made in a short time, ample resources and skilled civilian labour being available.

Castles are fortifications which are regarded as being distinct from the generic fort or fortress in that it describes a residence of a monarch or noble and commands a specific defensive territory. (Military 2013)

2.3.1 History of Military Construction

From very early history to modern times, walls have been a necessity for many cities. In Bulgaria Europe near the town of Provadia a walled fortified settlement today called Solnitsata starting from 4700 BC was home to 350 people, with two-story houses with a diameter of about 300 feet (100 meters), encircled by a fortified wall. The huge walls around the settlement, which were built very tall and with stone blocks which are 6

feet (3 meters) high and 4.5 feet (2 meters) thick, are one of the earliest walled settlements in Europe but it is younger than the walled town of Sesklo in Greece from 6800 BC. Uruk in ancient Sumer (Mesopotamia) is one of the world's oldest known walled cities. The Ancient Egyptians also built fortresses on the frontiers of the Nile Valley to protect against invaders from its neighboring territories. Many of the fortifications of the ancient world were built with mud brick, leaving many no more than mounds of dirt for today's archaeologists. (Banister Fletcher 1996)

2.4 Military Construction in Sri Lanka

It goes back to more than 100 years to the era of forming Ceylon Engineers in 1911 as part of the Ceylon Defence Force, following the transfer of Royal Engineers units from Ceylon.

The Sri Lanka Engineers (SLE) a combat support arms of the Sri Lanka Army which provides military engineering. It is made up of ten Regular Regiments and one Volunteer Regiment. Headquarter is at Army Cantonment, Panagoda.

The Corps provides combat engineering, construction and other technical support to the Sri Lankan Army and civil authorities. One of the objectives of the corps is mobility and counter mobility. That is providing mobility to friendly forces while denying movement to enemy forces. Engineers are able to conduct tasks including penetrating minefields, locating and disarming booby traps, purifying water and building roads and bridges to maintain lines of communications.

The Corps of Engineer Services (CES) is a regiment of the Sri Lanka Army. The role of the Corps of Engineer Services is to design, construct and maintain all buildings, roads and associated facilities such as electricity, water supply and drainage systems used by the Sri Lanka Army. Apart from this, the Regiment is also responsible for the installation, maintenance and repair of all types of generators, water pumps, sewer pumps, desalination plants and other electrical appliances. It is made-up of 3 regular units and 11 volunteer units and headquarter is located at Army Cantonment, Panagoda.

However, with end of 3 decades ethnic conflict the Engineer services corps and the Sri Lanka Engineers together with the urban development authority has begun involving of mega constructions in addition to their classic role.

2.4.1 Before Civil War

During the 1950s and 1960s the army was called upon to carry to essential services when the workers went on strike that was organized by the left wing parties and trade unions for various reasons, the most notable was the 1961 Colombo Port strike, during which ships threatened to bypass Colombo port and the country almost staved. To counter these common strikes several units were formed who were employed in development works when there were no strikes. At all times Defence forces managed to do their own constructions including capital constructions, maintenance of buildings & roads, production of training items etc. whenever required they were capable to provide their assistances to the public sector as well.

2.4.2 During Civil War

The war situation prevailed in the country for nearly 30 years. During that period Sri Lankan Three Forces time to time had to capture various areas and to man the said areas. Engineer Services of the Tri Forces had to engage with operation by providing mainly with accommodation, water supply and electricity supply. This situation was purely in temporary nature and there were hardly any new major constructions. With this situation, there was very little opportunity for Sri Lankan Defence to engage with major constructions in the country. However, for the maintenance of buildings in the Defence sector could be done by the Tri Forces.

2.4.3 Post Civil War

Since the end of the civil war in May 2009 Sri Lanka's 300,000 strong military has increased its non-military activities, leading to accusations of militarization and even military rule. The military is involved in everything from large scale property developments to the running of roadside cafes. The military has built roads, bridges, houses and stadiums. The Urban Development Authority, which spends hundreds billions of rupees a year, was taken over by the Ministry of Defence in 2010. A year later, the ministry was renamed Ministry of Defence and Urban Development. The ministry had a budget of 229.9 billion rupees (US\$2.1 billion) in 2012, the largest of any government ministry in Sri Lanka.

In November 2011, it was announced that the military would take over the maintenance of the country's three international cricket stadiums from the financially troubled national cricket board. The Army has taken over the Hambantota Cricket Stadium, the Navy Pallekele Cricket Stadium and the Air Force Premadasa Stadium.

2.5 Importance of Military Construction

The profession of soldiering as part of a military is older than recorded history itself. A military is an organization authorized by its greater society or the state to use lethal force, usually including use of weapons, in defending its country or state institutions by combating actual or perceived threats. The military may have additional functions of use to its greater society, such as assisting the government in an any emergency or deploying its greater capacity permanently for national constructions as the nation building.

The military organization model worldwide has a long-standing reputation of being a top-down organization in which each level of the organization reports to another higher level right up to the main leading position. The chain of command model has been replicated over the centuries with a top leader, a close circle of direct reports, and then repeating circle of further subordinate reports until finally reaching the lowest level unit and soldier. This situation clearly leads for better communication which is very important for construction industry.

2.6 Impact of Military Construction in Sri Lanka

The Urban Development Authority was established to promote integrated planning and development of important urban locations. Its responsibilities have included the new parliamentary buildings and the reconstruction of St. John's fish market in Colombo. Total expenditure of the Urban Development Authority was Rs. 529 million in 1986, well under its annual budget in the early 1980s. The Million Houses Program was established in 1984 to coordinate both public and private housing construction. In early 1988, the government's policy was to subsidize private housing rather than undertake extensive public housing programs. (Lanka, 2014).

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In early 2011, as food prices soared, the Army bought vegetables from farmers and then sold them to the public at a below market prices some of the vegetables came from military farms. The Army also runs a travel agency called Air Travel Services (Pvt) Ltd selling air-tickets and foreign package holidays. In the war affected north of the country, where the military presence is significantly higher than the rest of the country even after the end of the conflict, the military operates numerous small restaurants and shops which are catering mainly for tourists from the south. Most of the roadside cafes along the A9 highway are owned and operated by the Army. The Army runs a luxurious holiday resort called Thalsevana near Kankesanthurai inside the Valikamam North High Security Zone where the residents were forcibly expelled in the early 1990s and have not been allowed to resettle despite the end of the civil war. The Army also runs two other holiday resorts, one in Kukuleganga and the other in Wadduwa. In November 2011 it was announced that the Army would build a five star hotel in Colombo. During 2010-11, whilst local government was suspended in Colombo using emergency regulations, the Army took over many of the functions of the Colombo Municipal Council such as supervision of the collection of rubbish, demolition of low-income housing and even decoration of the streets during festivals.

In November 2011 it was announced that the military would take over the maintenance of the country's three international cricket stadiums from the financially troubled national cricket board. The Army has taken over the Hambantota Cricket Stadium, the Navy Pallekele Cricket Stadium and the Air Force Premadasa Stadium (Lanka, 2014).



2.6.1 Economical Impact

The prospect of an economic revival lies ahead for Sri Lanka, stimulated and re-energized by the end of the war which spanned nearly three decades. Notwithstanding the impacts of the global economic crisis and the ethnic conflict, the economy has shown resilience. Ensuring that the entire population benefits from the improving political and economic environment is a major challenge being taken up by the Government.

Slowing labour force growth is a factor that demands serious attention. Enhancing labour productivity will be essential if Sri Lanka is to achieve healthy economic growth in the coming years. Increasing the participation youth in the labour market will also contribute towards improving growth prospects in the context of a difficult demographic outlook. (Labour and Social Trends in Sri Lanka, 2009). Sri Lankan government has given the opportunity for the youth to join Sri Lanka Defence as tradesmen as permanent employees and contribute for the national constructions. At the same time infantry soldires have been given the opportunity to take part constructions in addition to their classic role. This is a very important aspect since any way government has to maintaine the same amount of military about 400,000 even though ethnic conflict has been eliminated. This has paved the path for youth to contribute for the national economy whilst they are comfortable with living standards in the society.

2.6.2 Social Impact

Reforming labour market policies to better serving workers and employers, reduce informality, promote competitiveness, productivity, expand employment opportunities to all, enhance social protection and promote effective dialogue between workers, employers and the Government are some of the key policy issues, which have been highlighted in order to realize decent work for all. To promote these various dimensions and move them forward, putting people's needs, including decent and productive employment, at the centre of economic and social policies will be essential for long-term sustainable development. (Labour and Social Trends in Sri Lanka, 2009). The recognition concern with any level of employment is affected for a healthy social status. There by becoming a soldier itself gives the recognition rather than naming somebody by his trade. Diverting youth to productive employment has begun with this

new concept of enhancing the construction capacity of Defence services making better opportunities.

2.6.3 Psychological Impact

The Eelam War in Sri Lanka has produced a large number of veterans with complex physical and psychological traumas over the last three decades. The war trauma has created potent barriers to their lives and these barriers obstructed recovery and personal growth. Combatants who are suffering from war trauma experience problems in their lives in living, working, learning and social environments etc. The Psychosocial well-being of these combatants was not adequately addressed during the war and in the postwar period. The veterans who became the casualties of the Eelam War need effective Psychosocial Rehabilitation to acquire functionality, recovery and reintegration.

In the aftermath of the Eelam War a large number of combatants sustained physical and psychological wounds. The most common psychological injuries experienced by soldiers were Adjustment Disorder. (Jayatunge, 31 January 2013). With this situation as common in any military setup engagement is essential. Today involvement of soldiers for the constructions and training them as tradesmen has become very prominent in Sri Lankan Defence. In one hand they have the satisfaction of contributing towards the nation building and in the other hand they have a trade to muster after the retirement.

