

CHALLENGES AND OSH MEASUREMENT'S IMPROVEMENTS FROM THE
LOCAL ALBANIAN SUBCONTRACTOR/CONTRACOR COMPANY
PERSPECTIVE.

CASE STUDY: CIVIL ENGINEERING WORKS IN ELBASAN 2 AND CERRIK
SUBSTATION PROJECTS.

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

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Occupational Health and safety is becoming more and more a very concerning issue in developing countries. Some various efforts for improvement can be seen, but they are significantly not enough to provide a secure work environment in the construction industry. Although very much research has been conducted in OSH in developed countries, in Albania there is very little research concerned with this topic. Therefore this case study is important in trying to give a local perspective of both the management and employees working in challenging projects and dealing with OSH issues/risks. This case study focuses initially on the investigation of the Management Safety practices that the company enforces on its employees, on the level of enforcement of these practices, and on their application on site. Moreover, this study brings together the management point of view on health and safety and the worker's perception on how it is actually being applied on site. It is crucial to mention that this case study focuses on the local subcontractor/contractor point of view, information which gives rise to a more realistic research on the reality of construction challenges/risks in developing countries. This study gives rise to a deeper understanding of how companies in Albania can adopt, improve and understand the OSH policies importance in order to be safely successful. This study concludes that the companies must adopt and promote adequately the

occupational health and safety management system concerning all its parameters, while investing on a OSH management certificate and health and safety experts.

Keywords: Occupational Health and Safety; Construction Industry; OSH Policy; Management Safety Practises;

ABSTRAKT

SFIDAT DHE MATJA E PERMIRESIMEVE TE SSP NGA KENDVESHTRIMI I NJE KOMPANIE LOKALE NENKONTRAKTORE/ KONTRAKTORE SHQIPTARE. RAST STUDIMOR : PUNIMET CIVILE NE NENSTACIONIN E ELBASAN 2 DHE CERRIK.

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Siguria dhe Shendeteti ne Pune (SSP) aktualisht po behet nje ceshtje shume shqetesuese ne vendet ne zhvillim. Pavaresisht se mund te vihen re disa perpjekje per permiresim, gjithsesi ato nuk mjaftojne per te siguruar nje mjedis pune te sigurte ne industrine e ndertimit. Megjithese ekzistojne studime akademike ne fushen e SSP-se ne vendet ne zhvillim, ne Shqiperi vihet re nje mungese e tyre. Si pasoje, ky rast studimor eshte i rëndesishem per te paraqitur kendveshtrimin e stafit te nje kompanie shqiptare per ceshtjet e rrishtit te SSP-se. Ky rast studimor fokusohet fillimisht ne investigimin e Praktikave Menaxhuese te SSP-se qe kompania vendos mbi punonjesit e saj, ne nivelin e zbatimit te ketyre praktikave dhe ne aplikimin e tyre ne kantierin e ndertimit. Per me teper, ky studim nxjerr ne pah pikepamjet e menaxhereve ne lidhje me SSP-ne si dhe perceptimin e punonjesve se si aplikohet realisht ne kantierin e ndertimit. Eshte shume e rëndesishme te permendet se ky studim fokusohet ne kendveshtrimin e kompanise nenkontraktore/kontraktore lokale, informacion qe con ne nje studim me te besueshem persa i perket realitetit te sfidave dhe rrisqeve ne industrine e ndertimit, ne vendet ne zhvillim. Ky studim hedh hapat per nje strategji me te qarte se si kompanite ne Shqiperi mund te adoptojne, permiresojne dhe kuptojne rëndesine e Politikave te SSP-se ne menyre qe te jene te suksesshme. Ky studim nxjerr ne perfundim se kompanite duhet te adoptojne dhe

promovojne sistemin menaxhues te SSP-se duke marre parasysh gjithe parametrat e tij, si dhe duke investuar ne marrjen e nje certifikate te SSP-se dhe eksperte te SSP-se.

