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COMPARISONS BETWEEN OCCUPATIONAL HEALTH AND SAFETY CULTURES IN KENYA AND FINLAND

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Tämä insinöörityö tehtiin toimeksiantona kenialaiselle TMS Consulting Groupille. Työn tarkoituksena ja tavoitteena oli vertailla ja antaa suosituksia, kuinka parantaa työturvallisuutta kenialaisilla rakennustyömailla.

Insinöörityön aiheena oli kenialaisen ja suomalaisen työturvallisuuskulttuurien erojen vertaaminen. Työssä tarkasteltiin Kenian ja Suomen työturvallisuuskulttuureja, - lainsäädäntöjä, - ja asenteita yleisellä tasolla sekä vertailtiin niiden välisiä eroja. Vertailu perustui työturvallisuus- ja rakennuslakeihin ja asetuksiin sekä työntekijöille työmailla tehtyihin kyselyhin. Työssä tarkasteltiin, miten valtio omalta osaltaan valvoo työturvallisuutta, miten työnantajat noudattavat lakeja ja asetuksia sekä miten työnantajat ovat sitoutuneet kehittämään työntekijöidensä työturvallisuutta.

Saatujen tulosten perusteeella näiden kahden maan eroja ja samankaltaisuuksia oli rakennustyön työturvallisuudessa sekä terveydenhuollossa välillä. Yleisesti erot johtuivat maiden päättäjien ja yritysten sitoutumisesta työturvallisuuden kehittämiseen. Suomi on tehnyt suuria satsauksia työmaiden työturvallisuuteen, kun taas Kenia on vasta kehittämässä maan työturvallisuutta ja asenteita sitä kohtaan.

Kenialaisen rakennustyömaan turvallisuus paranee tehtyjen havaintojen perusteella pitkäjänteisellä koulutustyöllä sekä nykyistä tarkemman työnjohdon ja valvonnan avulla. Työmaakäytäntöjä tulee kehittää siten, että kaikki osapuolet ovat mukana kehittämässä työmaiden turvallisuutta yhdessä.

Kieli	Englanti
Asiasanat	Työturvallisuus, työtuvallisuusasenteet, työturvallisuudenvalvonta, työturvallisuuslainsäädäntö
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THESIS ABSTRACT

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This study was commissioned by Kenyan TMS Consulting Group with the purpose to compare and make recommendations on how to improve safety on Kenyan construction sites.

The main subject of the thesis was the comparison of occupational health and safety cultures in Kenya and Finland. The study examined Kenyan and Finnish safety cultures, laws and attitudes in general and compared the differences between them based on safety/building ordinances, as well as the feedback from the questionnaires answered by the workers.

The thesis examined how the government for its part monitors occupational health and safety, how employers obey laws and ordinances and how employers show commitment on developing the occupational health and safety of their employees.

Based on the results of the study it was found that there were both differences and similarities in the occupational health and safety cultures as well as healthcare between the two countries. Generally, the differences derived from the decision makers´ and companies´ level of commitment into developing occupational health and safety.

Finland has made huge investments in the occupational health and safety on construction sites, whereas Kenya is only in the process of developing the area and attitudes towards it.

Based on the observations from the research the safety of Kenyan construction sites will improve through long-term education and site-management, as well as supervision. The site practices should be developed in such a manner that all the participants are involved in developing the safety issues.

Language of Thesis	English
Keywords	Occupational health and safety, safety attitudes, safety control, safety legislation
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PREFACE

I want to thank all my friends and family members who have been supported me through this process.

Special thanks go to:

Charles Nyabera for giving me a chance to be a part of Nairobi's biggest construction consultant company TMS Consulting Group. By guiding and taking me in as a member of the family.

Kinyanjui Mwaura! Thank You so much man for keeping me up to date of Kenyan laws, issues and all the happenings of Kenyan construction industry. I couldn't do this without you mate!

Mum and Dad, thank You for supporting my studies and trips during these four years! Without you two, this couldn't be possible!

Last but not the least I want to give Big Heart to my Dear Wife! For giving support, listening to my problems and tolerating my bad moods during this stressful time! Thanks a lot Dear Glady!

CONTENTS

LIST OF SYMBOLS

CE-standard = Conformite Europeanne-standard is a standard for products to be sold or traded in the European markets.

DOHSS = Directorate of Occupational Health and Safety Service-offers short courses on health and safety and issues a certificate upon completion to safety officers.

GDP = Gross Domestic Product.

Health and Safety Coordinator = Person named by the Client/Builder. Co-operates with designers and the lead partner on safety issues.

Health and Safety Representative = Person selected amongst employees to represent them in safety issues on site.

ILO = International Labour Organization. ILO gives an equal voice to workers, employers and governments to ensure that the views of the social partners are closely reflected in labour standards and in shaping policies and programmes.

Lead Partner = Lead partner is using highest power in construction site and is in charge of construction site.

Main Contractor = Main contractor is a contractor who will oversee all the aspects of the project from planning and cost control to project managing.

The National Hospital Insurance Fund (NHIF) = NHIF provide medical insurance cover to all its members.

Occupational Health and Safety Act 737/2002 (OSHA 737/2002 = It is the law which is the guideline for everything in terms of occupational safety in Finland.

Occupational Health and Safety Act 2007 (OSHA 2007) = It is the law which is the guideline for everything in terms of occupational safety in Kenya.

Occupational Health and Safety Committee = Committee representing employees, employer and the clerks.

Ordinance of Construction Work Safety 205/2009 = It is guiding safety conditions in Finnish construction business and the ordinance applies to all construction work.

PPE = Personal Protective Equipment.

Regional State Administrative Agency (RSAA) = There are six Regional State Administrative Agencies. The agencies foster regional parity by executing all legislative implementation, steering and supervision functions in the regions.

Safety Officer = Person named by the lead partner, is in charge of constructing time safety on site.

Social Welfare Act = The law on social welfare stipulates the services that municipalities must produce.

The TR-Safety Observation Method = The TR-Safety observation method is done weekly measuring the safety level of a construction site.

1 INTRODUCTION

Occupational safety is one of the most important things on site and improving it even a bit will save many injuries and hospital trips. The purpose of the occupational safety is to reduce injuries and sick-offs and from employers view to reduce unexpected costs and ensure keeping of timetable by ensuring workers safety.

I worked as a trainee in TMS Consulting Group as a site engineer. I came across with lots of problems on many sites to do with safety and dangerous working conditions of workers - regardless the size of the site. My thought was that I could do my thesis on how to improve site safety on Kenyan construction sites because health and safety are close to my heart.

That is why this thesis was done for TMS Consulting Group and specifically for Team Management Services to improve safety on Kenyan construction sites. The aim of the thesis is to find out differences between Kenya and Finland and based on the results suggest how to improve occupational safety on Kenyan construction sites.

In Kenya and Finland construction industry is a big employer and because of that it is important to search and to see differences between these two countries.

The thesis compares Kenyan and Finnish safety regulations, laws and attitudes and from there this thesis provides tips and proposals on how to improve occupational safety on Kenyan construction sites.

To conduct this thesis both qualitative and quantitative methods were used. A questionnaire survey was conducted for workers in Finland and Kenya at the end of the year 2012 by asking employees to fill out a form. Through the questionnaires a simple general profile on safety conditions and safety attitudes was created.

Two hundred questionnaires for workers in Kenya and Finland were distributed and a hundred and forty of them were returned, one hundred and forty from Kenya and twenty from Finland. Also, six supervisors were interviewed personally with specific and specifying questions in Finland and Kenya. The results suggested, for example, that the untidiness of the site and rush are two of the biggest problems on construction sites in both countries.

2 GENERAL DISCUSSION ON OCCUPATIONAL HEALTH AND SAFETY

Good occupational safety does not come by mistake. Its precondition is a consistent and valid operation which comes from competence and preparedness on each level of the organization. By taking effective action related to safety accidents, occupational diseases and other work-related illness, premature retirement, depression and fatigue are reduced, as well as ability to work and wellbeing at work are improved. Relevance and valuation of one's own work will have an impact on wellbeing and good leadership is one of the main reasons for it.

Accidents, sick leaves and work-related illnesses as well as the ability and motivation to work cause increased costs for the company. It is estimated that these costs can be as high as over 10 % of the company's salary costs. By improving occupational safety in the workplace costs can be reduced. Often even with small investments occupational safety improvements are obtained. For example by eliminating dangers on site by cleaning up and organizing the workplace fluency of work can be enhanced. By improving working conditions and by investing in wellbeing at work sick leaves and early retirements can be reduced and wellbeing can be increased.

2.1 Risks

There is no absolute safety in any work that is done. In every line of work there is always some possibility of risk and places of danger/hazard. It is really important to make sure that all safety procedures and safety plans are followed. Identifying risks is the first step, because only identified risks can be controlled and mitigated [1].

2.2 Why to take risks?

One of the biggest questions is why people take risks. Most of the time people do this to save time. It is faster to work and take risks than work by following the safety rules, e.g. you could see a person doing the same work as you, but his working procedures are different from yours. You might think that this other way is faster and easier than yours so you start

to work the same way as your co-worker. People adopt the behavior of taking risks from each other. Serious consequences are rare so there is no opportunity to learn from mistakes and no disciplinary action is taken because the incidents are not reported by anybody.

In most cases when people take risks the benefits are immediate i.e. faster performance or lighter weights to be lifted as seen below (Picture 1). Succeeding in a case of near-miss incident adds belief in your own skills and abilities and as a result people search more demanding tasks and risks are getting bigger and bigger. Because succeeding in near-miss situations can be missed a person thinks that nothing happened and that there was no real danger at all.

Picture 1. Workers at risk when transporting goods.

3 OCCUPATIONAL SAFETY CULTURE IN KENYA

ILO estimates at least 60,000 fatal accidents take place on construction sites around the world in a year - that is one sixth of all fatal work related accidents [2]. A number of studies have highlighted the role the industry plays in the economy of developing countries [3]. The studies show the mutual and positive relationships between construction sector growth and rate of economic growth in most developing countries. Considering the construction industry contributes 2 - 11 percent of the Gross Domestic Product (GDP) in developing countries [4, 5] this actually translates to relatively large numbers of workers who depend on it, either directly or indirectly.

Occupational health and safety in the construction sector is a cross-cutting disciplinary area concerned with protecting the safety, health and welfare of people working on a construction site [6]. It has developed a lot of interest in Kenya following the enactment of the new Constitution of Kenya and Occupational Health and Safety Act no.15 which came to force on 26th October 2007 (OSHA 2007) [6]. Following this it was a requirement that all construction sites comply with the act or harsh penalties would be imposed.

3.1 Introduction

A major characteristic of the construction industry is that it has different participants from the project, i.e. the construction team, design team and the client. This makes the implementation of health and safety on building sites very difficult with the different hands to the project involved. This begs for the question of who is supposed to bear the full responsibility of the health and safety on site which we shall find out later in the research.

The activities of the construction industry have raised serious health and safety concerns amongst governments, health and safety stakeholders, health and safety professionals and researchers over the past few decades [4, 5]. The construction industry in Kenya is still at its infancy stage and is not well matured, thus not having the proper structures and framework in place that properly addresses the issues of health and safety on construction sites.

The enactment of the Occupational Health and Safety Act proved to be important in streamlining the on-site safety conditions which prior to that were just brushed off as not being important.

Until recently Kenya has had a poor health and safety record. A visit to any construction site would confirm the lack of health and safety initiatives. This brings us to the question on how safety is measured in Kenya. There is no standard measure for safety in Kenya yet due to it being a relatively new inclusion as a requirement in the construction industry. The way safety is ensured in sites is by a supervisor from the government who goes round the construction sites inspecting safety issues. He/she is assigned to a certain area and makes regular visits on site ensuring the safety codes and regulations are followed and adhered to whilst keeping records. The records collected are then forwarded to the authorities concerned for further review. The major issues that the safety supervisor checks include:

- If the workforce is provided with safety gear i.e. helmets, gloves, overalls and safety boots amongst others.
- If the hazardous and dangerous areas are well identified and caution signs placed e.g. danger of falling over steep edges, danger of falling objects signs amongst others.
- If health issues are followed. This includes provision of clean washrooms, provision of clean water.
- Availability of a safety officer on site with proper and recognized training.
- Availability of general site safety rules and conditions to the workforce.

If the supervisor checks that all the issues above are observed, he considers the site to be safe for the workers on site. If not, he might issue a notice for temporary closure until the health and safety issues are implemented.