2.7 Impact of Human Resources for Construction Industry

There are many routes to the different careers within the construction industry which vary by country. However, there are three main tiers of careers based on educational background which are common internationally:

- Unskilled and semi-skilled – General
- Skilled – On-site managers who possess extensive knowledge and experience in their craft or profession

- Technical and management – Personnel with the greatest educational qualifications, usually graduate degrees, trained to design, manage and instruct the construction process.

Skilled occupations require further education qualifications, often in vocational subject areas. These qualifications are either, obtained directly after the completion of compulsory education or through "on the job".

It is true that all companies, in the construction sector, manufacturing sector, power sector, etc., normally tend to curtail or root out the unwanted and unnecessary costs in order to achieve a product at a very reasonable rate. This is largely due to increased competition in the same sector. In addition, they start with purchase department, contracts department, execution department etc. and finally the HR department. It is easy to shed off some employees who might not be required in the organization or who is unskilled and non-productive. Though it is tricky to retrench (it may affect the morale of some other good workers), it is not so difficult. You have to be convincing and very cautious while dealing with this subject.

When a project is in progress, each employee is bound to show his or her potential to his superior, which information is passed on to the department head and ultimately to the personnel department. This is done through appraisal report of the employee. Normally, based on this appraisal report and other parameters rewards or punishment is meted out to the employees.

To get in cost control of manpower, first of all the respective departments have to list out their requirements to admin department. List will and should consist of the candidate's desired qualification, technical skills, age, years of experience, flexibility, role to be performed, responsibility, alertness rating, etc. Based on this, the admin department has to check with the current market to know about the remuneration paid to such candidates. On receiving the approximate amount, they have to forward the proposals to the Director/s of the company for approval. Once approval is granted, the recruitment procedure lies in the hands of the administrative department. While recruiting, if all the required parameters are met in a candidate, the admin has to come to his remuneration part. Though you know the market rate and the approval is accorded by the management, it is your duty to bargain with the candidate and offer him the best

least of the remuneration. Normally a candidate has got his own expectations but more often it is below the market standard rate. This is one way of reducing the manpower cost.

The other way is to divert good qualified and experienced personnel from one project to another project (of course in co-ordination with the planning department) so as to reduce the project cost, if it is in finishing stage and the other is at starting or middle stage.

One more way to control cost is to assign personnel to two or three different projects. This way extra manpower is not required, unless compulsorily required, and money saved.

If you find a person working with you for a long period of time, naturally his payment and other benefit (gratuity, promotion, bonus, etc.) also increases. In such case, delegate his responsibility to his junior staffs with a minor raise and either promote this guy with more responsibilities or retire him. This is one way of effecting cost control.

If you find a person who is well qualified and talented and appointed in a job below his category, promote him with 100 bucks. The guy will be highly grateful not because of the large amount you have provided but due to his qualifications and talent being observed and promoted by you. This is a very effective way of cost control.

If you find a person ineligible to work in his assigned task, try to train and use his services, otherwise put him in another department and check his performance. If he is still not able to deliver, give him his ticket.

If a company is expecting a project may be after 6 months and the present manpower is a burden on the costs but do not want to terminate them because they are talented and difficult to replace then the best way is to send the employees on a long leave. The employees will surely not mind this. (Raj & Kothai, 2014)

2.8 Motivation

Motivation has kept people in crises going throughout centuries; it has been the cause of increased standards of living, success, fortune, and satisfaction. Mark Anthony cased the Romans to turn from one extreme to another with his power to motivate. Most

leaders throughout history have used varying techniques of motivation and persuasion. The same is true of successful managers.

According to many, including Todes et al. (1977), the role of motivation in the work environment has great value. Many studies have evolved around various motivational techniques for directing employees towards desired goals. However, "the challenge to management is to recognize and understand the impact of various motivational systems on individual and group behavior within an organized work endeavor. The success or failure of motivation rests not on the technique itself but on management's ability to match the needs of people with appropriate rewards." (Todes et al., 1977).

Motives are needs, which force people to move towards goals, or point they define. Studies of motivation have tried to respond to the "why" of the human behavior, which is directed towards a goal and the need for that goal. Hersey and Blanchard (1977) noted that motives can be defined as needs, wants, drives, or impulses within the individual which are directed towards goals which may be conscious or subconscious. Freud long ago discovered the importance of subconscious motivation; in other words, people are not always aware of everything they want (Hersey and Blanchard, 1977). Dickson (1973) stated that employees are not motivated solely by money but by other factors, which is linked to their behavior and attitudes.

Todes et al. (1977) categorized the wants or needs of individuals into five views of human motives as sociological; biological; psychoanalytic; behaviorist; humanistic theory, which gives credit to biological drives, also honors sociological causes... the humanistic theory recognizes the place of behaviorist stimuli and psychoanalytic stimuli in motivating human behavior.

Many theories of motivation have been developed with the understanding of how employees' behaviors' can be energized positively and how they can better be directed to achieve desired objectives.

The objective of this research is to draw attention to the relevance of cultures to management with the sole purpose of contributing to a culturally feasible motivation theory building across cultures. Motivation practice in different societies requires

identification of the 'growth-positive' and 'growth-negative' culture based-factors. (Iguisi, 2009)

A definition of motivation is “the set of processes that determine the choices people make about their behaviors”. Motivation is an abstract term. It imparts incentives that require a response on part of someone else to achieve a defined goal. In business, motivation is not synonymous with salaries; money is a means for accommodating the economic needs of workers. Motivation means an inner wholesome desire to exert effort without the external stimulus of money. Motivating is the ability of indoctrinating the personnel with a unity of purpose and maintaining a continuing, harmonious relationship among all people. It is a force which encourages and promotes a willingness of every employee to cooperate with every member of the team. To maintain it is to create and perpetuate the climate which brings harmony and equilibrium into the entire work group for the benefit of all who are involved – the company as a whole (Wilbert Scheer 1979). Since the effective motivation comes from within, by motivating others, the manager can do more than create proper conditions that cause people to do their work willingness and enthusiasm.

Motivating is the work managers perform to inspire, encourage and impel people to take action (Louis Allen 1986). To motivate the employee, the employee must be reached; to reach him there must be a completed understanding of the complexity his make-up (Louis Allen 1986). Motivation efforts must be directed towards improving company operations. To be effective, however, they must also be designed to show benefits to the employee. In fact, motivation can best be accomplished when workers are able to merge their personal ambitions with those of the company. According to Robin and DeCenzo (1995; 271) motivation is defined thus, “the willingness to exert high level of effort to reach organizational goals, conditioned by the effort’s ability to satisfy some individual need”. Campbell and Pritchard (1976) in defines motivation as a set of independent and dependant relationships that explains the direction, amplitude and persistence of an individual’s behavior holding constant the effects of aptitude, skills, understanding of a task and the constraints operating in the work environment. Schrader (1972) linked construction worker need to motivation, and it was subsequently concluded by Thomas et al. (1990) that there is evidence supporting the existence of a linkage between an employees’ motivational level and their individual performance.

Atkinson (1964) defines it as the contemporary immediate influence on the direction, vigor, and persistence of action.

The relationship between the employer and employee must be one of understanding in order for the employee to identify himself with his work and with the business he is working for. Lack of motivation in return affects productivity. A number of symptoms may point to low morale: declining productivity; high employee turnover; increasing number of grievances; higher incidence of absenteeism and tardiness; increasing number of defective products; higher number of accidents or a higher level of waste materials and scrap (William Day 1978). A motivated employee is a loyal employee and to be loyal implies that the employee supports the actions and objectives of the firm. The appearance of the job as a whole has, in fact a bearing on the willingness and quality of an employee's performance (Martin Bruce 1962).

According to McClelland (1961) individuals tend to develop certain motivational drives on the cultural environment in which they live and these drives affect the way people view their jobs. McClelland suggests that achievement, affiliation, competence and power are four types of motivational drives that are found in individuals that are self-motivated and this may be the case for many construction workers. Motivation plays a part in enhancing construction labour productivity (Smithers and Walker, 2000) and forms the basis for identification of the work environment factors. For example, Laufer and Moore (1983) advocated the use of financial incentive programs to improve construction labour productivity, reinforcing Maloney's (1982) thesis of driving forces that led to productivity improvements. Autonomy and comradeship (Edwards and Eckblad, 1984) are also found to be important aspects that add to the way construction workers are self-motivated about their work. However, much work in linking motivation and productivity relied on Herzberg's sample involving mainly white-collar professionals (Mullins, 1996). Furthermore, Hofstede (1980) decried such motivational theories as merely point made about the ad nauseam emphasis on the managerial perspective in the quest to improve productivity.

John Borcharding and Clarkson Oglesby (1974) discovered that productive job creates high job satisfaction while non-productive job (one which fall behind schedule) produce dissatisfaction at all levels of the management/worker chain. The relationship is believed to be due to the very nature of construction, thus different from the one found

in an office or factory setting which states that high job satisfaction leads to greater productivity. In construction, a worker, through his own efforts produces a highly visible, physical structure in which great satisfaction comes from completion. Therefore, jobs that are well-planned and run smoothly produce great satisfaction while jobs with poor management (with scheduling and planning problems), create dissatisfaction. This illustrates the relationship between job satisfaction and productivity since; well-managed jobs are generally more productive.

A close review of all theories of human motivation reveal a common driving principle that people do what they are rewarded for doing. In general, the theories on motivation can be classified as: employee needs motivation through goal-setting, employee reward/incentives and reinforcement. (Thwala & Monese)

2.8.1 Defining Motivation

Motivation is one of the issues that have been debated in every field today. Answers have been searched for questions such as "What is motivation?", "How does one get motivated?", "What should be done to increase motivation?" Motivation basically has two dimensions (Anonymous I, 2010), one being "making employees work better, more efficiently and effectively" from the point of view of managers, the other being "enabling employees to do their jobs in the best way with enjoyment and desire" from the point of view of employees. In fact, the aim of all is the same: to maintain employees' effectiveness, efficiency and happiness in doing their jobs Susan (1995) defined motivation as an energizing force that stimulates arousal, direction, and persistence of behavior. Motivation is both a force within an individual and a process used to get others to expend effort. Andrew (2000) says that motivation is concern with the "why" of behavior; the reason people do things.