Fjalët kyçe: Siguria dhe Shendetit ne Pune; Industria e Ndertimit; Politika e Sigurise dhe Shendetit ne Pune; Praktikat Menaxhuese te Sigurise;

Dedicated to my sister.

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LIST OF ABBREVIATIONS

OSH	Occupational Health and Safety
HSE	Health and Safety Executive
HSWA	Health and Safety at Work Act
HSS	Health and Safety Commission
EU	European Union
USA	United States of America
ACPM	The Association of Construction Project Managers
CIDB	Construction Industry Development Board
UK	United Kingdom
GDP	Gross Domestic Product
ILO	International Labor Organization
OSHA	Occupational Safety and Health Administration
EA	European Agency
ECF	European Commission Framework
SLI	State Labor Inspectorate
MOLSA	Ministry of Labor Social Affairs and Equal Opportunities
MH	Ministry of Health
MPWTT	Ministry of Public Works Transport and Telecommunication
SSI	State Sanitary Inspectorate
PHI	Public Health Institute
ASA	Association and Stabilization Agreement
DCM	Decision of the Council of Ministres
FDI	Foreign Direct Investments
HSMS	Health and Safety Management System
RIIM	Relative Importance Index Method

RII	Relative Importance Index
BS	British Standard
OHSAS	Occupational Health and Safety Assessment Series
GWh	Gigawatt hours
H&S	Health and Safety
PPE	Personal Protective Equipment
PCS	Protective Collective Systems
RA	Risk Assessment

CHAPTER 1

LITERATURE REVIEW

Albania as a country has had a problematic history in terms of independence. After 500 years under the Ottoman Empire, which left the country undeveloped and mostly focused on agricultural industry with a minimum of construction buildings, Albania finally declared independence in 1912. In 1920, the self declared King Ahmet Zogu highly invested in construction of roads, buildings and Tirana center with a concessionary agreement with the Italian Government. During this period, the construction sector saw a large increase and was highly developed. In 1945 Albania fell under communism for the upcoming 50 years. In this timeframe, the State publicly invested on roads, households, building institutions, hydropower plants etc. Although the Communist government was closed and did not benefit of the current technologies of the west, they in fact made a positive contribution to the construction industry.

In the 1990s, the country found itself being introduced to private property for the first time, and the focus of people was to build their homes. As a consequence, a lot of companies for constructing buildings were issued. In 1997 crisis, the informality of the construction sector was really high. This led to people constructing without a construction permit throughout the country [Albania Labor Inspection Audit, 2009]. The construction industry after the 2000s experienced a boom. Furthermore after the 2000s, the informality of the sector started decreasing as a consequence of new property laws being issued, as a consequence of a further development of the country and governmental strength, and of new European investments (legislation and economic wise).

This research is concerned with Occupational Safety and Health (O.S.H) measurements and challenges of the civil engineering works happening in electrical substations in a case study in Albania.

The projects taken into consideration for this case study, are part of the Project for the construction of the Hydropower plants for Devoll Cascada. This project is invested by the Norwegian company Statkraft. The total value of this investment together with Banja Hydro Power Plant (H.P.P) and Moglice HPP amounts to 535 million euro and is to be implemented within 36 months.

Elbasan 2 Substation is part of the Devoll HPP Project, where EnBi Power ltd is a subcontractor for civil and electrical installations. This substation consists on the extension of the existing one.

Cerrik Substation is also part of the Devolli HPP project where EnBi Power ltd is a subcontractor of Alstom for the electrical installations and a contractor of Statkraft for the civil works.

1.1. Occupational Safety and Health Definitions

Health is the protection of the bodies and minds of people from illness resulting from the materials, processes or procedures used in the workplace.

Safety is the protection of people from physical injury. The borderline between health and safety is ill-defined and the two words are normally used together to indicate concern for the physical and mental well-being of the individual at the place of work.