The enactment of the Occupational Health and Safety Act means that all sites are required to have a safety officer on site all the time. The safety officer can be a supervisor on site given the responsibility to oversee the safety issues for small sites or a safety officer whose sole responsibility is site safety with no other added responsibility which is usually common for big sites. The safety officer usually undergoes training at specific institutions that are recog-

nized by the Directorate of Occupational Health and Safety Service (DOHSS) which offer short courses on health and safety and then is issued with a certificate after completion. Some of the roles of the safety officer on site would normally include:

- Ensuring the contractor provides personal safety equipment (PPE) to all the workers on site.
- Ensuring that all hazardous areas are clearly marked out with cautionary signs.
- Issuing down and drafting site safety rules to be adhered by workers.
- Enforcing site safety rules and punishment to any worker not adhering.
- Holding regular site safety meetings with workers and seeking their opinions on issues that need redressing.
- Ensuring proper site organization, layout and organization.
- Ensuring welfare facilities on site are in good condition i.e. food courts, sanitary facilities etc.

Hence it is recognized that many measures are needed to improve occupational health and safety including an appropriate legal framework, effective inspectorate, training of workers and supervisors, restrictions on working hours and the wide availability of occupational health services [2].

3.2 Site Organization

The work organization on a typical construction project in Kenya is normally as follows:

- *The design team* which consists of the Project Manager, Architect, Engineers and the Clerks of Works. It is the group which comes up with the design and drawings for the project.
- *The client or Owner* is the owner of the project and he is also the financier to the project.

- T*he Main contractor* is the person undertaking the actual construction of the work and below him we have the various subcontractors, i.e. plumbing, electrical, lifts etc. The main contractor usually has a big workforce including site agents, supervisors, foremen and casual labourers who are working as helpers.

3.3 Health and Safety Legislation

Occupational health and safety legislation is a means by which the work environment can be controlled to ensure that the health and safety of employees and people who are likely to be adversely affected by the work environment are protected. There is a law that governs occupational health and safety for the various industries in Kenya.

The factories Act Cap 514 which came operational on 1st September 1951 makes provision for the health, safety and welfare of people employed in factories and other places of work. The Act is predominantly socioeconomic in nature and focuses on the shop floor conditions of the factory, safety devices, machine maintenance, safety precautions in case of fire, gas explosions, electrical faults, provisions of protective equipment among others. [7.]

The Occupational Health and Safety Act of 2007 says in part: "Employers shall provide and maintain for the use of employees in any workplace where employees are employed in any process involving exposure to wet or to any injurious or offensive substance adequate, effective and suitable protective clothing and appliances where necessary suitable gloves, footwear, goggles and head coverings." [8.]

The Health and Safety Act governs many industries and one of them is construction industry. Occupational health and safety issues in Kenya are usually handled by the Ministry of Labour in the Department of Occupational Health and Safety (DOHS). Kenya has the National Environmental Management Authority (NEMA). It is a government body charged with overseeing environmental issues in the country. It also oversees environmental issues in construction through the EIA. The EIA (Environmental Impact Assessment) must be carried out by NEMA to ensure safety and environmental guidelines are in place before any construction project commences. Looking at it critically Kenya has enough guidelines and regulations to streamline and mould the construction industry as regards to safety. However, the lack of proper and strict supervisory authority means that the policies exist only on pa-

per. ”Although the Government of Kenya will formulate policies, it is up to the end users to implement them for their own good. Kenya has good safety guidelines but little enforcement”. Said Athman, Housing Secretary. [9.]

According to statistics the estimates for reported occupational fatalities and injuries in Kenya from 2000-2004 are: 1 528, 1 923, 1 332, 1 599 and 1 387 [6]. It was agreed that workplaces were to be registered by the department of Occupational Health and Safety. Ironically, only 11 387 were registered and this figure excludes approximately 1.3 million micro enterprises currently operating in the country. The most interesting fact is that the reported accidents are from only those that are seeking compensation under the Workman’s Compensation Act - meaning were it not for the compensations there would be no reported cases of any injury or fatality.

In the year 2003 data collected under the Workman`s Compensation Act indicates that mining, construction and transport industries account for 41 % of the total accidents in Kenya, machine operations and assembly 28 % while other occupations share 31 % of workplace accidents. This shows that the construction industry is injury prone while matters of safety are treated casually by both the contractors and employees. In relation to age groups 44.4 % of the injuries occurred to persons in the age group of 20 to 29 years, 25 % to the age group of 30 to 39 years and 24 % to the age group below 20 years. [7.]

From research statistics gathered from the questionnaires provided to Kenyan construction workers it can be deduced that most of the workers are between the ages of 21 - 30, the age group that is most prone to safety risks. When combined the statistics give the image that the age group between 21 - 30 working in the construction industry is the most prone to safety risks in all of the Kenyan working populations [6].

3.4 Healthcare and Insurance Policy

The study, **Realising Occupational Health and Safety as a Fundamental Human Right in Kenya** says: "in Kenya the constitution provides that every person has a right to the highest attainable standard of health which includes the right to accessible and adequate housing, to reasonable standards of sanitation, to be free from hunger, to have adequate food of acceptable quality and to clean and safe water in adequate quantities. However, even

though the constitution does recognize that every person has a right to the highest levels of attainable health; this is not the reality on the ground as workers rights continue to be trampled upon by the employers." [10.]

The Kenyan constitution says: "An employer is under obligation to provide medical treatment to employee during time of service and, if possible, medical attendance during serious illness". It is required that every employer must ensure the health and safety of every employee at workplace. The Employment Act, section 34, says that the employer shall provide proper healthcare for employees during serious illness [11].

All the workers above 18 years of age should be members of The National Hospital Insurance Fund (NHIF) which is the primary provider of health insurance in Kenya [11]. This membership will cover all the medical diseases.

An employee must have served for two months in the company before he/she will get fully paid for the sick-off.

The Employment Act orders that every worker who has worked longer than two months will get fully paid for a minimum period of seven days with full salary and seven days with half salary for every twelve months. The employee is required to produce a certificate of incapacity to work signed by a duly qualified medical practitioner. [11.]

"In Kenya, no actual studies have been carried out to show the extent of coverage in industries and other sectors. Inspection records, though available, may be misleading as the exact number of workplaces requiring the services is not exactly known" says Mr. Franklin K. Muchiri, ICOH Secretary for Kenya. [12.]

There are only a few studies of the occupational healthcare in Kenya but we can hope that in 2013 the new constitution, new president and the new government are really starting to take care of the rights of the labourers and other workers.

3.5 Safety Attitudes

Traditionally in Kenya, it is hard to change the attitude of Kenyans regarding the safety culture. Most people due to being unskilled, do not even know that legislation exists that allows them to be provided with the necessary safe working environments.

Owing to this many people have come to believe that being provided with safe working environment by their employers which in this case is the contractor, is a privilege and not a right. Therefore labourers just start working without assessing the safety of their working conditions. The ignorance of many workers has made the employers to abuse that privilege and thereby working without safety gear is usually a norm in many sites in Kenya.

Workers should be made aware that it is their fundamental right according to the new constitution and the recently amended OSHA 2007 to be provided with a safe working environment.

Due to ignorance many of the workers are putting their lives at great risk on the construction sites because of lack of proper information and sheer disregard of the laid down safety guidelines. Therefore, there is a need for changing attitudes of people involved in construction projects.

3.5.1 Labourers

The labour industry in Kenya is very competitive. The construction industry employs more unskilled workers than any other industry in developing countries like Kenya. This makes it a hotspot for manual labourers given that more than 60 percent of Kenyans live on less than a euro a day. When people go in search for manual jobs it is not certain they will get one. Once a person has successfully landed on a casual job the last thing on his mind is trying to spell out the safety work conditions to the employer who in this case is the contractor.

This makes the unskilled employees work with what they are provided with, which in some cases is under very risky conditions. We can, therefore, say that poverty will play a big role in making a labourer work under risky conditions just so that he/she is capable of taking something home for the family. The attitude of the workers needs to change and they should

speak up when they feel that their safety is not given a priority when working. They should not fear repercussions as they are protected by law.

An occupier shall not dismiss an employee, injure the employee or discriminate against or disadvantage an employee in respect of the employee's employment, or alter the employees position to the detriment of the employee by reason only that the employee makes a complaint about a matter which the employee considers is not safe or is a risk to his health [7].

Workers on site need to change their attitude. While some uphold safety with seriousness others might take it as a joke. Take an example of a worker overheard talking in a safety meeting on site, downplaying our safety concern: "Death does not only occur at a construction project, one can also be hit by a car." Some workers refuse to wear safety helmets and protective boots claiming that they are weighing down on their performance because they are too heavy or uncomfortable as seen below (Picture 2).

Picture 2. Working at height without a harness on Kenyan site.

3.5.2 Supervisors

When we are discussing the safety attitude by supervisors we shall be assuming that they represent the main contractor on site. Normally all construction sites have construction supervisors on site, but lately it is a requirement that each construction site should also have a

well-trained person in health and safety. The person can either be the construction supervisor trained in safety or a specialized safety officer - common in big organizations.

The norm for many construction supervisors is to ensure that work is done properly but many of them ignore safety. Many supervisors act on orders from their superiors, where they work on what is provided. So, if no PPE (Personal Protective Equipment) for the workers is provided, work will just be carried out without considering the safety of the workers. Some supervisors do not even know that working at height requires harnesses or working in noisy conditions needs ear protection. This ignorance by the supervisors on matters of safety on site is what has made it a requirement that all sites need to have a safety officer who is well trained.

The supervisors are supposed to ensure that safety issues are adhered to by all the workers on site. They are supposed to ensure that workers are provided with all the necessary protective equipment for working. This equipment includes: gloves, gumboots, ear protection, harness, nasal protection among other items depending on the type of working conditions.

Very few construction sites in Kenya have a trained safety officer. Those that have a safety officer just place him/her there as a formality only to avoid to be disturbed by the government safety officials who do random checks. This is a disturbing discovery - meaning nobody will ensure proper safety gear for the workers or follow up on any safety issues that may arise on site.

The supervisors should rise to the occasion and try and uphold safety on site. It is their responsibility especially to ensure that work is carried out in the safest possible way. They need to challenge their superiors in providing the necessary PPE to the workers when working. This change in attitude will go a long way in giving the construction a change in safety attitudes that it badly needs.

3.6 Safety Control

3.6.1 Safety Control by the Government

The government is putting an effort in ensuring that safety in construction is adhered by setting up the Department of Occupational Health and Safety in the Ministry of Labour. The department, however, seems to be understaffed in carrying out inspections on the construction sites because the sites are too many and geographically expansive over large areas.

Therefore, more personnel need to be provided to the abovementioned department to allow them to carry out spontaneous checks on sites within the country. However, there is still the issue of corruption which is posing a major problem to the few checks that are carried out. The personnel mandated to carry out spot checks on sites are usually bribed by companies when they find rules and regulations pertaining health and safety is not followed. The companies pay them generously in exchange for their silence and to look the other way as innocent workers risk their lives daily.

An Act of Parliament indicates that the Director shall establish an institute to be known as the Occupational Health & Safety Institute to undertake special research in occupational health and safety and also undertake training for personnel on the same. So, the Government has been very responsive and has already started the construction of the institute. The process started in 2012, and the actual construction works started in March 2010 [8]. This shows that the Kenyan government is committed to ensuring that health and safety is given utmost importance for improved working conditions of the Kenyan labourer.

3.6.2 Safety Control by Supervisors

The supervisors are given the responsibility of taking care of the contractor´s interest on site. The supervisors are those who make sure that operations run smoothly at all times on a construction site. Thereby, they are expected to supervise that health and safety is incorporated as a day to day activity on site and that it should also run smoothly. Therefore they should work with the designated safety officer on site to ensure that the rules and regulations as regards health and safety are followed.

It will therefore be important that all construction companies employ a well-trained safety officer on site at all times. The duties of the safety officer will primarily be to ensure that the company has a working safety policy. The officer will also oversee that proper safety gear is readily available on site at all times and all hazardous signs are clearly marked out in accident prone areas.

The safety officer will also check that no worker is allowed to work without the necessary working gear for the type of work he/she is set out to do. When the above are properly followed then the susceptibility to risks will be low hence improving the working conditions of the workers.