According to Stephen (2000), motivation is the willingness to exert a persistent and high level of effort towards organizational goals, conditioned by the effort's ability to satisfy some individual needs. The key elements in this definition are intensity of efforts, persistence, direction towards organizational goals and needs.

Decenzo (2001) stated that motivation is the result of the interaction between the individual and the situation. Certainly, individuals differ in the motivational drive, but an individual's motivation varies from situation to situation, from culture to culture.

Robbins (2001) defined motivation as, the willingness to exert high levels of efforts to reach organizational goals, conditioned by effort's ability to satisfy some individual needs.

Motivation theories are classified into two groups: 'content theories' and 'process theories'. Content theories explore what motivate people: that is, arouses and energized the behavior. The most famous content theories are Maslow's need hierarchy, Herzberg's two-factor theory, and McClelland's three-factor theory. Process theories researched the specifics of the motivation process. Vroom's expectancy theory and Adam's equity theory are well known process theories. As the concept of motivation is reviewed, we should keep in mind that level of motivation varies both among individuals and within individuals at different levels. Among motivation theories to be reviewed are those of Maslow, Herzberg, Hofstede, and Vroom. (Iguisi, 2009)

2.8.2 Motivational Theories

The literature review has been done based on the research findings that were published on employee's motivation for more than 50 years ago by the works of Maslow in 1954; Herzberg et al in 1959; Hotsede(1980, 1990) and Vroom 1964) and resent researching done by others ???. The models used in the construction industry today have been developed from their theories. Their studies focused on *motivation, employee needs and incentives* in the construction industry.

2.8.3 Maslow's Theory of Motivation



Figure 2-3 Maslow's hierarchy of need model

Maslow, a behavioral scientist, is one of the most prominent writers in the area of human motivation. He developed the "Hierarchy of needs theory". Maslow (1970) stated there is a connection between behavior of individuals and their needs, and the strongest "felt needs" determine behaviors of individuals at given times. Maslow's approach was based on the assumption that the individual is the basic unit in a social organization that is capable of "life-affirming and self-fulfilling" behavior.

Maslow believed that work becomes a personal commitment and its accomplishment creates satisfaction and self-actualization and provides a way to achieve individual goals. Maslow categorized these "needs" into five levels; from the most primary needs of Physiological; Safety; Social at the base to the most secondary needs of Esteem and Self-actualization needs at the top.

Basically, Maslow postulates that knowing the needs that employees are trying to satisfy, managers can help satisfy those needs so that employees can be satisfied and, then, motivated to work better. He believes that the lower needs are satisfied before an individual attempt to satisfy a higher level need in the hierarchy (Maslow, 2000)

2.8.4 Herzberg's Two-Factor Theory

Both Herzberg and Maslow agreed that if an organization met the safety and social "needs" of its employee group, the satisfaction and level of performance of the group would rise. Herzberg (1968) proposed the "Two-Factor" theory of motivation. He conducted research among 200 engineers and accountants regarding job satisfaction and dissatisfaction. The subjects were asked to think of a time when they felt good or bad in their work environment.

Herzberg, after analyzing the responses, concluded that there are two groups of factors, which cause satisfaction and dissatisfaction in an organizational setting and work environment. Herzberg called the first group of factors "motivators" and the second group "hygiene":

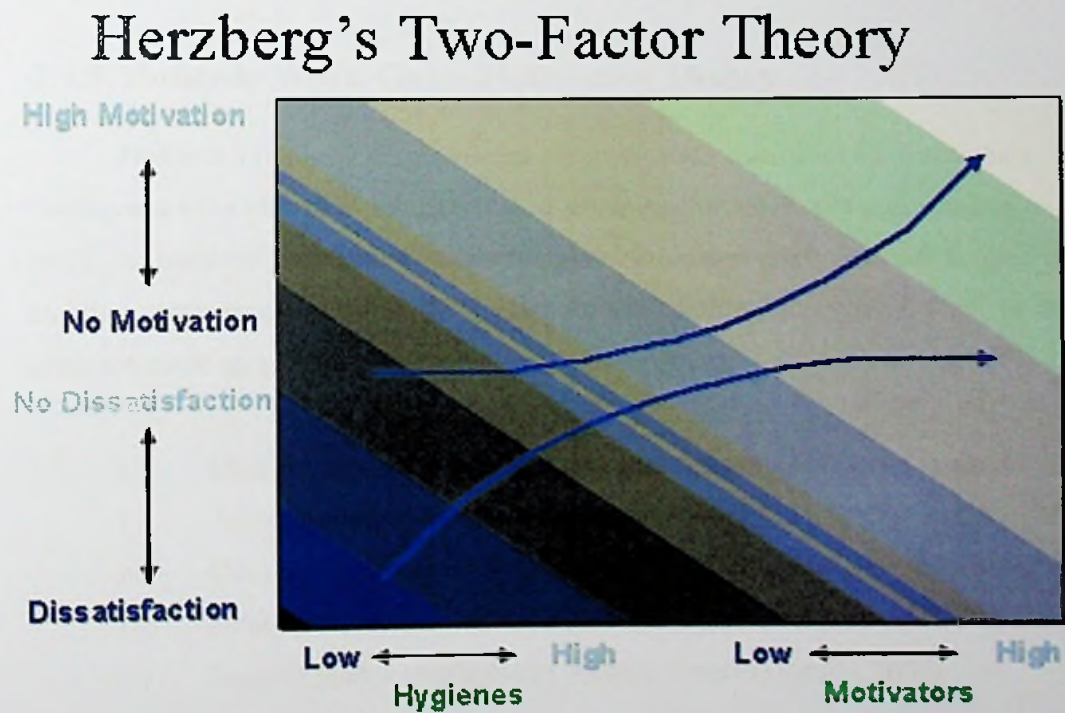


Figure 2-4 Herzberg's two-factor theory

The hygiene factors, also called maintenance factors, are of such a nature that their presence in the organization will not necessarily motivate an individual to work harder but the absence of which can create an unhealthy organizational environment. Hygiene factors, such as salary, company policy, supervision, job security, working conditions interpersonal relations, and status, are job context factors that help to

maintain a healthy working environment. They do not motivate workers when present but workers can become dissatisfied when these factors are absent.

The second set of factors-the motivators-are related to the job content of workers. The presence of these factors can motivate workers to perform better and their absence can result in dissatisfaction. These factors include achievement, recognition, advancement, challenging work, opportunity for growth, and higher responsibility.

Herzberg maintains that both factors are important to the smooth running of an organization. The hygiene factor, even though not motivators can, if absent creates a poor job attitude. However, an organization may have good working conditions, with adequate provision of hygiene factors, which are only job context, and workers may not be motivated. If adequate attention is paid to the motivators, which are job content related, workers may be motivated to work harder and produce more. (Iguisi, 2009)

2.8.5 Hofstede Work-Goals Motivation Theory

Hofstede (1980, 1990) postulated his motivation theory on 18 work-goals. The work-goals were classified into five major groupings or super goals as relating to the needs or goals of individuals in motivation. The super goals are: do a good job, ambition, cooperation and individuality, family and comfort and security. The five super goals are made up of these component goals among others:

- i.) Do a good job (challenging work, achievement, skill utilization).
- ii.) Ambition (advancement, recognition)
- iii.) Cooperation (good working relationships with colleagues, with boss)
- iv.) Family and comfort (time for personal/family life; desirable living area)
- v.) Security (stable employment, welfare benefits) (Iguisi, 2009)



SOURCE: Based on Jim Collins, *Good to Great: Why Some Companies Make the Leap ... and Others Don't* (New York: HarperCollins, 2001), p. 20.

Figure 2-5 Five Major Groupings or Super Goals as Relating To the Needs or Goals of Individuals in Motivation

2.8.6 Vroom Expectancy Theory

Vroom (1964) approaches the issue of human motivation quite differently from the ways Maslow and Herzberg did. He holds that people will be motivated to pursue the achievement of a desired goal if: (1) they believe in the worth of the goal; and (2) they believe that their actions will ensure the attainment of the goal. In a more detailed form, Vroom believe that a person's motivation to perform will depend on the value the person places on the outcome of his efforts multiplied by his confidence that the efforts will actually help to desired goal; that is $F = V \times E$

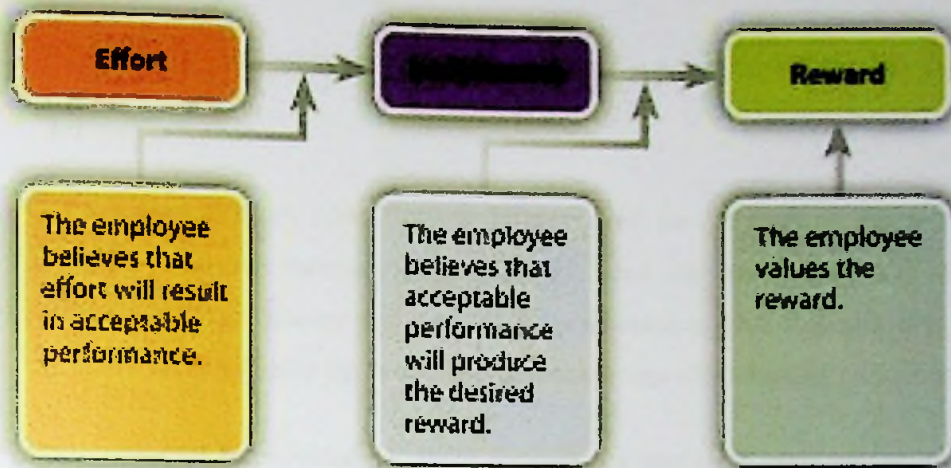


Figure 2-6 Effort, Performance vs Rewards

Vroom's theory shows that individuals' have goals and are motivated towards actions that will ensure the achievement of these goals. As such, managers should communicate how employees goals, such as promotion, more pay, recognition, and so on, can be earned in terms of what behavioral patterns are known to employees, such patterns should form the basis for administering rewards.