Accident is defined by the Health and Safety Executive [HSE, 2003] as any unplanned event that results in injury or ill health of people, or damage or loss to property, plant, materials or the environment or a loss of a business opportunity. In the UK, the Health and Safety Executive (H.S.E) is responsible for the enforcement of the Health and Safety

at Work Act (H.S.W.A) and carrying out the day-to-day work to enable the Health and Safety Commission (H.S.S) to carry out its functions. The HSC is responsible for the promotion of the HSW and encouraging research, training, providing an information and advisory service. Other authorities define an accident more narrowly by excluding events that do not involve injury or ill-health. However this research will always use the Health and Safety Executive definition.

Hazard is the potential of a substance, activity or process to cause harm. Hazards take many forms including, for example, chemicals, electricity and working from a ladder. A hazard can be ranked relative to other hazards or to a possible level of danger [Keng, 2004].

Risk is the likelihood of a substance, activity or process to cause harm. A risk can be reduced and the hazard controlled by good management [Keng, 2004].

Near misses- is any incident that could have resulted in an accident [Hughes and Ferrett, 2007].

Direct Costs - These costs are immediately linked to the events (in this case accidents in the workplace). These costs can be insured (claims on employers and public liability insurance, damage to buildings, equipments or machines) or uninsured (fines, sick pay, product damage, equipment or process) [Hughes and Ferrett, 2007].

Indirect costs - these costs are costs that are not directly linked to the events(accidents).They are also insured (business loss, product or process liability) and uninsured (loss of goodwill, loss of reliability of the company, overtime payments, accident investigation time, production delays) [Hughes and Ferrett, 2007].

Risk Assessment - A Risk Assessment (R.A) is the systematic identification of potential hazards in the workplace as a first step to controlling the possible risk involved [OSHA,2016].

Safety organizational culture - Safety organizational culture is the product of individual and group values, attitudes, perceptions, skills and patterns of behavior that determine the commitment to and the style and proficiency of an organization's health and safety management [HSC, 1993].

1.2. Hazardous Nature of the Construction Industry

Davies and Tomasin [Davies and Tomasin, 1996] argue that there are several reasons why accident records in the construction industry do not result in significant numbers compared to those of the manufacturing industry. In factories, there is a static controlled environment, including absolute procedures that enable successful changes. On the contrary, in the construction industry, changes are very difficult to take place successfully considering the habitat is always changing.

1.2.1. The Accidents in Terms of an Indicator of the Hazardous Nature of the Construction Industry

The construction industry includes unfortunately a significant amount of work injuries and fatal accidents every year. The construction industry, when compared with other (labor intensive) industries, has historically experienced a disproportionately high rate of disabling injuries and fatalities for its size [Hinze, 1997]. Statistically speaking, only in the European Union (E.U) 5500 employees had fatalities in these accidents and more than 75.000 were seriously injured so that it prevented them from working.

In order to have a general view on both developed and undeveloped countries, there are examples taken and statistics shown from both sides. However, this data is only an overview of these countries and does not implicate where Albania stands in OSH. The research aim is to investigate where Albania stands and how the situation of OSH applies there.

Even though the developed countries do present a significantly better situation than the developing ones, it is important to look at some facts:

The construction industry accounts for 30 % of all fatal industrial accidents in the EU, while it has an employment rate of 10 % of the working population; in the United States of America (U.S.A) it produces 20 % of all fatalities and only 5 % of the employed [Smallwood, 2000]. In Great Britain, the construction industry employs 5 percent of the workforce, while producing for 31 percent of fatal accidents [HSE, 2014]. In Tanzania the construction industry employs 9-11 percent of the workforce, while the fatalities are 25-45 percent [Mrema *et. al.*, 2015].