When there is a well trained safety officer on site and he/she coordinates activities with the construction supervisor on site, there will be a huge noticeable change as regards to how health and safety is handled in construction sites in Kenya. The supervisor should make certain that he/she is responsible for all of his duties and responsibilities of the contractor that are listed under the OSH 2007. The bill states that "An occupier who fails to comply with a duty imposed on him/her under this section commits an offence and shall on conviction be liable to a fine not exceeding five hundred thousand shillings or to imprisonment for a term exceeding six months or to both." [7.] In the case above, the occupier is deemed to mean the contractor of the works.

4 OCCUPATIONAL SAFETY CULTURE IN FINLAND

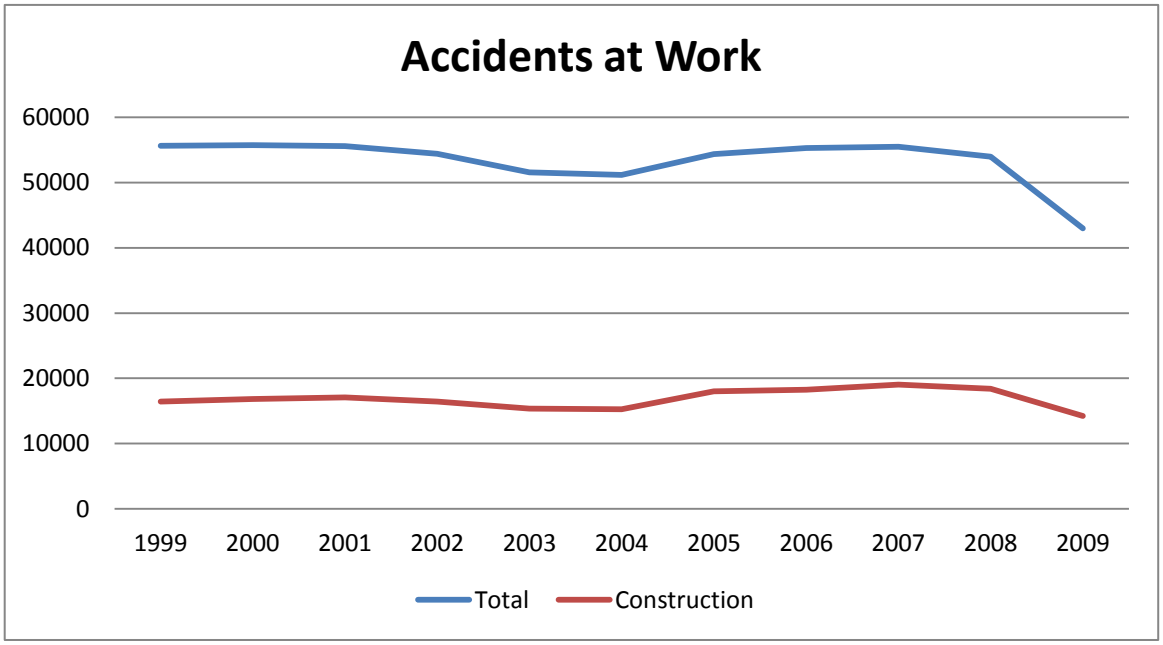
During the last 20 years, safety in the construction industry has had a positive direction in terms of safety [13]. There is still a lot that needs to be done as the accident statistics show.

One of the biggest causes for this situation is attitude, and the fact that employers are rushing workers to work faster in terms of cost as seen below (Picture 3), where a person is working without proper falling protection and on really dangerous base.

Picture 3. Work on a dangerous base.

Accident statistics below shows (Figure 1) that from the total accidents in Finland a third takes place in the construction industry.

Figure 1. Statistics of accidents at work in 1999-2009



4.1 Site Organization

In Finland there are many different participants in a construction project and the typical site organization is as follows:

The Owner/Builder is the owner of the project and also the financier to the project. The owner can also be the builder, or they can hire a professional *builder consultant* to take control of the project and to make sure that everything is happening just like the owner wants.

The Lead Partner is always needed to be named to the construction site. The lead partner is named by the builder and usually lead partner is the main contractor, but can also be someone else who is qualified. The lead partner is using highest power in construction site and is in charge of construction site.

The Design Team is consisting of the Architect, Electrical engineer, Structural engineer, HVAC(heating, ventilation and air conditioning) engineer and Building automation engineer

The Main contractor is the person undertaking the actual construction of the work and various subcontractors are working under the main contractor i.e. plumbing, electrical etc. The main contractor usually has a big workforce which includes foreman in charge, site engineers, foremen and labourers.

4.2 Safety Legislation

Legislation is the main thing which guides and orders employers and employees to work safely. Without legislation there could be a lot more accidents and hazards on site than now are.

4.2.1 Occupational Healthcare

In Finland all employees have the right for healthcare by Social Welfare Act. Occupational healthcare is chargeable to the employer and it needs to be provided if when at least one employee is employed by the employer.

The employer may obtain the healthcare services, e.g. from the company health station or from other private or public health centers.

Occupational healthcare includes:

- Health inspections.
- Suggestions on how to improve working conditions, as well as to improve ability of working.
- Guidance for first aid.
- Health monitoring, rehabilitation, counseling and guidance.

However, occupational healthcare does not include:

- Employees` medical care.

The employer can agree with the service provider of wider services, such as general doctor level services, specialist and laboratory services, as well as specific age inspections or other healthcare services. [14.]

In Finland depending on where you work, you can have sick-off from zero to five days without a doctor´s certificate. For longer sick-leave you will need a doctor´s certificate. Depending on the contract full salary is paid for 30 - 90 sick-leave days per year.

According to the Health Insurance Act § 29 subsection 1, the employer gets compensation for the activities resulting from the necessary and reasonable costs. Compensation claims are divided into two categories. Statutory healthcare costs belong to category one and medical care and other healthcare costs in category two.

The Social Insurance Institution (KELA) compensates 50 - 60 % of reasonable costs to the company and the rest of the company costs are tax deductible cost [14].

4.2.2 Occupational Health and Safety Act (738/2002)

The Occupational Health and Safety Act (738/2002) is the law which is the guideline for everything in terms of occupational safety. The Occupational Health and Safety Act is a base which defines the minimum level of safety and responsibilities of different participants in every industry. The purpose of the Act is to improve the working environment and working conditions in order to ensure and maintain proper working capacity of employees as well as to prevent occupational accidents and diseases and eliminate other hazards from work and working environment, physical and mental health, hereinafter referred to as, health of employees.

Specifically for construction industry the act orders in chapter 52: "everyone working on construction site must wear a name tag with a photo and it must be kept visible at all times. The name tags must indicate whether the worker is an employee or a self-employed individual. The name tag must also indicate the Individual Tax Number registered in the public Tax Number register. Workers ID tags must also show their employer's name. However, no ID tags are required from people who transport goods temporarily, or people on the construction sites where a building is renovated for private use." [15.]

4.2.3 Ordinance of Construction Work Safety (205/2009)

The Ordinance of Construction Work Safety 205/2009 governing work safety in the construction industry is based on Occupational Health and Safety Act (738/2002) and it is guiding safety conditions in Finnish construction business. The Ordinance applies to the work of construction on land, underground and other structures, including capital repair, technical maintenance and related installations, demolitions, civil engineering work; and the setting up of such work [16]. The Ordinance applies to the preparatory and planning phases of such work.

4.2.4 Job Orientation

The first thing that employers need to initiate after hiring new employees is job orientation. It is mandatory to everyone and it is not allowed to start working on site before the job orientation is done. The employer needs to ensure that every worker is skilled enough and they know about possible risks and dangerous places that would be present on site.

Workers also need to have the Occupational Safety Card for them to be able to work on construction sites. The employer must orientate new workers that they are able to identify different risks and dangerous places on building site and how and whom to contact on these issues. This way a better and safer way to work can be found and possible risk/risks can be removed or separated and personal safety equipment can be used to protect people from risks. The employer must also show workers the rallying point in case of a fire or other alarm.

The employer must notify new workers that some works might need a specific certificate or further guidance. In case they are not qualified to do the work they should not be allowed to work without permission and further guidance.

It is not allowed to work without proper safety equipment and foremen need to take action in case of failure to follow the safety rules. After the job orientation the workers are provided with an access pass and they are allowed to work on the building site.

What are the goals for job orientation?

- To know responsibilities and duties.
- To know possible hazards and dangerous occurrences of the workplace.
- To know whom to notify in case of dangerous occurrences.
- To know site organization.
- To know health and safety orders and instructions of the construction site.
- To know how to use personal protective equipment.
- To know how to act in case of an accident.
- To know from whom to get help and guidance.

4.2.5 The TR-Safety Observation Method

In Finland safety is observed weekly based to the Ordinance of Construction Work Safety (205/2009) chapter four, section 16. The most common method to observe safety is the TR-safety observation method which is done weekly and it is for measuring the safety level of a building site and it is designed for construction sites. While doing the TR-safety observation there should be a representative of the employer and employees present. [17]. Hundreds of construction sites around Finland are using this method. Its nature consists of a uniform method that promotes good practices that take into account the demands of legislation. It is a simple and reliable method for inspecting construction sites and it also increases comfort and safety in the workplace. The inspection tour covers the entire building site and it gives equal basis for cooperation between construction sites and occupational safety authorities [17]. The observed safety aspects are: working habits, scaffolding and ladders, machinery and equipment, protection against falling, electricity and lightning, order and tidiness [17].

According to the validity of the TR-safety observation method on building construction, "each item is scored as "correct" if it meets the safety standard, otherwise the item is scored

as "incorrect". As shown below the TR-safety level is calculated as a percentage of the "correct" items related to all the observed items". [17.] The maximum score is 100 %.

$$\text{The TR} - \text{safety level} = \frac{\text{Correct (Number)}}{\text{Correct+Incorrect (Number}} \text{x}100 = \ \%$$

The TR-safety observation method has been used from the beginning of the 1990s and during this period the level of good practices and occupational safety has risen in Finnish construction sites [18].

The representatives should be the same every week so results are as accurate as they can be, because chancing the representatives all the time will have an effect on the results.

4.2.6 Occupational Safety Card

In Finland, the National Occupational Safety Card has become a popular way to complete the basic training in health and safety at work. It is a training system developed to enhance occupational health and safety in the workplace [19].

The implementation is usually voluntary but construction companies in Finland generally require the Occupational Safety Card from their employees.

The training provides basic information on occupational health and safety and knowledge about the cooperation and general hazards of the workplace.

The course takes one day (8h) and it includes an evaluation exam upon completion of the course. After successfully passing the test, the participants will receive the occupational safety card. The card is valid for five years and it needs to be renewed with a one day course.

4.3 Site Safety Control

The purpose of site safety control is to make workplaces work systematically, methodically, and in the long-term and as a result of these to improve occupational health and safety.

The government is controlling site safety with laws, acts and ordinances and by making inspections to construction sites. Inspections made by the government are not weekly but are usually done randomly or if notification has been given because of poor safety.

Because of limited resources it is extremely important that employers are supervising site safety by themselves so that in the future hazards and injuries could be down to a minimum.

4.3.1 Safety Control by the Government

The government is making an effort in many different ways in ensuring that the construction industry follows health and safety laws and regulations.

Laws, acts and ordinances are the base for good workplace health and safety but all companies are not following the rules. They are using shortcuts to finish work faster and with better profit. To ensure that legislation and regulations are followed the government has work safety inspectors who are working under the Regional State Administrative Agency (RSAA) [20].

There are six Regional State Administrative Agencies (RSAAs) in place, which supervise different parts of Finland. Under these big six units they have smaller regional units which are supervising occupational safety locally and together they are covering and supervising the whole country. They also have several other duties, but the most important one for this thesis is safety supervision.

The most important task of RSAA is to supervise that rules and regulations are followed so employees´ ability to work improves and stays good longer – not forgetting preventing accidents at work and work-related early retirement.

Most of the resources of RSAA are used for supervision so that the impact on society is maximized and more construction sites can be supervised.

The RSAA also provide guidance and advice on health and safety regulations and provisions.

According to RSAA, "when a work safety inspector is going to construction sites there is usually a representative of employer and employee with him/her. Together they sift through

the construction site looking at the working conditions, equipment to be used, personal protective equipment and the fact, how the employer is supervising safety on site and what practices are used to make sure that the construction site is as safe as possible. Inspections are done to ensure that safety regulations are followed. Other ways to control safety are, e.g. licensing, enforcement inquiries, as well as giving statements to the authorities." [21.]

4.3.2 Safety Control by Employer

Before starting constructing work the main contractor must draw a site safety plan and safety documents. The main contractor appoints the person who is in charge of it. In planning the safety plan one must take into account the builder´s safety requirements and information as well as occupational health and safety requirements of a construction site.