Otherwise problems will occur in terms of workers' lack of confidence in organizational policy, and the result may be detrimental to good working environment. (Iguisi, 2009)

2.9 Chapter Summery

Motivation is one of the most important factors affecting the overall performance of any organization, large or small. At the micro-level, improved motivation decreases unit costs and serves as an indicator of project performance. At the macro-level, improved motivation is a vital tool in countering inflationary effects and determining wage policies. Improved motivation is thus always counted among the basic means of solving economic problems. It is increasingly recognized that capital alone is an inadequate means of producing more wealth or for starting a business in developing countries. Improved motivation is also required; if all production inputs are well utilized, capital improvements and enhanced motivation go hand in hand. In other words, increased motivation enhances investments without any burden to governments. In addition to the advantages at this fundamental level, the advantages of motivation improvement can be summarized as above.

Chapter 3 RESEARCH APPROACH AND METHODOLOGY

3.1 General

The research methodology defines what the activity of research is, how to proceed, how to measure progress, and what constitutes success. The research methodology is a science that studying how research is done scientifically. It is the way to solve systematically the research problem by logically adopting various steps.

It will be provided details of the research approach, main research strategies and the most suitable strategies that can be used for this study in this chapter. Furthermore, identifying the parties from which data should be gathered will be elaborated throughout this section. Most efficient data gathering techniques to collect the information from the relevant parties will be discussed in the latter part of this chapter.

Research is a scientific and systematic exploration for relevant information on a topic. It comprises defining of problems, formulating hypothesis or suggested solutions, collecting and evaluating data, making deductions and reaching conclusions and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis.

3.2 Objectives of Research

The purpose of research is to discover answers to questions through the application of scientific procedures. The main aim of research is to find out the truth which is hidden and which has not been discovered yet. Each research study has its own specific purpose (Jahoda & Cook, 1995). Point out those research objectives as falling into a number of following broad groupings:

1. To gain familiarity with a phenomenon or to achieve new insights into it. (studies with this object in view are termed as *exploratory* or *formulative* research studies);
2. To portray accurately the characteristics of a particular individual, situation or a group. (studies with this object in view are known as *descriptive* research studies);

3. To determine the frequency with which something occurs or with which it is associated with something else. (studies with this object in view are known as *diagnostic* research studies);
4. To test a hypothesis of a causal relationship between variables (such studies are known as *Hypothesis-testing* research studies).

3.3 Research Design

A research design is the logic that links the data to be collected to the initial questions of study and prescribed that when developing the research design, the scope of the research, the availability of resources, and time constraints must be taken into consideration (Yin, 2003). Macmillan and Schumaner (2001). Define it as a plan for selecting subjects, research sites, and data collection procedures to answer the research questions. Further, they highlight that the goal of a sound research design is to provide results that are judged to be credible.

3.4 Data Collection

Data collection can be derived from a number of methods, which include interviews, focus groups, surveys, telephone interviews, field notes, taped social interaction or questionnaires (Heaton, 2004) Data collection is an essential component to conducting research. Data collection is a complicated and hard task. By and large it is also very difficult to say which the best method of data collection is. O'Leary (2004, p. 150) remarks "Collecting credible data is a tough task, and it is worth remembering that one method of data collection is not inherently better than another." Therefore, which data collection method to use would depend upon the research goals and the advantages and disadvantages of the adapted methods?

Data can be gathered from a number of sources including written documents, records, workplaces, the Internet, surveys or interviews. Interviews are a systematic way of talking and listening to people (<http://www.who.int>) and are another way to collect data from individuals through conversations. The researcher or the interviewer often uses open questions. Data is collected from the interviewee. The researcher needs to

remember the interviewer's view about the topic is not of importance. The interviewee or respondent is the primary data for the study.

3.5 Design of Questionnaire

Structured questionnaires which were self-administered were utilized for the survey. (Kaming et al. 1997), *what motivates construction craftsmen in developing countries? A case study of Indonesia, Building and Environment*) this questionnaire consisted of open-ended questions. The latter required the respondents to indicate their responses in writing. Questions, response format and instructions were designed to facilitate the administration of the survey.

In this case the question 1 to 24 was related to motivation (*See Appendix- A*). Tradesmen were requested to give their opinion on the motivational level as per the significance level pertaining to the individual. Five options against each question were given to the responder to respond independently depending on how each matter is related to the individual concern with motivation.

In relation to motivation, "1" represented strongly not significant, "2" represented not significant, "3" represented average, "4" represented significant and "5" represented strongly significant. Tradesmen were therefore requested, based on opinion or perceptions to tick where appropriate the degree of effect on individual motivation where the factors existed. (Makulsawtudon A. and Emsley M. (2001), *Factors affecting the motivation of the Construction Industry in Thailand: The Craftsmen's Perception*)

3.6 Sampling Technique and Sample Sizing

A purposive sampling method was used to select the sample from the Tri Forces. Out of 441,291 numbers of tradesmen 278 had been selected as a representative sample (Krekcie and Morgan 1970 research publication). Hence out of 21,500 tradesmen whom are working under all three Forces, 100 were selected proportionately from Tri Forces. This sample is confined to the specific type of people who can provide the desired information and I wish to draw conclusion that would be generalized to the tradesmen population in the Defence.



3.7 Administering of Questionnaires

The questionnaires were administered to tradesmen and one week duration was given to respond to the questions in the questionnaires. All the necessary instructions were given for them, which is required to answer the questionnaires and asked to submit duly completed papers back. Furthermore, respondents' educational level was not a problem for understanding what was expected since all the tradesmen in the Defence are educated enough to required level. In order to select the samples size following table was used which was introduced by a previous research done by Isaac and Michael, 1981.

Table 3-1 Recommended sample sizes for two different precision levels

2. Recommended sample sizes for two different precision levels

Population Size	Sample size		Population size	Sample size	
	+5%	10%		5%	10%
100	81	51	9000	353	99
125	96	56	10,000	355	99
150	110	61	15,000	390	99
175	122	64	20,000	392	100
200	134	67	25,000	394	100
225	144	70	50,000	397	100
250	154	72	100,000	398	100

Source: Isaac and Michael, 1981; Smith, M. E., 1983

3.8 Data Analysis Tools

The following analytical tool was used in analyzing the responses obtained from the survey. That is known as the "Importance index".

The nearer the value of importance index of the identified factor is to unity (1), the more significant it is to worker motivation. A ranking of importance indices were undertaken to ascertain the most frequent factors. The Importance index determination was also adopted from (Lim and Alum 1995) study construction workers motivation, issues encountered by contractors in Singapore.

$$\text{Importance index (I.I.)} = \frac{5n_1 + 4n_2 + 3n_3 + 2n_4 + n_5}{5(n_1 + n_2 + n_3 + n_4 + n_5)}$$

Where:

- n₁ - number of respondent answered 'strongly significant'
- n₂ - number of respondent answered 'significant'
- n₃ - number of respondent answered 'average'
- n₄ - number of respondent answered 'not significant'
- n₅ - number of respondent answered 'strongly not significant'

3.9 Chapter Summary

A list of motivational factors were identified from the review of literature, internet search, talking with people in an informal way and personal interviews and all the valuable information and data were developed into a questionnaire for the main survey. The research questions were developed according to the theoretical framework. The appropriate methodology was developed as possible to answer those questions. Further this chapter discussed data collection methods, target sample and methods of data analysis used for the research.

Chapter 4 FINDINGS AND DATA ANALYSIS

4.1 General

The aim of this study was to find the factors affecting for the motivation of the tradesmen in the Defence Services Sri Lanka. In order to achieve this, methodology consisting of a review of literature and an onsite survey of tradesmen from the Tri Forces was employed. This chapter presents the findings of the study.

4.2 Survey Findings

A total of 100 questionnaires were administered for the survey. For these 71 respondents from the Sri Lanka Army, 15 respondents from the Sri Lanka Navy and 14 respondents from the Sri Lanka Air Force were selected. All 100 responded at 100% response rate.

4.3 Demographic Variables

The responses were further analyzed to determine the demography of respondents. The 71 respondents obtained from Sri Lanka Army were further grouped in to main trades as shown in following figure and the balance 29 respondents from the other two Forces were selected randomly from all trades. All 100 tradesmen responded giving their opinion with 100% respondent rate.