Furthermore, Barrientos *et. al.*, [Barrientos *et. al.*, 2005] concluded that 3.012.000 fatal accidents happen yearly in India. Frenda [Frenda, 2010] stated that 36.765.877 employees out of 419.560.000 had occupational accidents at work, out of which 48.176 were deadly accidents. This deadly rate refers to 13.94 percent of the overall worldwide fatal accidents. It is important to say that the average fatal accidents frequency rate in India is 15.8 (per thousands of workers), whereas in USA the rate is 0.23. The difference is very noticeable. However, it is crucial to mention that in developing countries such as India, occupational accidents are under-reported, which may lead to a much higher number in reality [Samuel and Munagala, 2016].

1.2.2. The Poor Health and Safety Systems/Behaviour in Terms of an Indicator of the Hazardous Nature of the Construction Industry

According to research, Health and Safety is ranked last among the importance factors of projects in the construction industry. The other parameters such as cost, time and quality are dominating the project's attention and focus. In a study conducted by The Association of Construction Project Managers (A.C.P.M) in collaboration with other associations, was concluded that time cost and quality were ranked in the top parameters considered mostly in projects. Therefore OSH was ranked behind these three parameters, which indicates a lesser importance it has on the focus of projects in construction [Smallwood, 2015].

Furthermore, a study conducted by the Construction Industry Development Board (C.I.D.B) investigated the causes of a generally poor OSH performance in constructions project. The study concludes that management commitment together with supervision and Health and Safety trainings, are not performed at the adequate levels that would lead to a satisfactory Health and Safety performance [Construction Industry Development Board, 2009].

Trainings seem to have a clear lack of focus from companies and their managers in putting OSH as a significant standard in the project development process.

Dejus and Antuchviciene [Dejus and Antucheviciene, 2013] conducted a study in Africa, where they analyzed the importance of training and knowledge that employees receive at their workplace, by ranking them as crucial in bringing the risks of OSH to a minimum level. They concluded that 18 percent of site project managers and 33 percent of employees working in site, did not receive any training at all concerning OSH. Looking at the bright side, a company in United Kingdom (U.K), which already scored a high OSH satisfactory level before, in 2002 approached a Zero Accident level by raising its focus on spreading the knowledge among employees on health and safety policies as well as raising significantly their trainings among the management level and employees on site [Pollit, 2006].

However, although trainings are a significant part of assuring health and safety on site, other factors need to be considered as well. In a study conducted by Tarcisio Abreu Saurin in Brazil [Saurin, 2015], it was analyzed how accidents that happen on site, can be lowered to a minimum level by considering the pre-construction phase in the design process of a project. In this way, by organizing the site process better, taking Health and Safety issues into account since the design phase, and raising awareness among the employees for Health and Safety importance since the design phase, the level of accidents during the construction process on site would be lowered [Saurin, 2015].

According to a study conducted by Michael Toole [Toole, 2002], there are significant factors that influence the OSH level on site such as no adequate training, no adequate imposition of safety, no safety tools on site, no job hazard analysis with the proper tasking, problematic/not safe site environment. On one hand, the above factors were linked more to the company and its provided OSH measures on site, but on the other hand the study also analyses the factors linked to the employee's behaviors to OSH. These factors are related to a poor employee attitude toward using these safety measures, and their isolating behavior toward the companies policies.

Moreover, other studies conducted in the same period of time, do share the same concepts in their conclusions by attributing OSH non satisfactory levels to the same causes/issues happening on site. These studies are conducted by Abdelhamid and Everett [Abdelhamid and Everett, 2000] and by Suraji [Suraji, 2001].

However, there is still a discussion going on between academics on whether the responsibility of most accidents on site lies on the behavior of the employees on site, rather than on the presence of OSH policies, efficient management systems and machineries. Hinze [Hinze, 1998] argues that the human factor is the first most important influence that causes the accidents on site. On the other hand, Toole [Toole, 2002] states that researchers conflict with Hinze's conclusions because they believe the main cause of accidents on site are the non adequate management practices. Nonetheless, according to Hughes and Ferrett [Hughes and Ferrett, 2007], 90 percent of all the accidents in construction industry are caused by humans and 70 of these accidents would not have been present in case of adequate management practices and interventions.