Common safety and risk management measures of the builder and the main contractor are drawn up to the safety plan. Safety documents must be drawn up based on the safety plan.

4.3.3 Foreman in Charge

There must be enough supervisors considering the size of the construction site in every construction site. There must be a foreman in charge and other assisting foremen who work under the foreman in charge. The Foreman in charge is approved by the municipal building control and he/she is in charge of leading and ensuring that rules and regulations are followed strictly on the construction site.

On construction sites there are many different subcontractors and every one of them must have their own foreman in charge of their own employees. The foreman in charge is usually still responsible for the subcontractor´s work and workers on the construction site.

The foreman in charge is usually responsible for every activity that takes place on a construction site. In case of an accident, the foreman in charge takes responsibility for it even he/she was not present on site when the accident occurred. The foreman in charge could get a fine or jail term if found guilty depending on the case and only workers´ outrageous neglect of safety could free the foreman in charge from the responsibility.

4.3.4 Foremen

Foremen always need to ensure that on a construction site employees have been orientated to the site and they also subsequently have been granted the entrance pass to the construction site. Foremen are in charge of supervision and they also need to make sure that the building is technically built properly and safety issues are observed as planned. Foremen need to plan properly so that the work is done as safely as possible and all the problems need to be solved before the works commence.

Depending on difficulty of the phase foremen are expected to hold regular meetings with workers and also ensuring safety is initiated in each phase that the workers will be working in. Things such as risks and dangerous occurrences, plans, schedule, machines needed for the work and also the eligibility of the used products need to be clarified as a construction material (CE-standard).

Foremen are supposed to supervise the construction work and in case of any deficiency noticed they take action to fix and mitigate the detected deficiencies. Foremen are responsible for site safety, order and use and availability of personal safety equipment. Foremen are also responsible for the site safety reviews and official inspections of site safety.

4.3.5 Employees

Every employee must take care of their own work that work is done safely without any unnecessary risks. Amongst this they must respect other employees safety as well as they can affect on it.

Employees have the obligation to inform supervisors or a representative of safety risks or broken tools and remove the risk, if it is possible.

All employees must be familiar with the regulations and guidelines on their own work and know work and environmental hazards of their own work and know how to be protected against them.

4.4 Occupational Health and Safety Co-Staff

Some main tasks of the occupational health and safety co staff are to evaluate the work environment, recognize problems and to make suggestions to supervisors to remove them. They need to have initiative to prevent hazards and dangerous occurrences and to develop solutions.

Activities must be carried out in cooperation with supervisors and employees, as well as with occupational healthcare. The responsibility of occupational health and safety, as well as decision-making rests with the employer. People participating in these tasks have the obligation of professional secrecy.

4.4.1 The Safety Officer

Every construction site must have a safety officer who is appointed by the lead partner. The safety officer is in charge of construction time site safety and must have enough competence and knowledge of health and safety and of safety legislation in terms of nature and conditions of the work**.**

The employer must ensure that the safety officer shall be given sufficient conditions to carry out his/her duties.

Some tasks of Safety Officer are as follows:

- To assist the employer to get health and safety expertise.
- To assist the employer in cooperation with the health and safety authorities.
- To assist the employer in cooperation with occupational healthcare and with other occupational health and safety experts.
- To organize and maintain cooperation with the employer and employees.
- To develop health and safety cooperation in the workplace.

- To participate in meetings of the health and safety committee even when he/she is not a member of it.
- To participate in occupational health and safety inspections.

4.4.2 Health and Safety Coordinator

A health and safety coordinator is named by the builder/client. She/he co-operates with the lead partner.

As the title says, the health and safety coordinator´s tasks are most of the time coordinating tasks which are requiring expertise of project management. The health and safety coordinator must participate in site meetings and take care of that safety obligation decisions which have been made in those meetings are carried out. She/he needs to take care that the designers of the project have a written assignment of taking into account health and safety in designing and that designers have all the necessary initial data which is up to date [22]. Also the health and safety coordinator must take care that the health and safety document, safety rules and code of practice have been prepared [22]. These things can be presented as part of other documents of the project

.Health and safety coordinator´s duties are:

- To oversee that the builder´s assignment is taking occupational safety into account.
- To make sure that designers are taking occupational safety into account.
- To allow sufficient time for planning.
- To ensure that all necessary safety plans have been made and that they fulfill administrative orders.
- To participate personally in the kick-off meeting of the construction project.

One of the duties of the builder is to make sure that health and safety coordinator is qualified enough and has sufficient competence to perform the tasks and duties before nominating him/her to these duties.

If necessary, the builder may use an outside expert to help to ensure competence of the health and safety coordinator. If the health and safety coordinator does not have sufficient skills, he/she cannot receive duties of the health and safety coordinator.

The builder is required to familiarize the designated health and safety coordinator with the job before starting the job.

4.4.3 Health and Safety Representative

When there are at least ten employees working on a certain activity on site one amongst them must be chosen to be the Health and Safety Representative. His/her responsibility is to represent the employees in occupational health and safety activities on site. Two vice representatives are selected for every health and safety representative. [22].

The employer must free the health and safety representative from other duties for a reasonable time to perform the tasks, and provide necessary space and equipment for them [22].

Some tasks of the Health and Safety Representative are:

- To take care of employees working conditions.
- To provide regular information on occupational health and safety at work.
- To promote safety awareness during the execution of the work.
- To notify mistakes to the supervisors, health and safety manager or health and safety authority.
- To suspend work which may cause an immediate or a serious danger to the life or the health of the worker.
- To participate in safety audits and safety measurements.
- To develop health and safety co-operation between employer and employees.
- To work safely with the right methods on site as an example to the other workers.

Sacking the health and safety representative requires that employees whom he/she is representing give their agreement for it [22].

4.4.4 Occupational Health and Safety Committee

A workplace that regularly employs 20 or more employees must have a safety committee. The committee includes representatives of the employer (the safety coordinator), an employee (health and safety representative) and a Clerk [22]. The occupational health and safety committee has four, eight or twelve members. One quarter represents the employer, one half is representing the employees or the clerks, depending on which one is bigger and one quarter is representing smaller [22].

The main task of the occupational health and safety committee is to improve health and safety in the workplace [22].

5 HEALTH AND SAFETY RESEARCH

The purpose of the study was to compare the differences between occupational health and safety cultures in Kenya and Finland. For this particular case two surveys were conducted; one in Kenya and one in Finland.

In this chapter we shall look into what type of research method was employed, as well as the sources of data and the sampling methods. This will assist in getting to the necessary conclusion and recommendations.

5.1 Research Methods

The research methodology involves decisions regarding as to what, why, where, when and by what means the research was conducted. For this research both qualitative and quantitative methods of research were employed. A quantitative method was used to produce statistical and numerical comparisons, whereas a qualitative method was used to produce information on a broader and wider perspective. Simply stated - any type of data that is not in numerical form is called qualitative data.

The survey on health and safety culture in Kenya was carried out on different construction sites within Nairobi metropolis between February and May of 2012. The survey was carried out using questionnaires (appendix 1). The questionnaire contained both qualitative and quantitative questions. The respondents included both casual labourers and their supervisors. There were a total of 150 questionnaires issued out and those that were successfully filled out and returned were 120. The respondents who in this case are the labourers and supervisors were randomly issued with the questionnaires from the randomly selected construction sites within Nairobi in order to have broader results.

Kenya has two national languages - English and Kiswahili. Therefore, the employees had the chance to answer in both languages to allow equality, as some people may not be able to answer only in English. The questionnaires were kept simple to understand with easy yes/no answers and listing of answers instead of the rather boring, descriptive answering form. To encourage the respondents to participate in the research free lunch was provided to anyone

who successfully filled out and returned the questionnaire, with the lunch rate being 100 Kenyan shillings per person.

The remaining part of the research was conducted in Finland between September and October. It was executed in southern Finland using a questionnaire (appendix 2) and by interviewing foremen in Hämeenlinna and Kajaani. The questionnaire was basically the same as in Kenya, except it was carried out in Finnish. There were a total of 50 questionnaires issued out and those that were successfully filled out and returned were 20. The respondents who in this case were the labourers and supervisors were randomly and anonymously issued with the questionnaires from construction sites within southern and eastern Finland in order to have broader results.

5.2 Reliability and Validity

The reliability of the research comes from the credibility, accuracy and the ability to give results that can be depended upon in answering the research question at hand. The total answering percentage was 70 % and for that the research is wide enough to be reliable and accurate for its purpose which is to see workers attitudes on construction sites. The research should be credible enough to give the same results in case similar research was to be carried out again in the same area. The only allowed variance that can be tolerated would be the changing dynamics of the target group.

The reliability of this research is based on the assumption, that the respondents gave truthful and honest answers to the best of their ability. For this research respondents were specifically encouraged to be honest before they started answering. Also, anonymity was ensured by checking that the respondents never wrote their names on the questionnaires to avoid vilification and victimization by their employers. This made the respondents to provide truthful and honest feedback.

To guarantee reliability in the research the answers were counterchecked and thoroughly processed and if any discrepancy was noticed the questionnaire was cancelled. This helped to increase the reliability of the research to the required standards. It would be foolish to say that there was no slight untruthfulness from some of the respondents but it was minimized to a level that it would not affect the outcome of the research.

To make this research valid a big amount of questionnaires were distributed and lots of responses were received. Conversations with labourers and supervisors were held on construction sites. Also monitoring different construction sites and habits of workers was made.

5.3 Results of Kenyan Health and Safety Research

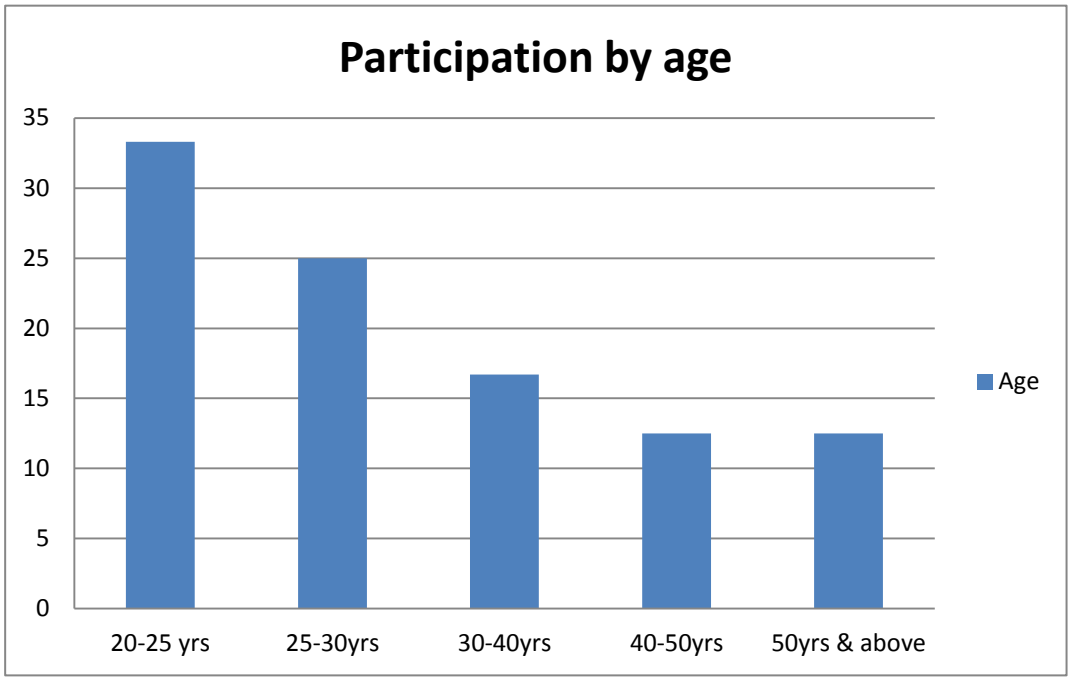
In this chapter we shall discuss the results obtained from the questionnaires administered in the research. It will help in understanding the health and safety situation experienced in the different construction sites in Kenya. It will also be as guidance in identifying the areas that need to be improved in regards, to health and safety in Kenyan construction industry.

The questionnaires as earlier discussed were administered to construction workers in three randomly selected construction sites. The total number of questionnaires issued was 150 and those that were successfully filled and returned were 120.