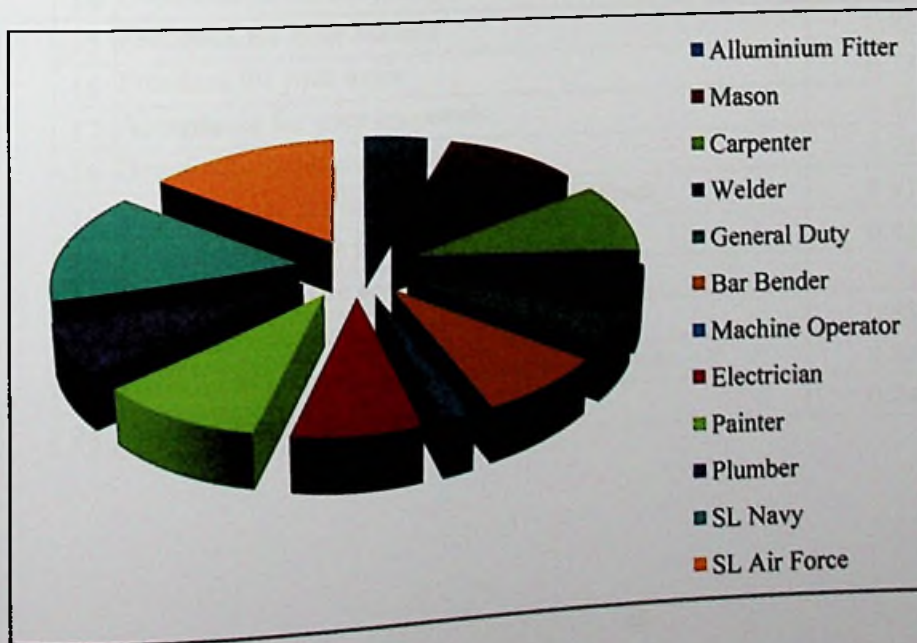


Figure 4-1 Questionnaire allocation - Trade wise

Importance index against each question was calculated based on the given respond for each question by means of the selected equation and tabulated as per the following table. Then the descending order of importance index was calculated and tabulated accordingly. Then the top 10 motivational factors were tabulated.

Importance Index against Each Question

Table 4-1 Significant Levels & Importance Index against Each Question.

	Description	Importance Index(II)
1	Salary compared to the other organizations	0.88
2	Salary Increment	0.86
3	On time payment of Salary	0.92
4	Promotions	0.77
5	Permanent Employment	0.97
6	Entitlement for Pension	0.95
7	Recognition being in Defence	0.82
8	Discipline of Work Environment	0.91
9	Opportunities for Training	0.82
10	Medical Facilities	0.92
11	Protection against any disability during the work	0.94
12	Insurance Cover	0.83
13	Ability to go for entitle leave or any other emergency leave	0.90
14	Contribution for the family members protection	0.90
15	Feedback for your Service	0.83
16	Freedom for your work	0.78
17	Acceptance for your proposals	0.77
18	Benefits for your overtime work	0.72
19	Opportunities for Improvement of your Trade	0.91
20	Available Welfare facilities	0.82
21	Sports and Leisure activities	0.71
22	Food and Accommodation	0.85
23	Friendly Management and Correct Commands	0.87
24	Plan for Transfers	0.74

Descending order of motivational factors according to the importance index

Table 4-2 Descending order of motivational factors according to the importance index

	Description	Importance Index(II)
1	Permanent Employment	0.97
2	Entitlement for Pension	0.95
3	Protection against any disability during the work	0.94
4	On time payment of Salary	0.92
5	Medical Facilities	0.92
6	Discipline of Work Environment	0.91
7	Opportunities for Improvement of your Trade	0.91
8	Contribution for the family members protection	0.90
9	Ability to go for entitle leave or any other emergency leave	0.90
10	Salary compared to the other organizations	0.88
11	Friendly Management and Correct Commands	0.87
12	Salary Increment	0.86
13	Food and Accommodation	0.85
14	Insurance Cover	0.83
15	Feedback for your Service	0.83
16	Recognition being in Defence	0.82
17	Available Welfare facilities	0.82
18	Opportunities for Training	0.82
19	Freedom for your work	0.78
20	Promotions	0.77
21	Acceptance for your proposals	0.77
22	Plan for Transfers	0.74
23	Benefits for your overtime work	0.72
24	Sports and Leisure activities	0.71

Top Ten motivational factors

Table 4-3 Top ten factors for motivation

	Description	Importance Index(II)
1	Permanent Employment	0.97
2	Entitlement for Pension	0.95
3	Protection against any disability during the work	0.94
4	On time payment of Salary	0.92
5	Medical Facilities	0.92
6	Discipline of Work Environment	0.91
7	Opportunities for Improvement of your Trade	0.91
8	Contribution for the family members protection	0.90
9	Ability to go for entitle leave or any other emergency leave	0.90
10	Salary compared to the other organizations	0.88

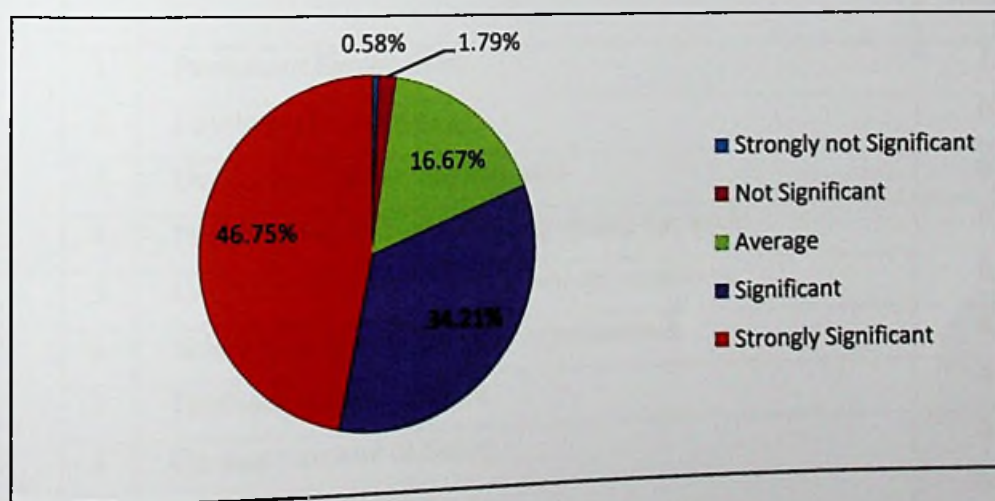
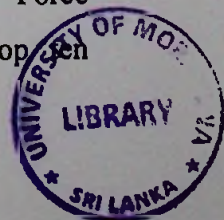


Figure 4-2 Overall significant level of respondents for all questions

4.4 Trade Wise Comparison of Motivational Factors

In this study, trade wise comparison of importance index was carried out against each trade considered and tradesmen of Sri Lanka Navy and Sri Lanka Air Force separately as well. As per the descending order of importance index, top ten



motivational factors were tabulated as follows against each trade and Sri Lanka Navy & Sri Lanka Air Force tradesmen.

It is observed that the motivational factor "Permanent Employment" has come as the highest importance index in seven times out of twelve comparisons giving percentage of 58%. The motivational factor "Entitlement for Pension" has come as the highest or second highest importance index in six times out of twelve comparisons giving percentage of 50%. At least one of "Permanent Employment" or "Entitlement for Pension" out of considered all motivational factors has come within the highest, second highest or third highest importance index except General Duty personnel. This shows all have given the top priority for the job security.

4.4.1 Alluminium Fitter

Table 4-4 Significant Levels & Importance Index against motivational factors - Alluminium Fitter

	Description	Importance Index(II)
1	Permanent Employment	1.00
2	Entitlement for Pension	0.96
3	Discipline of Work Environment	0.96
4	Protection against any disability during the work	0.96
5	Contribution for the family members protection	0.96
6	Salary compared to the other organizations	0.92
7	Feedback for your Service	0.92
8	On time payment of Salary	0.88
9	Promotions	0.88
10	Recognition being in Defence	0.88

4.4.2 Mason

Table 4-5 Significant Levels & Importance Index against motivational factors- Mason

	Description	Importance Index(II)
1	Protection against any disability during the work	0.98
2	Permanent Employment	0.95
3	Medical Facilities	0.93
4	Salary compared to the other organizations	0.91
5	Entitlement for Pension	0.91
6	Discipline of Work Environment	0.91
7	Contribution for the family members protection	0.89
8	Opportunities for Improvement of your Trade	0.87
9	Friendly Management and Correct Commands	0.87
10	On time payment of Salary	0.85

When comparing Alluminium Fitter and mason trades, in Alluminium Fitter trade, "Permanent Employment" and "Entitlement for Pension" have come as highest and second highest importance index whereas in mason trade "Protection against any disability during the work" has come highest while "Permanent Employment" has come as second highest importance index. This further shows that while considering the job security, tradesmen who are exposed to high risk areas consider more on protection even after disable situation occur during the work.

4.4.3 Carpenter

Table 4-6 Significant Levels & Importance Index against motivational factors – Carpenter

	Description	Importance Index(II)
1	Entitlement for Pension	0.98
2	Medical Facilities	0.98
3	Permanent Employment	0.96
4	Recognition being in Defence	0.92
5	Discipline of Work Environment	0.92
6	Ability to go for entitle leave or any other emergency leave	0.92
7	Salary compared to the other organizations	0.90
8	On time payment of Salary	0.90
9	Protection against any disability during the work	0.90
10	Contribution for the family members protection	0.90

4.4.4 Welder

Table 4-7 Significant Levels & Importance Index against motivational factors – Welder

	Description	Importance Index(II)
1	Permanent Employment	1.00
2	Entitlement for Pension	1.00
3	Medical Facilities	1.00
4	Contribution for the family members protection	1.00
5	Protection against any disability during the work	0.96
6	Ability to go for entitle leave or any other emergency leave	0.96
7	On time payment of Salary	0.92
8	Discipline of Work Environment	0.92
9	Opportunities for Improvement of your Trade	0.92
10	Opportunities for Training	0.88

4.4.5 General Duty

Table 4-8 Significant Levels & Importance Index against motivational factors- General Duty

	Description	Importance Index(II)
1	Salary compared to the other organizations	1.00
2	Salary Increment	1.00
3	On time payment of Salary	1.00
4	Permanent Employment	1.00
5	Entitlement for Pension	1.00
6	Recognition being in Defence	1.00
7	Discipline of Work Environment	1.00
8	Protection against any disability during the work	1.00
9	Insurance Cover	1.00
10	Ability to go for entitle leave or any other emergency leave	1.00

In General Duty category no trade qualification was considered during the enlistment and the personnel under General Duty category are utilized as helpers for various tradesmen in Defence services constructions. It is observed "Salary compared to the other organizations", "Salary Increment" and "On time payment of Salary" have come as highest, second highest and third highest importance index. This shows personnel whom do not have their trades to be improved within the organization are more concern about money.