5.3.1 Participation by Age

In terms of participation by age the respondents were required to fill in their age and from that we were able to establish the age of workers on site. The majority of the workers who participated were between the ages of 20 - 25 representing 33.3 % participation, followed by those between the ages of 25 - 30 representing 25 %. Then 30 - 40 years with 16.7 % and a tie for those between ages 40 - 50 and those of 50 years and above as shown in the bar chart below (Figure 2).

Figure2. Statistics on the age of the Kenyan safety research respondents.

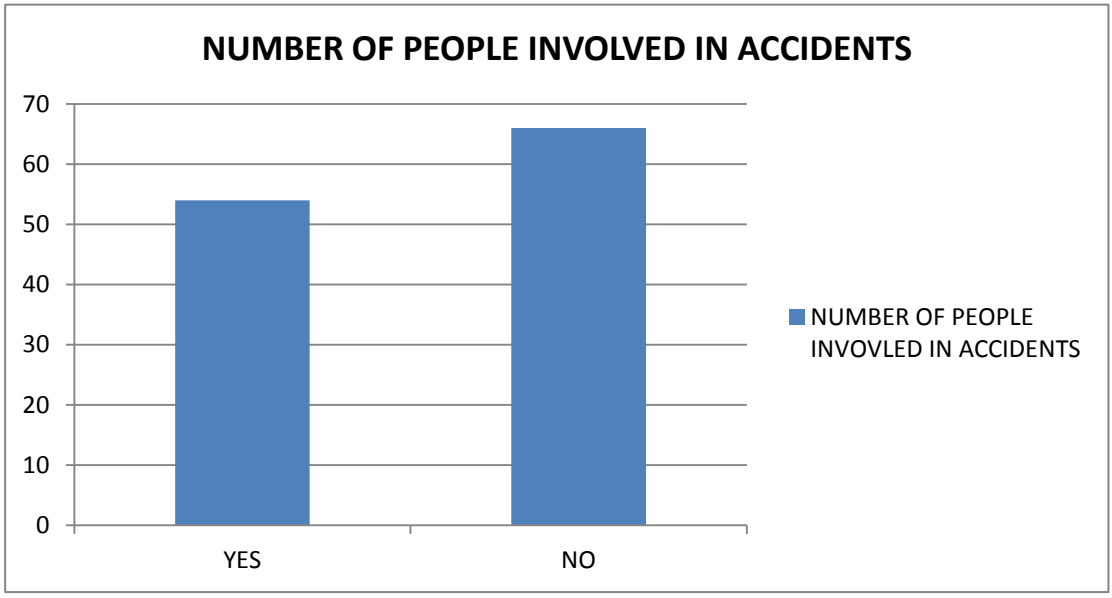


5.3.2 Health and Safety Results

The workers were then asked about the occurrence of accidents on site. The majority of the workers said that they have been involved in accidents on site.

54 workers (45 % of the workers) said that they have been at least involved in an accident on site while 66 of them (55 %) indicated that they have not had an accident as seen below (Figure 3).

Figure3. People involved in accidents on Kenyan construction sites.

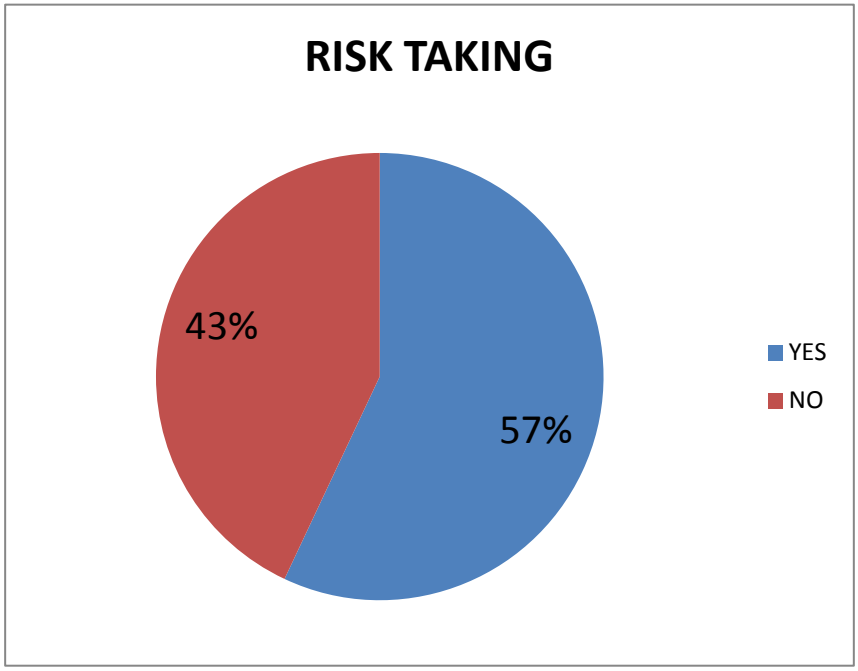


The above statistics (Figure 3) indicates the high number of accidents that are a normal occurrence on construction sites in Kenya whereby almost half of the respondents indicated that they have been at least involved in accident.

The workers were then asked about the most common types of accidents that occur in the construction sites. Many different types of accidents were listed but there were some accidents which were more common than others, as will be shown in the chart below (Figure 4). Such information could help health and safety participants to identify areas that need dire attention.

Due to the nature of high unemployment rate in Kenya the issue of safety seems to be taken rather lightly by a majority of the workers in construction sites. Their main objective is to ensure that they secure employment without considering the employment conditions.

Figure4. The workers that take risks knowingly.

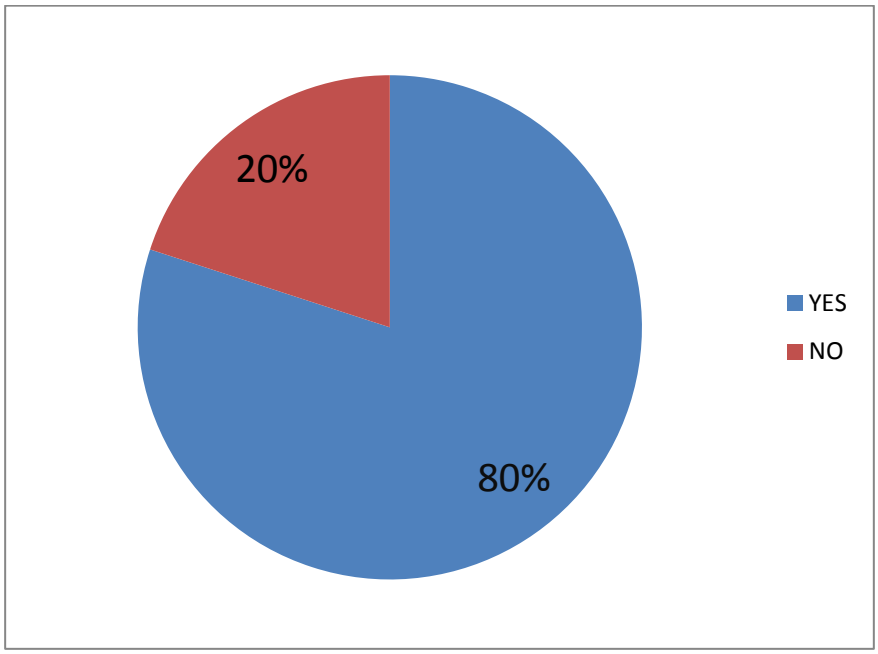


As shown by the pie chart above (Figure 4) the workers were asked if they take risks knowingly as they work on site. Majority of them (57 %) said that they take risks even if they know they are risking their lives.

Most of them talked of consequences at work. There are consequences for not working if instructed so even if there is a risk identified. The workers were asked if according to them, there are penalties for not working in an unsafe environment even if instructed by the supervisors.

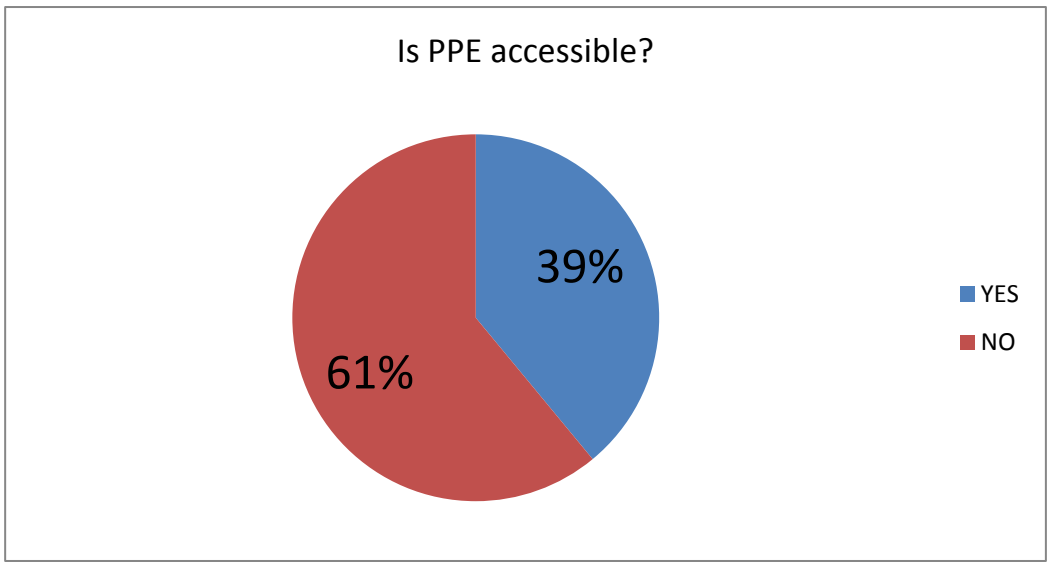
80 % of the workers (96 of them) answered that there will be sanctions if you refuse to work even when the supervisor knows there is a risk involved in the work. 20 % responded that there are no sanctions (Figure 5). Those who said **Yes** all indicated that the penalty is usually being fired from work and the job is given to someone else who will work without asking too many safety issue questions.

Figure5. The consequences on refusing to work in unsafe areas.



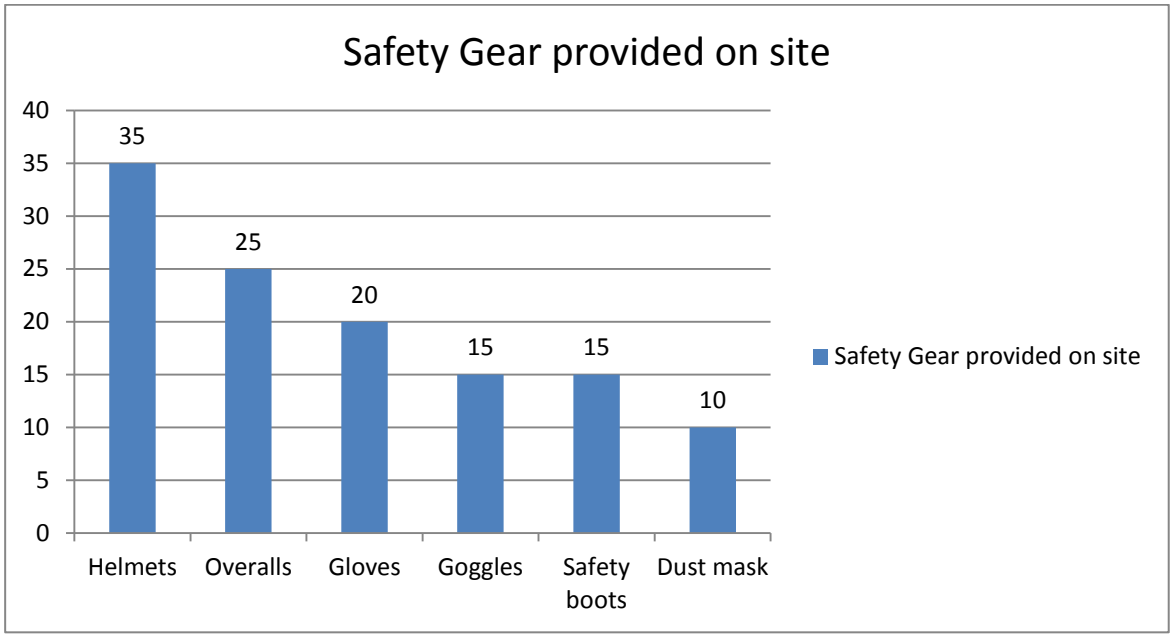
The issue of PPE in Kenya is usually avoided by many contractors. In Kenya it would be a rare sight to see all workers fully clothed in safety equipment. Most construction sites provide just the basic equipment and preference is given to those who really need it most and those who are friends with the supervisors. The workers were asked if the safety gear is easily accessible and 39 % said **Yes** (47 respondents) while the majority 61 % (73 respondents) said **No** as seen below (Figure 6).

Figure6. Access to PPE.



In construction sites the contractor is out to make money just like a normal business. Therefore, he will try as much as possible to minimize expenditure, like safety equipment. The workers are issued with specific cheap PPE but not the full working gear. For example, the contractors may issue helmets only and not safety boots or any other safety gear (Figure 7).

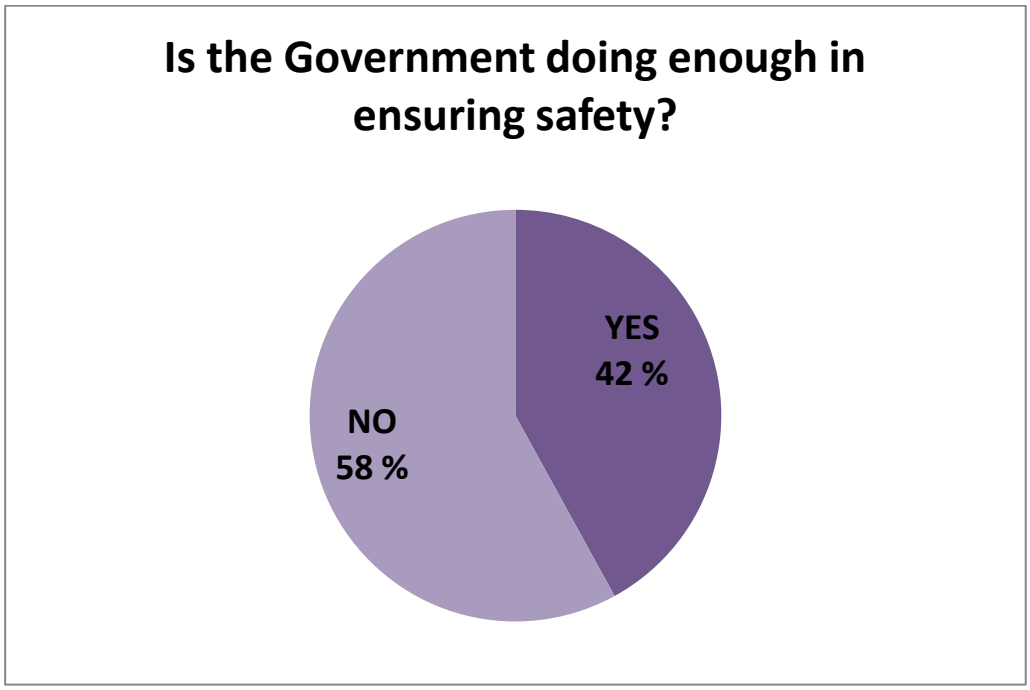
Figure7. Safety gear provided on Kenyan construction sites.



The chart above (Figure 7) clearly proves that the contractors issue out helmets for head protection more than compared to other safety gear. This might be due to helmets being cheaper than safety boots or assuming that danger to the head is more likely than danger to the legs. This might help contractors understand that dangers or hazards could be from anywhere, therefore, total protection of the whole body is necessary.

The government also needs to ensure that the rights of workers are protected accordingly. It needs to empower the bodies and institutions that are responsible for health and safety of the workers. The workers seem to be of the opinion that the government is not doing enough to protect them on the issue of safety on construction sites as seen below (Figure 8).

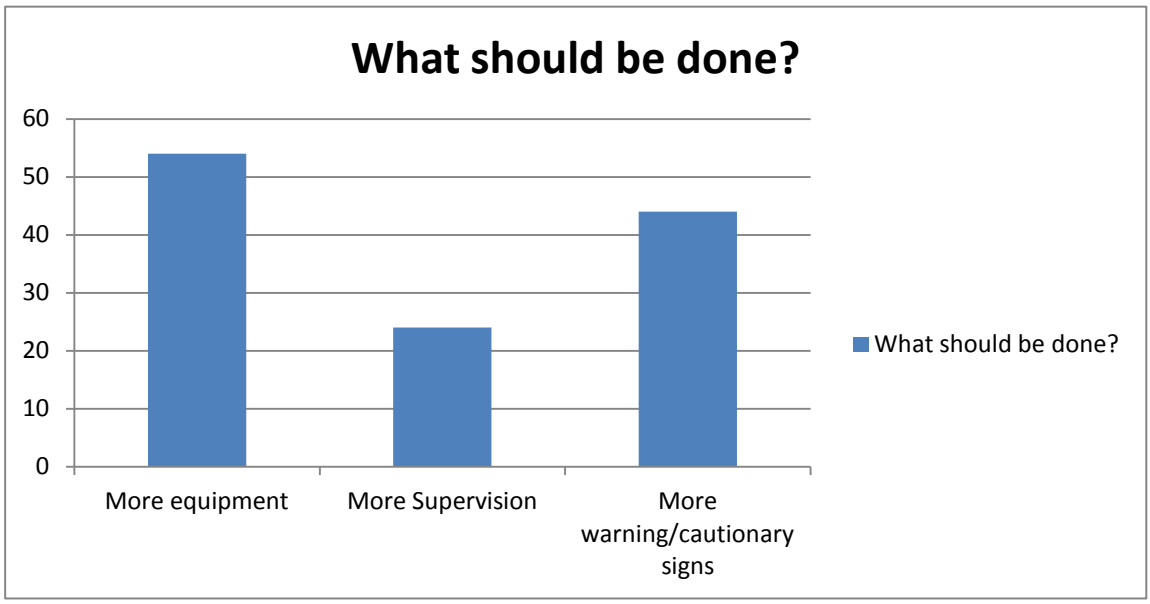
Figure 8. Workers´ opinion on Kenyan government´s role in ensuring safety on construction sites.



According to the research 42 % said **Yes** to the government doing enough ensuring safety while majority said **No**. They feel the government needs to do more in ensuring their health and safety in the course of their employment. Hence it is upon the government to make sure that the workers' rights are not violated but protected through strict supervision and penalization.

Therefore, most of the stakeholders now understand where more empathy needs to be put in regarding the health and safety on site. Workers were then asked what according to them should be done to improve the health and safety conditions on construction sites in Kenya (Figure 9).

Figure 9. Workers´ ideas on how to improve safety on construction sites in Kenya.



According to many workers (45 %) they feel that health and safety conditions on site can be improved by providing more safety gear and equipment, i.e. more helmets, more safety boots and more overalls amongst other things. The others (20 %) feel this can be achieved through increased supervision by safety officers on site and by the government supervisors too. The rest of the workers (35 %) feel that increasing awareness through cautionary and hazard warnings well marked out and indicated on site will help improve safety.

5.4 Results of Finnish Health and Safety Research

This chapter is going to show the results that were obtained from the survey questionnaires. This research tells how workers on construction sites experience the health and safety situation in Finland and what their recommendations are on how to improve site safety on Finnish construction sites.

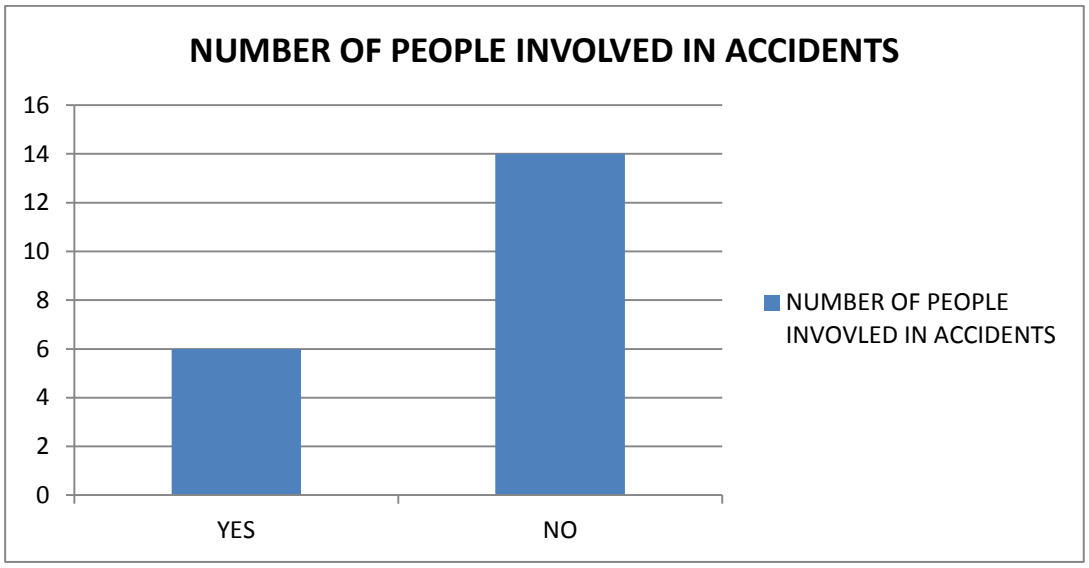
The questionnaires were administered to construction workers on two selected construction sites. The total number of questionnaires was 50 and 20 of them were returned.

5.4.1 Health and Safety Results

The workers were asked about their involvement in accidents on site (Figure 10) to which majority answered no.

14 workers (70 %) of the workers) said they have not been involved in an accident on site while 6 of them (30 %) said they have had at least one accident while working on construction site.

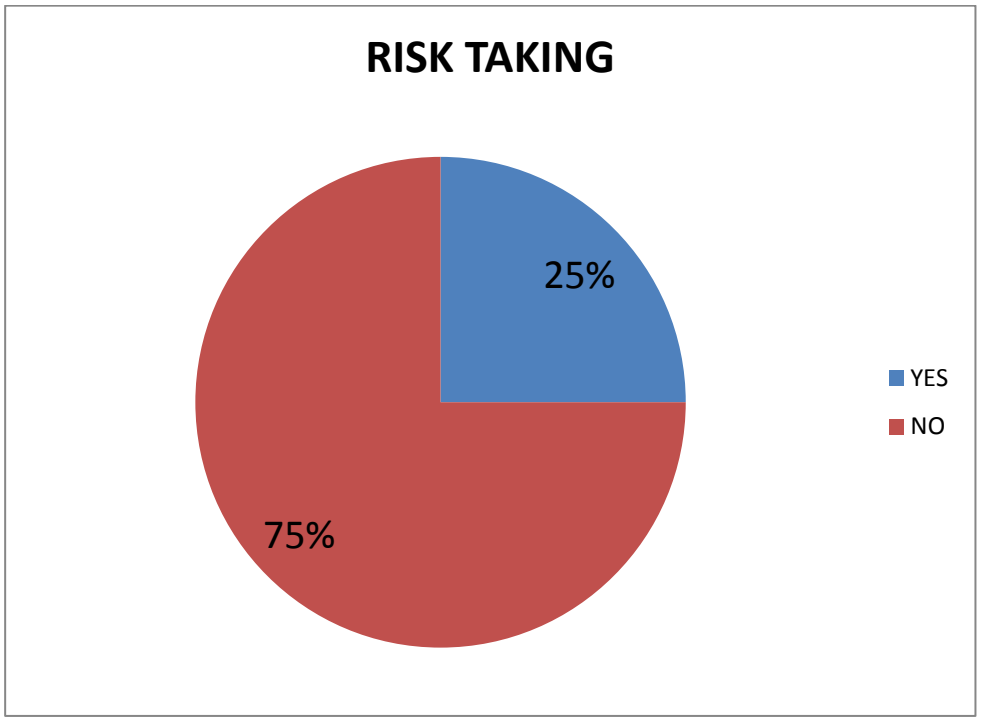
Figure 10. The number of workers that have been involved in accidents on Finnish construction sites.



The statistics above indicates that accidents are not so common on the Finnish construction sites. Many different types of accidents were listed whilst cuts, strains and slipping on the ice were the most common ones.

As there is less time to finish buildings some workers are still taking risks in order not to exceed the planned building time as shown in pie chart below (Figure 11).