4.4.6 Barbender

Table 4-9 Significant Levels & Importance Index against motivational factors – Barbender

	Description	Importance Index(II)
1	Permanent Employment	1.00
2	Protection against any disability during the work	0.98
3	Discipline of Work Environment	0.95
4	Medical Facilities	0.93
5	Opportunities for Improvement of your Trade	0.93
6	Entitlement for Pension	0.90
7	Opportunities for Training	0.90
8	Insurance Cover	0.90
9	Ability to go for entitle leave or any other emergency leave	0.90
10	Contribution for the family members protection	0.90

4.4.7 Machine Operator

Table 4-10 Significant Levels & Importance Index against motivational factors - Machine Operator

	Description	Importance Index(II)
1	On time payment of Salary	1.00
2	Promotions	1.00
3	Permanent Employment	1.00
4	Discipline of Work Environment	1.00
5	Opportunities for Training	1.00
6	Plan for Transfers	0.90
7	Entitlement for Pension	0.90
8	Ability to go for entitle leave or any other emergency leave	0.90
9	Contribution for the family members protection	0.90
10	Feedback for your Service	0.90

4.4.8 Electrician

Table 4-11 Significant Levels & Importance Index against motivational factors—Electrician

	Description	Importance Index(II)
1	Salary compared to the other organizations	1.00
2	On time payment of Salary	1.00
3	Permanent Employment	0.98
4	Medical Facilities	0.95
5	Protection against any disability during the work	0.95
6	Entitlement for Pension	0.93
7	Ability to go for entitle leave or any other emergency leave	0.93
8	Opportunities for Improvement of your Trade	0.93
9	Food and Accommodation	0.93
10	Salary Increment	0.88

Importance index against "Permanent Employment" for Personnel under Machine operator trade is equals to 1.00 and the Importance index against "Permanent Employment" for Personnel under Electrician trade is equals to 0.98. This indicates they are also having considered the job security as well while giving their priorities for their most concerned areas. So that "On time payment of Salary", "Promotions" and "Permanent Employment" have been given equal priorities for machine Operator where importance index for all three factors are equal to one.

4.4.9 Painter

Table 4-12 Significant Levels & Importance Index against motivational factors– Painter

	Description	Importance Index(II)
1	Permanent Employment	0.98
2	Entitlement for Pension	0.98
3	Protection against any disability during the work	0.98
4	On time payment of Salary	0.96
5	Contribution for the family members protection	0.96
6	Salary compared to the other organizations	0.94
7	Discipline of Work Environment	0.94
8	Medical Facilities	0.94
9	Salary Increment	0.92
10	Opportunities for Improvement of your Trade	0.92

4.4.10 Plumber

Table 4-13 Significant Levels & Importance Index against motivational factors– Plumber

	Description	Importance Index(II)
1	Permanent Employment	1.00
2	Entitlement for Pension	0.97
3	Opportunities for Improvement of your Trade	0.97
4	Opportunities for Training	0.94
5	Ability to go for entitle leave or any other emergency leave	0.94
6	On time payment of Salary	0.89
7	Protection against any disability during the work	0.89
8	Friendly Management and Correct Commands	0.89
9	Salary Increment	0.86
10	Insurance Cover	0.86

Concern with Painting and Plumbing trades "Permanent Employment" and "Entitlement for Pension" have come highest and second highest importance index within the top ten motivational factors where both should work anywhere in the construction site whom are exposed to high risk areas.

Concern with all trades considered from Sri Lanka Army, it is observed that job security had been given the top priority.

In this study, since the sample size obtained from Sri Lanka Army was comparatively high all the trades could be considered separately. But talking about the Sri Lanka Navy and Sri Lanka Air Force personnel, since sample size was small as per the criteria adopted, Sri Lanka Navy and Sri Lanka Air Force tradesmen were questioned commonly, without concerning about the individual trades.

4.4.11 Tradesmen of SL Navy

In this comparison all trades considered in Sri Lanka Navy were included as a common and individual trades were not highlighted since the sample size allocated for Sri Lanka Navy was limited.

Table 4-14 Significant Levels & Importance Index against motivational factors - Tradesmen of SL Navy

	Description	Importance Index(II)
1	Permanent Employment	0.99
2	Entitlement for Pension	0.99
3	On time payment of Salary	0.97
4	Opportunities for Improvement of your Trade	0.96
5	Discipline of Work Environment	0.95
6	Protection against any disability during the work	0.95
7	Ability to go for entitle leave or any other emergency leave	0.93
8	Contribution for the family members protection	0.93
9	Medical Facilities	0.92
10	Insurance Cover	0.91



4.4.12 Tradesmen of SL Air Force

Again concerning tradesmen of Sri Lanka Air Force, Separate trades were not discussed and were included as a common since the sample size allocated for Sri Lanka Air Force also was limited.

Table 4-15 Significant Levels & Importance Index against motivational factors—
Tradesmen of SL Air Force

	Description	Importance Index(II)
1	Permanent Employment	0.90
2	Protection against any disability during the work	0.90
3	Contribution for the family members protection	0.90
4	Salary Increment	0.89
5	On time payment of Salary	0.89
6	Entitlement for Pension	0.87
7	Medical Facilities	0.87
8	Friendly Management and Correct Commands	0.87
9	Discipline of Work Environment	0.86
10	Ability to go for entitle leave or any other emergency leave	0.86

Concern with tradesmen of Sri Lanka Navy and Sri Lanka Air Force no differences was observed and they are concerned about job security as the priority since the motivational factor of "Permanent Employment" come as the highest importance index.

4.4.13

Graphical presentation of the behavior of all trades against individual motivational factors

In this graphical presentation, very similar pattern for all tradesmen concerning particular motivational factors could be observed. For an example while all curves against motivational factor of "Promotions" rapidly pointing out towards the "X" axis where importance index equals to 0.60, all curves against "Permanent Employment" rapidly pointing up towards the axis of importance index equals to 1.00.

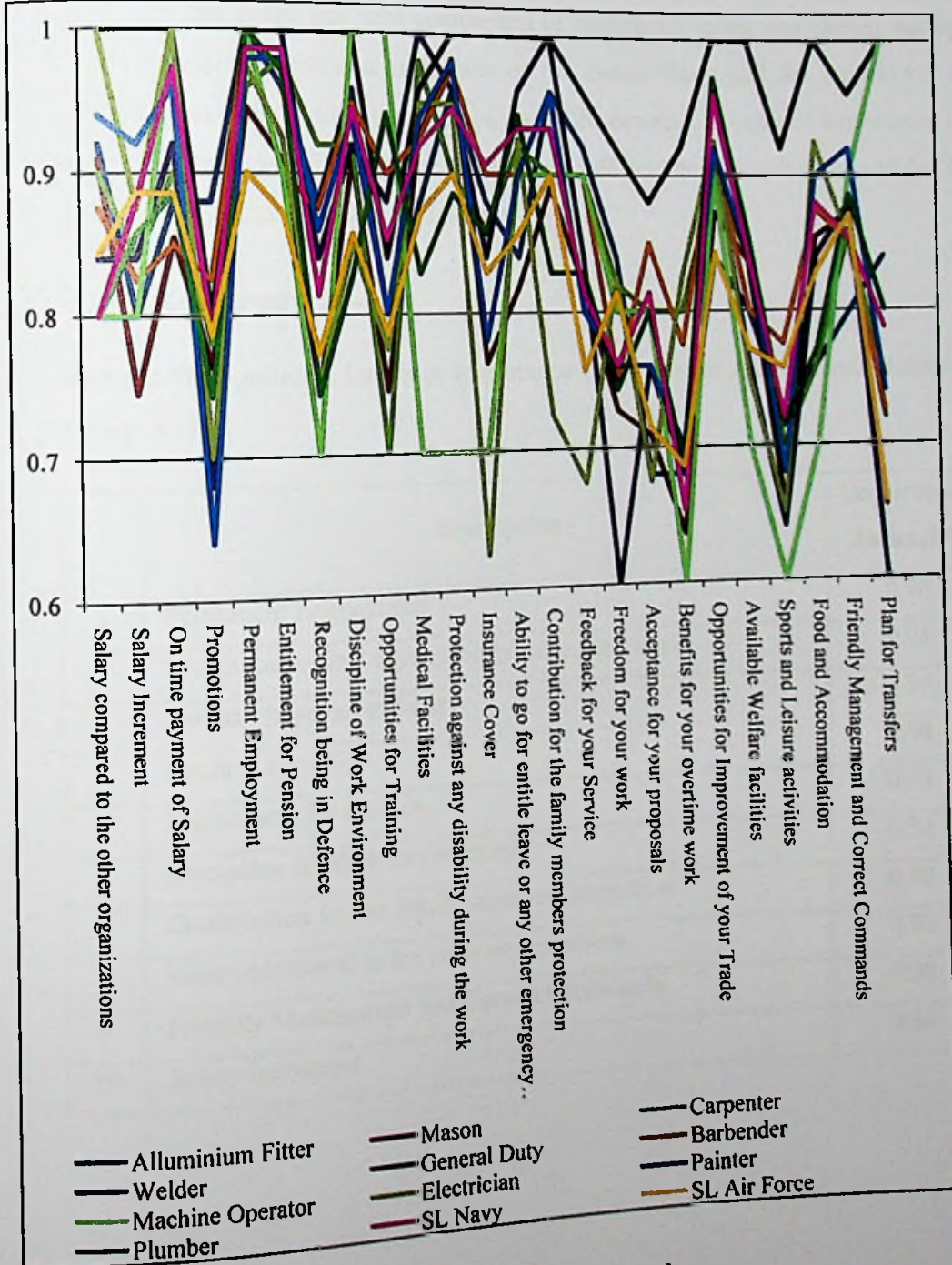


Figure 4-3 Graphical Presentation of trade wise respond

In this, even with individual trades and the tradesmen among Sri Lanka Navy and Sri Lanka Air Force, the motivational factors like “Permanent Employment”, “Entitlement for Pension”, “Protection against any disability during the work”, “Contribution for the family member’s protection” & “On time payment of Salary” have come within the top ten motivational factors identified in this survey.