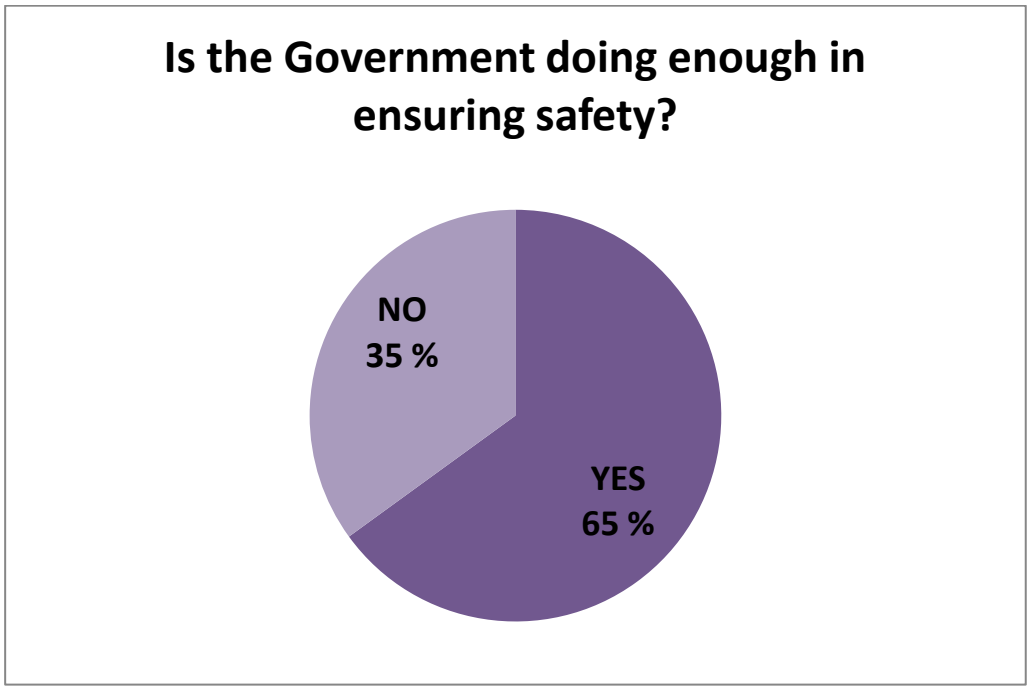
Figure 11. The number of respondents that are taking risks knowingly.



As shown by the pie chart above (Figure 11) the workers were asked if they take risks knowingly as they work. The minority of them (25 %) said they take risks even if they know they are risking their lives and health. Most of them explained their actions to save time and to earn more money by working faster.

The government needs to ensure that the rights of workers are protected accordingly. It needs to empower institutions and builders that are responsible for health and safety of workers. The workers seem to have an opinion that the government is doing enough, but could do more to protect them on the issues of safety on construction sites (Figure 12).

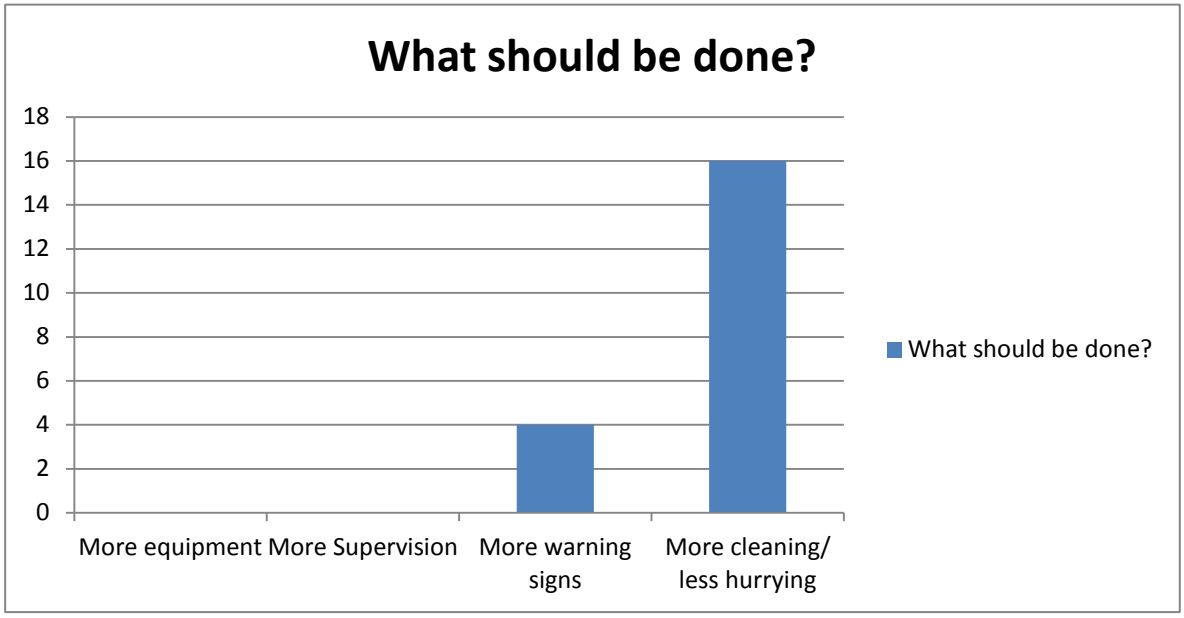
Figure 12.Workers opinion on Finnish government´s role in ensuring safety on construction sites.



According to the research 65 % said **Yes**, the government is doing enough while minority 35 % said **No**, the government needs to do more in ensuring their health and safety on construction sites.

Then workers were asked what in their opinion should be done to improve the health and safety conditions on construction sites in Finland (Figure 13).

Figure 13.Workers ideas on how to improve safety on construction sites in Finland.



According to workers (Figure 13) they feel that they have enough supervision and good equipment to work properly. Some workers (20 %) feel that more warning signs should be put up so unnecessary injuries can be avoided. The others (80 %) feel that tight schedules and site organization need improvement. According to them there is such a big rush all the time, so there is no time for cleaning. At the same time hurrying causes more hazard and quality of building decreases. Keeping the site in order and taking time to do everything properly will help improve safety. At the same time it will reduce injuries and sick leaves.

5.4.2 Interviews of Finnish Foremen

Foremen were personally interviewed in Hämeenlinna and Kajaani (Appendix 3). Here are some of the problems that in foremen's mind should be improved regarding safety on site:

- Generally the attitude of older workers is poor and it is not at the level as it should be.
- Tightened regulations which do not have real solution models.
- Rush and tight schedules.
- Eye protection.

- Deficiencies in scaffolding.

Foremen also were asked how to improve safety on site and here are some of their answers:

- By creating a safe work environment.
- By observing and developing existing solutions.
- By monitoring work more closely.
- By using the proper PPE.
- By planning the work carefully for it to be safe.

6 CULTURAL DIFFERENCES IN HEALTH AND SAFETY BETWEEN KENYA AND FINLAND

6.1 Differences in Healthcare and in Insurance Policy

In Finland public or private healthcare is taking care of employees health and they will have sick-leave with full salary. In Kenya, everything depends on your position in the company. In case of an accident of a normal labourer, an employee is given sick-leave without salary or in case of an accident he/she is taken to the hospital. The day of the accident will be with full salary but the next days are going to be without any salary. In a case where an employee is lucky he/she will still have a job after few weeks sick-leave. A person with a high position (foremen or higher) has insurance for him/her and for the family. Even the constitution disagrees that the terms of the insurance policy should not depend on how high ranked you are in the company.

In Kenya, the majority of the workers are informally employed or commonly known as the casual workers. According to the labour laws of Kenya workers with formal employment are entitled to a sick-leave of not less than seven days and annual paid leave of not less than 21 days. Basically, every construction company has both formal and informal workers. The informal workers make up 80 % while the formal make up the other 20 %. The formal workers in a company are mainly the management group.

The informal workers in Kenya are not provided with any health or insurance benefits. They are not put under the statutory deductions of NSSF (National Social Security Fund) and NHIF (National Health Insurance Fund). This leaves the workers without any form of health insurance or social security. It becomes an issue when an injury or accident has occurred. This leaves the casual worker at the mercy of his/her employers thus making him/her very vulnerable to losing any compensation they are entitled to.

6.2 Site Safety

In Finland we can see that matters of safety on construction sites are taken very seriously by all stakeholders in the project. In Kenya, however, matters are totally different where no-

body seems interested in addressing safety issues. We shall try and identify the stark differences between the two countries.

Firstly, there is the issue of orientation when a worker is commencing work. In Finland a worker is provided with job orientation regardless of his/her experience. Both young and old are given this vital pre-requisite of work. The worker is given a tour of the construction site where all the rules are laid out and all conditions provided and it is at this stage that health and safety issues are discussed. In Kenya when workers are seeking work on a construction site they just agree on the price of undertaking the job and when the day for commencement is due the worker just enters site and starts work. The irony is that nobody has told him/her how things are done or carried out. Nobody has ironed out the safety issues as regards to that specific site, maybe expounded on the hazards present on site. Therefore, job orientation is vital on construction sites as part of upholding health and safety.

In Finland there is a safety officer, a health and safety coordinator, a health and safety committee and a health and safety representative. All these different groups have one major goal and that is to ensure that health and safety for all the workers is maintained on a construction site. Although they work at different levels with different duties and responsibilities they coordinate effectively and harmoniously to ensure every workers´ health and safety concerns are addressed. In Kenya the only group they have is the safety officer. According to the new laws, every construction site has to have a safety officer whose main duty will be to address the safety concerns of the workers on site. This is usually not the case in Kenya. Very few construction sites have a well qualified safety officer. Others just approach a supervisor train him a bit and then assign him duties as a safety officer. This means he will be a part construction supervisor and a part safety officer making it hard to administer his duties fully.

6.3 Causes of the Differences

The differences of health and safety between Kenya and Finland are quite enormous. The differences are many and we can at least try and identify some of the causes that bring about the differences. We can outline them as:

- *Inadequate legislation*

The health and safety concerns in the construction industry have not been fully addressed. This still is a concept which we might say is new and still in the infancy stages. The laws which have been passed to address the issue are not sufficient enough to control the industry. With the issues highlighted there is need to draft and pass more laws. In comparison, Finland has a lot of laws which help govern safety issues in the construction industry.

- *Poor implementation*

It is one thing to have proper laws but totally another thing implementing them. Finland is implementing the laws which have been laid out. The construction industry strictly adheres to the laws hence it is able to benefit fully from them. Kenya has a few laws yet ironically they are not able to implement the few they have. Therefore, another cause for the differences is the poor implementation of the legislation.

- *Lack of education and awareness*

The lack of awareness and proper education has led to the differences shown in this research. In Finland there is proper awareness and education regarding the safety on construction sites. The workers know their rights and so it would be difficult for their employers to compromise their safety. In Kenya, however, the workers are not properly educated and thus it is hard to implement the safety issues.

6.4 Improving Safety on Kenyan Construction Site

This thesis has outlined the major shortcomings of safety as regards to the Kenyan construction industry. Some of the problems below came up in personal interviews of Kenyan supervisors (Appendix 4). The problems identified will assist in coming up with solutions that will help address the problems. Every stakeholder has a role to play in improving health and safety in the construction industry in Kenya.

- ✓ *Providing of PPEs*

It was noted through the research that the majority of construction sites do not provide safety gear to the workers. This issue can be well addressed if the government supervisors can ensure that a site provides all the necessary safety gear required. Safety on site can be improved if workers are well protected against injuries and accidents. The construction companies should provide PPEs to workers according to the work that they do, e.g. provision of ear muffs for work being done in noisy conditions.

- ✓ *Regular government supervision*

One of the issues that must to be blamed for the poor safety culture in Kenyan construction sites is the poor supervision by the government agencies concerned with health and safety. The government ought to follow up on construction sites from commencement of the project through to completion. The government needs to do random checks and inspections on ongoing sites to ensure safety rules and regulations are followed and those that do not comply should be penalized accordingly. The strict government inspection will surely help construction companies to comply with the rules.

- ✓ *Awareness and education*

There is generally a lack of awareness on the occupational health and safety issues amongst the workers in construction sites. Some workers even openly agreed that they do not know anything about the OSHA 2007. This type of ignorance needs to be addressed. The workers need to be well educated about their rights. Awareness needs to be created amongst the workers through safety campaigns that can be carried out by the Government and the social welfare groups. Increased use of electronic and mass media needs to be encouraged in schools, universities, organizations and companies to help in spreading the safety and health message across Kenya. If the workers are able to know what should be provided to them prior to start working then they might as well demand for it.

- ✓ *Health Policy*

The government also needs to make sure that all workers working on construction sites, whether casual or permanent, are provided with a health policy. Many contractors do not provide the casual workers with the health policy due to the nature of their employment.

Generally, the casual workers account for more than 75% of employment on site. Therefore it should compel all contractors to issue the casual workers with a health policy. Contractors usually raise the issue of workers not accepting deductions of their wages to contribute to the health fund commonly called NHIF (National Health Insurance Fund) in Kenya.

- ✓ *Incorporating safety in procurement and tendering stage*

Safety on sites should start with the design team, i.e. Architects, Engineers, Project Managers; they need to enforce safety during the procurement and tendering stage of a construction project. The contractors tendering for the project need to give a method statement of how they will handle the safety issues during the construction process. After awarding the tender the design team then is expected to have a follow up plan during the construction process ensuring that whatever was included in the method statement for the project is being practically exercised on site.

- ✓ *Education of foremen*

Foremen need to ensure that all labourers are provided with PPE. Foremen should add awareness of safety on possible hazards and dangerous places on construction sites by adding signs and educating labourers to work safely. If foremen are not taking care of labourers safety they should get penalty or fine for that. On the other hand, if injuries and hazards are reduced on construction sites, the employer should award foremen for having a safe site.

- ✓ *Safety and Health Committees*

Comparisons between safety in Kenya and Finland have helped in raising issues that need to be improved and creation of health and safety committees is one of them. Kenya needs to adopt Finnish model of having safety committees on site that will consist of the company managers, supervisors and workers representatives. The safety committee will be discussing the issues affecting workers and the workers will be opening up and help managers understand issues affecting them. It is really important to have workers and their employers discussing on the same platform as they will feel that at least their health and safety is being looked into.

- ✓ *Allocation of sufficient funds and resources*

The government has created various institutions in Kenya to help in supporting the safety and health agenda. The only problem is that the institutions are not well supported financially. This has made their workers to be poor remunerated thus very susceptible to bribery and corruption. Therefore, the government needs to allocate sufficient funds to enable the institutions meet the capacity to carry out their duties without interference and hence this will increase transparency.

7 CONCLUSIONS

The aim of the thesis was to compare Finnish and Kenyan sites and to make recommendations on how to improve safety on Kenyan sites.

The research has found that compared with Kenya, Finland has good legislation and government is taking care that those rules and laws are put in order on every site and that those apply to every worker.

The construction sector in Kenya is made of mainly informal workers or the casual workers with the majority being below the age of 40 years. The Kenyan economy is still not strong enough; hence the unemployment rate is still high. Therefore the Kenyans opt for the construction industry where they are subjected to hazardous working conditions due to lack of other employment options. The Kenyan construction industry is plagued by high cases of corruption which are hampering any efforts of rehabilitating issues of health and safety.

The best approach would be to engage all stakeholders and encourage them all to give a positive contribution in helping bring change to the construction sector. Issues have been raised on how to best improve the situation like providing of PPE by the contractors, strict government supervision on sites, improved awareness and education to be provided by civil society and media and lastly better legislation to be drafted by the lawmakers.

Construction safety matters are not perfect in Finland and according to the workers and the safety research there are some issues in terms of site safety, but the guideline which guides everything is clear to everyone and quite easy to follow. Finland is a good example for Kenyan builders and foremen, and they should take one's cue from, how things are planned and done in Finland.

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LIST OF ADDENDICES

QUESTIONNAIRE FOR KENYAN WORKERS

Dear respondent,

I am Lauri Väliö - a construction engineering student from Kajaani University of Applied Sciences. I am doing my thesis on the differences on occupational health and safety between Finnish and Kenyan construction sites. Your help is needed for this purpose which is why I would like you to answer some questions that are listed below.

The same questionnaire has been done on some Finnish construction sites too.

It will take about five minutes to complete the questionnaire and it will all be done totally anonymously. The results won´t be used for any other purpose but this particular thesis.

1) How long have you been working in the construction industry?

2) What type of work have you been doing in construction?

3) Job orientation,

   a. Were you given orientation for the job?

Yes No

   b. If Yes, were you taught enough from your orientation?

Yes No

   c. If No from (b), could you tell reasons why it wasn't enough?

4) Is there good site organization and tidiness on your site?

Yes No

5) Is it easy to work safely on your site?

Yes No

6) What do you think should be done to improve safety conditions on your building site?
   a) More equipment
   b) More supervision
   c) Placing warning signs on dangerous areas

RISKS AND DANGEROUS OCCURENCES

7) Why do you think people are taking safety risks at the building sites?

8) Are you taking risks at your work?

Yes No

9) Have you been warned about possible risks and dangerous occurrences on your site?

Yes No

10) Are there consequences if you refuse to work when you identify risks to your safety?

Yes No

11) Does rush and hurrying up around the site cause dangerous occurrences and accidents?

Yes No

12) Have you identified any health and safety risk on your site?

Yes No

13) Have you told anyone about those risks?

Yes No

14) If yes, has something been done about it?

Yes No

SAFETY EQUIPMENT, SUPERVISORS AND WORKMATES

15) Are people being responsible enough for their own safety on site?

Yes No

16) Do you use personal safety equipment when you are working on site?

Yes No

17) Is safety equipment easily accessible to the workers on site? (e.g. Ear plugs, safety glasses, safety belts, dust screen?)

Yes No

18) What are the types of safety equipment on site?

a)

b)

c)

d)

e)

19) Are the supervisors supporting workers to work safely on site?

Yes No

20) Do you feel pressured to compromise your working safety? E.g. "Don`t use safety harness because of lack of time"

Yes No

21) Do your work colleagues observe safety conditions?

Yes No

22) Have you ever been involved in any accident on site?

Yes No

23) Do you think the government is doing enough in monitoring safety conditions on sites?

Yes No

24) Is your construction company issuing any insurance policies to the workers?

Yes No

25) In your own opinion, give a general comment about the safety culture in the Kenyan construction industry and give recommendation about what needs to be done to improve on it.

Hyvä kyselyyn vastaaja,

Olen Lauri Väliö, rakennusinsinööriopiskelija Kajaanin Ammattikorkeakoulusta.
Teen opinnäytetyötäni suomalaisen ja kenialaisen työturvallisuuskulttuurin eroista ja tässä asiassa tarvitsen myös Sinun apuasi. Alla on erilaisia kysymyksiä joihin toivon Sinun vastaavan ja antavan myös omia kommenttejasi.
Tämä sama kysely on teetetty myös Kenialaisilla työmailla, joten älä hätkähdä jos jotkin kysymykset vaikuttavat sinusta itsestäänselvyyksiltä. Kyselyyn vastaaminen kestää n.5min
Kysely tehdään nimettömä, eikä vastauksia käytetä muuhun kuin tämän opinnäytetyön tekemiseen.

KYSELY SUOMALAISESTA TYÖTURVALLISUUSKULTTUURISTA
VASTAA ALLA OLEVIIN KYSYMYKSIIN

1) Mitä työtä teet työmaallasi?

2) Kuinka pitkään olet työskennellyt rakennusalla?

3) Työn perehdytys,

   a. Saitko työhösi perehdytyksen?
      Kyllä Ei
   b. Jos kyllä, oliko perehdytys mielestäsi riittävä?
      Kyllä Ei

4) Onko työmaallasi hyvä siisteys ja järjestys?

   Kyllä Ei

5) Onko työmaallasi helppo työskennellä turvallisesti?

   Kyllä Ei

6) Mitä mielestäsi pitäisi tehdä työmaasi turvallisuuden parantamiseksi?

(Valitse yksi tai useampi)

a) Lisätä parempia työkaluja
b) Lisätä valvontaa
c) Lisätä varoituskylttejä vaarallisille alueille
d) Joku muu? Mikä?

RISKIT JA VAARATILANTEET

7) Miksi mielestäsi työmaalla otetaan turvallisuusriskejä?

8) Otatko työssäsi riskejä?

Kyllä Ei

9) Onko sinulle kerrottu työmaasi mahdollisista vaaroista ja riskeistä?

Kyllä Ei

10) Jos kieltäydyt tekemästä työtä ilman asianmukaista varustusta, onko sillä kurinpidollisia seurauksia?

Kyllä Ei

11) Onko kiire syynä vaaratilanteisiin ja tapaturmiin?

Kyllä Ei

12) Oletko huomannut työmaallasi terveys/turvallisuusriskejä?

Kyllä Ei

13) Jos kyllä, oletko ilmoittanut havaitsemastasi riskeistä?

Kyllä Ei

14) Jos kyllä, tehtiinkö asialle mitään?

Kyllä Ei

HENKILÖSUOJAIMET, TYÖNJOHTAJAT JA TYÖKAVERIT

15) Pitävätkö kaikki työmaalla työskentelevät huolta omasta turvallisuudestaan?

Kyllä Ei

16) Käytätkö henkilösuojaimia työskennellessäsi työmaalla?

Kyllä Ei

17) Ovatko henkilösuojaimet helposti saatavilla?

Kyllä Ei

18) Mitä seuraavista turvavälineistä työnantajasi sinulle tarjoaa?

a) Turvakengät
b) Turvavaljaat
c) Hanskat
d) Suojalasit
e) Työvaatteet
f) Kypärä
g) Suojamaski

19) Tukevatko työnjohtajat työntekijöiden turvallista työskentelyä työmaalla?

Kyllä Ei

20) Painostetaanko sinua työskentelemään epäturvallisesti?

Kyllä Ei

26) Noudattavatko työkaverisi turvallisuussääntöjä?

Kyllä Ei

21) Onko sinulle sattunut työtapaturma?

Kyllä Ei

22) Valvovatko viranomaiset mielestäsi tarpeeksi turvallisuutta työmaallasi?

Kyllä Ei

23) Kerro oma mielipiteesi suomalaisesta työturvallisuuskulttuurista ja mitä mielestäsi pitäisi tehdä asioiden parantamiseksi?

24) Vapaa sana.

PERSONAL INTERVIEW: QUESTIONS FOR FINNISH SUPERVISORS

1) Mitkä ovat työturvallisuuden kannalta suurimmat ongelmat työmaalla?

2) Kuinka Sinä voit kehittää/parantaa työturvallisuutta työmaalla?

3) Kuinka hyvin työntekijät noudattavat työturvallisuusmääräyksiä työmaalla, ja mitä Sinä teet mikä annettuja määräyksiä ei noudateta?

4) Millaisia tapaturmia työmaillasi on tapahtunut?

5) Jos työntekijä huomaa mahdollisen vaaranpaikan, ilmoittaako hän siitä työnjohtajalle? Jos ei, miksi hän ei ilmoita?

6) Mitä teet jos työmaallasi sattuu tapaturma?

7) Mitä henkilökohtaisia suojaimia työnantaja työntekijöilleen tarjoaa?

8) Mitä teet jos työntekijä kieltäytyy työskentelemästä, koska hänellä ei ole työhön tarvittavia henkilökohtaisia suojaimia?

9) Tietääkö jokainen työntekijä kuinka työskennellä turvallisesti työmaalla? Jos kyllä, kuinka varmistat, että kaikki tietävät kuinka työskennellä turvallisesti?

10) Kerro oma mielipiteesi suomalaisesta työturvallisuuskulttuurista työmailla ja kerro kuinka sitä voisi parantaa.

PERSONAL INTERVIEW: QUESTIONS FOR KENYAN SUPERVISORS

1) Which are biggest issues concerning safety on site?

2) How do you think you can improve safety on your site?

3) Do many construction companies in Kenya have safety officers/supervisors on site?

4) How well are people following safety on your site and what action do you take if they do not follow those rules?

5) Name the different type of accidents that have occurred on your site?

6) Do you think that government is strict in ensuring that safety rules are observed on site?

7) Do you think that supervisors are putting their workers at risk by making them to hurry or rush around the site?

8) If a worker becomes aware of a certain threat to his or his workmates safety, do they alert the supervisors?

9) How do you handle cases of people who have been involved in accidents on site?

10) In case of an accident on site, do you investigate the cause so as to prevent similar accidents in future?

11) Does the company provide safety equipment to its workers? What kind?

12) Are safety equipments accessible to the workers on your site?

13) What would you do if a worker refuses to work because he does not have the required safety equipments?

14) Does every worker know about safety conditions on your site?

15) Do you give new workers training on the safety working rules on site?

16) Do people know about their medical things?

17) Do also smaller companies provide medical care?

18) Does government order every company to take insurance/ medical care for its workers?

19) Which are the issues with insurance/ medical care on your mind?

20) Does supervisors have better healthcare than other workers?

21) What does insurance/medical care cover?

22) Why don´t most of the workers have medical care/ insurance?

23) Does a normal worker know first aid? Or only a trained safety officer?

24) Do you give training on first aid for the workers?

25) In your own opinion, give a general comment about the safety culture in the Kenyan construction industry and give recommendations on what needs to be done to improve on it?