4.5 Age Wise Comparison of Motivational Factors

In this study, age wise comparison of importance index was carried out against each trade considered and tradesmen of Sri Lanka Navy and Sri Lanka Air Force separately as well. In all age categories, as per the descending order of importance index, top ten motivational factors were tabulated as follows against each trade and Sri Lanka Navy & Sri Lanka Air Force tradesmen.

4.5.1 Age group 20-30

Table 4-16 Significant Levels & Importance Index against motivational factors– Age Group 20-30

	Description	Importance Index(II)
1	Permanent Employment	0.98
2	Protection against any disability during the work	0.95
3	On time payment of Salary	0.94
4	Medical Facilities	0.94
5	Entitlement for Pension	0.93
6	Discipline of Work Environment	0.92
7	Contribution for the family members protection	0.92
8	Salary compared to the other organizations	0.90
9	Friendly Management and Correct Commands	0.90
10	Salary Increment	0.89

4.5.2 Age group 31-40

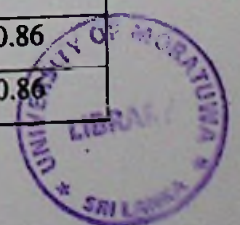
Table 4-17 Significant Levels & Importance Index against motivational factors– Age Group 31-40

	Description	Importance Index(II)
1	Permanent Employment	0.97
2	Entitlement for Pension	0.96
3	Protection against any disability during the work	0.94
4	Ability to go for entitle leave or any other emergency leave	0.93
5	Opportunities for Improvement of your Trade	0.93
6	Medical Facilities	0.92
7	Contribution for the family members protection	0.92
8	On time payment of Salary	0.91
9	Discipline of Work Environment	0.91
10	Salary compared to the other organizations	0.88

4.5.3 Age group 41-50

Table 4-18 Significant Levels & Importance Index against motivational factors– Age Group 41-50

	Description	Importance Index(II)
		0.96
1	Permanent Employment	0.94
2	Entitlement for Pension	0.92
3	Protection against any disability during the work	0.91
4	On time payment of Salary	0.91
5	Discipline of Work Environment	0.90
6	Opportunities for Improvement of your Trade	0.89
7	Medical Facilities	0.87
8	Ability to go for entitle leave or any other emergency leave	0.86
9	Salary compared to the other organizations	0.86
10	Contribution for the family members protection	



When consider about the age groups, within all age groups considered like “Age Group 20-30”, “Age Group 31-40” and “Age Group 41-50”, it is observed that all were concerned about the job security indicating “Permanent Employment” as the highest priority.

4.5.4 Graphical presentation of the behavior of age groups against individual motivational factors

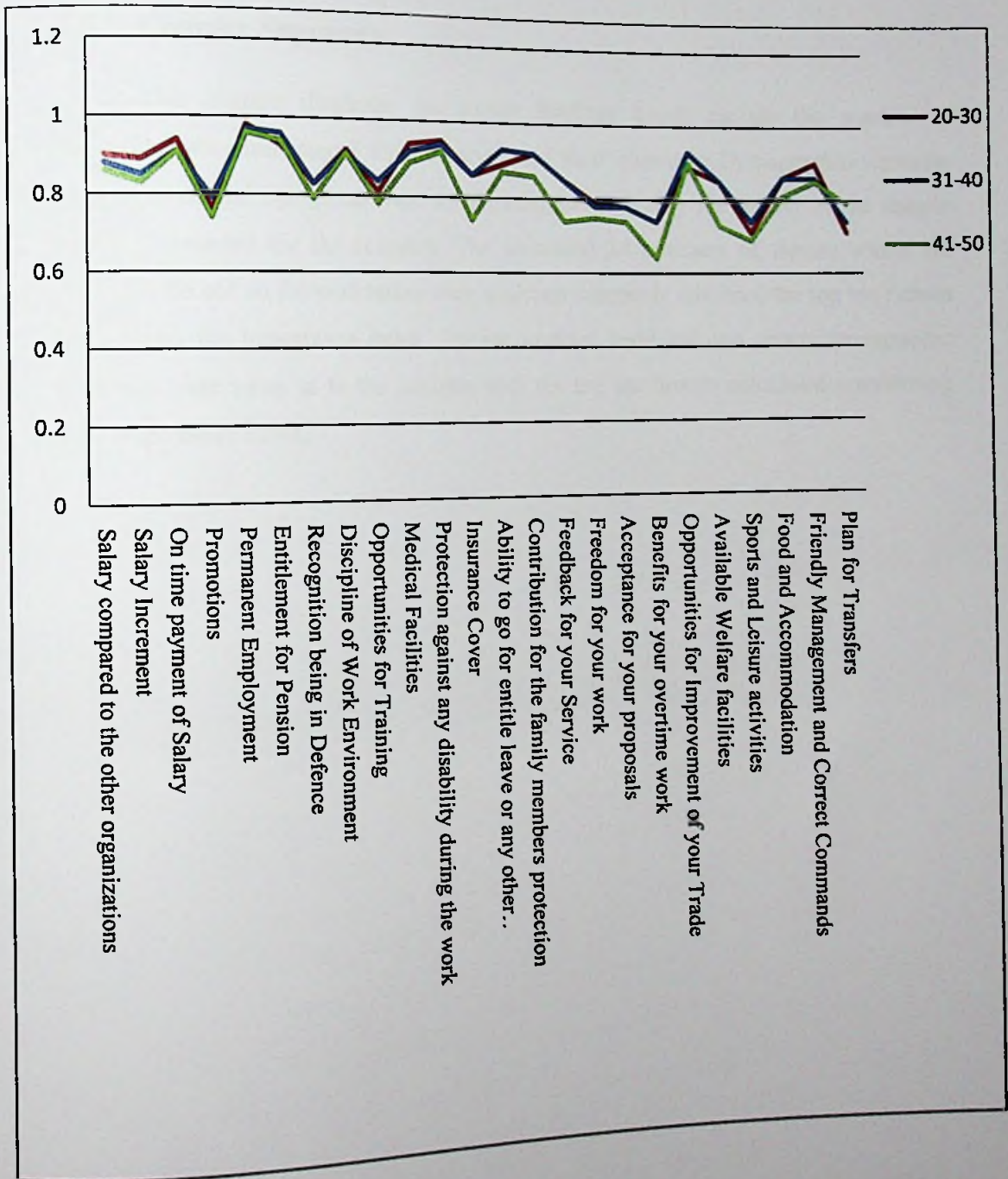


Figure 4-4 Graphical Presentation of age wise respond

In this, even with different age categories, individual trades and the tradesmen among Sri Lanka Navy and Sri Lanka Air Force, the motivational factors like "Permanent Employment", "Entitlement for Pension", "Protection against any disability during the work", "Contribution for the family members protection" and "On time payment of Salary" have come within the top ten motivational factors identified in this survey.

4.6 Chapter Summary

This chapter illustrates the survey findings which include the number of questionnaires administered for the survey and their responses. Demographic variables such as trade and age group were deeply analyzed to justify the quality of the sample which is selected for the research. The identified 24 numbers of factors which are directly affected on the motivation were analyzed separately. Tabulated the top ten factors considering the importance index. Further workers trade and age group demographic variables were taken in to the analysis with the top ten factors calculated considering their importance index.

Chapter 5 RESEARCH CONCLUSION AND RECOMMENDATION

5.1 Conclusions

The objectives of the study were to identify factors that motivate workers in the construction projects in the Defence Services. Questionnaire survey was used to undertake this study. A total of 100 questionnaires were administered among the tradesmen who are working under the Tri Forces in different locations. The sample was consisting of 10 carpenters, 11 Mesons, 05 Aluminum Fitters, 05 Welders, 05 General Duty, 08 Bar Benders, 02 Machine Operators, 08 Electricians, 10 Painters, 07 Plumbers, 15 SL Navy Tradesmen and 14 SL Air Force Tradesmen.

A list of 24 factors that affect motivation was gathered from literature and preliminary survey. Perceptions were then sought on the degree of effect on motivation when they exist and the correspondent significance level. It was observed that a fair to good agreement existed between responses given by respondents on motivation. This gave the indication that motivation vary from individuals. Furthermore, it can confirm that individual differences contributed to the fair agreement to good agreement. It was revealed from the survey that, the ten most severe factors that affect motivation are as mentioned below.

Table 5-1 Top ten most severe factors that affect motivation

Permanent Employment
Entitlement for Pension
Protection against any disability during the work
On time payment of Salary
Medical Facilities
Discipline of Work Environment
Opportunities for Improvement of your Trade
Contribution for the family members protection
Ability to go for entitle leave or any other emergency leave
Salary compared to the other organizations

From the findings of this study, it can conclude that majority of the tradesmen who are working in Tri Forces in Sri Lanka, are concentrating highly on "Permanent

employment" and "Pension entitlement". In other words that is job security and people are thinking of the advantage of having an income at the age where they cannot work. The third priority was given to "Protection against any disability during the work", that means workers who are working in Defence know that they will not be thrown out even they are not in a position to contribute. That is, in the Defence services there is a significant level of job security than any other state or private organization. This factor was introduced to the questionnaire list from the experience that I have gained in the SL Army for last 19 years. Importance of this has come up many times from the tradesmen. Fourth in the descending order list "On time payment of salary" is very important for a person like tradesman when he does not have other significant income. When somebody is planning most of his activities depending on his salary, on time receiving of his salary is very important to organize his activities. The fifth established factor is "Medical Facilities". Having Military hospitals all over the country is very much beneficial for anyone to have unlimited medical treatment and that facility is given for his family members as well.

Among the other factors within the ten most critical factors established in this study, "Discipline of work environment" has come to the 6th position. This is important to uplift the motivation anywhere in the construction industry. Specially, within the Defence Services this is maintained and it has become a morale booster. The next is the "Opportunities for Improvement of Trade". In the Defence Forces there are lots of opportunities for any tradesmen to improve his trade. It is compulsory to prove his competency at various stages in written exams and practical as well to become eligible for promotions and to gain various grades in his particular trade. The next factor "Contribution for the family members' protection" is related to the family welfare. In the Defence Services there are lots of welfare schemes and insurance systems to protect the family against any unforeseen situation. Thereby priority is given for school admission for children, housing schemes etc. for the families where the member in Defence is dead or wounded.

The 9th one "Ability to go for entitle leave or any other emergency leave" is different from normal annual or casual leave somebody has in his employment. In the Defence this is considered in a humanitarian angle where the particular person is allowed to attend his family matters when required. In this case said person is motivated

to work and gain the missed work entrusted to him and to continue. The 10th factor is "Salary compared to the other organizations". The human nature is to compare the salary with other organizations and no difference within the Defence as well. The important factor is whilst the salary is high compared to the other organizations; a soldier in the Defence Services is provided with most of other requirements like food, accommodation, uniforms, etc. Therefore, it is concluded that the revealed ten most severe factors are highly affected for the motivation of tradesmen in the Defence Services.

5.2 Recommendation

The goal of this study was to find factors affecting for the motivation of the tradesmen in the Defence Services. Improvement is readily initiated with identification of motivation factors. However, this study introduced a more comprehensive view by combining all previous motivational factors for the tradesmen. The efficiency of these strategies may be utilized by management to motivate workforce and control productivity of construction projects and thereby redeem the value of the construction project in measurable terms. The strategies of motivation improvement may be applied to construction projects of various type and size.

5.3 Future Works

The contribution of this paper involves the better understanding of the motivational factors of the tradesmen of constructions undertaken by the Defence services. Yet, the sample is quite limited and does not allow the generalization of the findings. Different forms of stress and distress and their impact on motivation in turn for the performance have not been considered in this study. This is a limitation and at the same time, a direction for further research. Also, this study has not looked into the relationship between worker motivation and the productivity of the constructions undertaken by the Defence Services. In this a deep analysis has to be carried out to measure the work quantity against the work force contribution.



References

- Abdel-Wahab, Mohamed, S. "Trends of skills and productivity in the UK construction industry." *Engineering, Construction and Architectural Management*, 2008: Vol. 15 No. 4, 2008 pp. 372-382.
- Arif, Ahmed. *Motivation Through Compensation and Working Environment*. Numls, Islamabad: The Challengers.
- Armstrong, Geno. "The great global infrastructure opportunity." *Global Construction Survey 2012*, 2012.
- Central Bank of Sri Lanka Financial. *Financial System Stability Review*. Central Bank of Sri Lanka, 2012.
- "Central Bank of Sri Lanka." *Annual Report*, 2009.
- Economic Outlook SL, 2012. "ReGLocal Team." *Sri Lanka's Economic Outlook*, 2012.
- Galarnaee, Diane. "About Productivity." *Spring*, 1993: (Vol. 5, No. 1) Article No. 5.
- Green, Christopher D. "A Theory of Human Motivation." *Classics in the History of Psychology*, 2000.
- Iguisi, Osarumwense. "Motivation-related values across cultures." *African Journal of Business Management*, 2009: Vol.3 (4), pp. 141-150.
- Jahoda, Deutsch, and Cook. 1995.
- Lutzenberger, Tom. "The Importance of Military Constructions." (eHow Contributor).

- Observer, Sunday. "Sunday Observer ." April 17,2009.
- Oraman, Yasemin. "Work motivation and job satisfaction dynamics of textile employees." *African Journal of Business Management*, 2011-Vol. 5(8),: pp. 3361-3368.
- Raj, B Vijay Antony, and P S Kothai. "Study on the Impact of Human Resource Management Practices in Construction Industry." *THE INTERNATIONAL JOURNAL OF MANAGEMENT*, 2014.
- Shahriyar, Mojahed. "A Project Improvement System for Effective Management of Construction Projects." 2005.
- Sunday Observer. "Lanka among the top in construction industry." *Sunday Observer*, 26 Feb, 2012.
- Syverson, Chad. "What Determines Productivity?" *What Determines Productivity?*, 2011: 49:2, 326-365.
- Thwala, Wellington D. "Motivation as a tool to Improve Productivity on the Construction Site."
- Tribune, Asian. "Sri Lanka: Appropriation Bill for the year 2011." *Sri Lanka: Appropriation Bill for the year 2011*, 2011.

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වැඩබිමෙහි පෙළඹවීම/උද්යෝගය (Motivation) මිනුම් කිරීම සඳහා ප්‍රශ්න මාලාව

- 01. මුලකුරු සමගනම:-.....
- 02. නිලය:-.....
- 03. ලිපිනය:-.....
.....
- 04. දිස්ත්‍රික්කය:-.....
- 05. දුරකතන අංකය:-.....
- 06. විවාහක/අවිවාහකබව:-
- 07. අවසන් වරට සමත් විභාගය :-.....
.....
- 08. වෘත්තිය:-.....
- 09. වෘත්තිය සුදුසුකම:-.....
- 10. රැකියාවේ ස්වභාවය(ස්ථිර/අනියම්):-.....
- 11. සේවා පළපුරුද්ද:-.....

12. ත්‍රිවිධ හමුදාව තුළ ඉටු කෙරෙමින් පවතින ව්‍යාපෘතීන්හි ඔබ විසින් ඔබගේ වෘත්තියේ නියෙලීමේදී ඔබගේ පෙළඹවීම/උද්යෝගය(Motivation) කෙරෙහි සහ පෙළඹවීම/උද්යෝගය (Motivation) රඳවා ගැනීම සඳහා පසු පිටෙහි සඳහන් කරුණු බලපානු ලබයි. ඔබගේ පළපුරුද්ද සහ ඔබට ලබා දී ඇති වරප්‍රසාද සැලකිල්ලට ගෙන එක් එක් කරුණ ඉදිරියේ දක්වා ඇති කොටු පහෙන් එකක් තුළ පහත දක්වා ඇති වැදගත්කමේ ආකාරය ඔබට වඩාත්ම ගැලපෙන අංකය තුළ X යොදා සටහන් කරන්න

වැදගත්කම

- 01. කිසිම අයුරකින් වැදගත් නැත
- 02. වැදගත් නැත
- 03. සාමාන්‍ය
- 04. වැදගත්
- 05. ඉතා වැදගත්

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වැඩබිමෙහි පෙහෙර/උද්යෝගය (Motivation) මිනුම් කිරීම සඳහා ප්‍රශ්න මාලාව

	විස්තරය	කිසිම අයුරකින් වැදගත් නැත	වැදගත් නැත	සාමාන්‍ය	වැදගත්	ඉතා වැදගත්
1	අනෙකුත් ආයතන හා සැසඳීමේදී ඔබට ලැබෙන වැටුප					
2	වැටුප් වර්ධක					
3	වැටුප හා දීමනා නියමිත වේලාවට ලැබීම					
4	නිල උසස්වීම්					
5	රැකියාවේ ස්ථිර බව					
6	විශ්‍රාම වැටුප සඳහා ඇති සැලසුම					
7	ක්‍රීඩා හමුදාවේ නිශ්චිත නියා ඔබට ලැබෙන පිළිගැනීම					
8	වැඩ බිමෙහි ඇති විනය					
9	පුහුණුව සඳහා ලැබෙන අවස්ථා					
10	ඔබට ලැබෙන වෛද්‍ය පහසුකම්					
11	සේවයේදී සිටියදී සිදුවන ආබාධිත තත්වයකදී ඔබට ලැබෙන රැකවරණය					
12	ඔබට ලැබෙන රක්ෂණ වර්ග					
13	හිමි නිවාඩු සහ අත්‍යවශ්‍ය කටයුතුකදී නිවාඩු ලබා ගැනීමේ හැකියාව					
14	පවුලේ සමාජිකයින්ගේ රැකවරණය වෙනුවෙන් ලැබෙන දායකත්වය					
15	ඔබගේ සේවය ඇගයීමට ලක් කිරීම					
16	වැඩ කිරීමේදී ඔබට ඇති නිදහස					
17	ඔබගේ යෝජනා අදහස්වලට ඇති ඇගයීම/ පිළිගැනීම					
18	නියමිත වේලාවෙන් පසුව කරන වැඩ සඳහා ඔබට ලැබෙන ප්‍රතිලාභ					
19	වෘත්තීය දැනීම වර්ධනය කර ගැනීමට ඇති අවස්ථා					
20	පවතින සුභසාධන පහසුකම්					
21	ක්‍රීඩා සහ විනෝදාත්මක වැඩසටහන්					
22	උහාර පාන හා නවාතැන් පහසුකම්					
23	සුභදැයි ශ්‍රී කළමනාකරණය සහ නිවැරදි නියෝග ලැබීම					
24	ස්ථාන මාරුවීම් සබැඳිව පවතින සැලැස්ම					