1.2.3. The Developing Countries in Terms of a Different Parameter of the Hazardous Nature of the Construction Industry

It is important to give an overview of both developed and undeveloped countries by giving statistical data in order to see how OSH is applied worldwide. However, this data is only an overview of these countries and does not implicate where Albania stands in OSH. The research aim is to investigate where Albania stands and how the situation of OSH applies there.

In developing countries the situation appears more problematic, because of the different habitat of development physically, economically and legally. A research conducted in 2015 by Mrema *et. al.* [Mrema *et. al.*, 2015], analyzed occupational health and safety in Tanzania. They concluded that the rapid technology development and fast economic growth in these countries affected the approach to noticing the OSH importance. Moreover, they added the legal framework of these developing countries as a problematic issue to the legal aspect of OSH. They also referred to the absence of healthcare providers department as a major issue in construction projects. These healthcare providers are experts in understanding the occupational diseases created on site, and as a consequence their presence and help is very valuable to the well being of the employees. The lack of resources in terms of employees, financial sources and engineering is also a key element that influences the progress and quality of work in developing countries. Due to their poor general development as countries, technology, investments and skills are fields that are significantly behind when compared to developed countries. This is a real issue that affects directly the applicability and policy presence of OSH in companies.

The government is also another problematic issue in developing countries such as Albania. The study of Mrema *et. al.* [Mrema *et. al.*, 2015] states the lack of government commitment in terms of financial resources and motivated government supervisors as well as the long term illness of corruption. They continue mentioning the government impact also on educational programs of engineering majors. They highlight the lack of OSH knowledge in universities as well as to companies and employees. The issue is not considered a priority or whatsoever significant. However, what remains unclear is until what point does the government influence the applicability of OSH measures.

In a study conducted by Samuel and Munagala [Samuel and Munagala, 2016], it is shown that despite governmental measures there were still problematic issues related to OSH applicability. They conducted the study in India, where the government took national preventive measures to enforce OSH policies. They however, concluded that Top management commitment and awareness were the two most important factors that kept influencing on OSH performance specifically on local construction companies. They concluded on a lack of management system which would also lead to an industry the employees wouldn't be glad to work for.

In most developed states, construction industry is very crucial based on its contributions to the Gross Domestic Product (G.D.P). This industry is therefore very significant to be analyzed on its impact on society in terms of economic and legal value, as well as in terms of providing a healthy and a safe environment for the employees, that are the most important part of it. In UK construction industry accounts for 10 % of the GDP. It employs 2.2 million people and produces activity worth over 90 billion Pounds each year [Hughes, Ferrett 2007].

According to the Bank of Albania, the contribution of construction to annual GDP growth was estimated at around 1.4 percentage points [Doing Business in Albania, 2014].

In Albania, in recent years there have been many serious accidents of fatal consequences particularly for workers in the construction sector. In a research conducted by International Labour Organization (I.L.O) the occurred fatal accidents for 2006 were 14 for all the sectors. According to it, the trend of these accidents was stable [National Profile on OSH, 2007] (See Appendix A).

In 2008 there were 20 fatalities, most of them in unlicensed chromium mines and illegal work in the construction sector [Albania Labor Inspection Audit, 2009]. In 2014, 33

out of 88 accidents were fatal, whereas in 2015, 25 out of 97 accidents were fatal. Nevertheless, these figures are unrealistic, with very low levels of reporting: the average accident rate in the EU is 1.9 fatal accidents per 100,000 employees, while in Albania the adjusted rate is 1.6. It is presumed that the real number of fatal work accidents is higher [OSH Policy Document, March 2016].

1.2.4. Cost in Terms of a Consequence of the Hazardous Nature of the Construction Industry

Occupational accidents in the construction industry, damage the company economically, reputationally and as earlier mentioned in this research humanly-in terms of employees. According to a study conducted in 1989 by the HSE in the UK, the company financial losses accounted for 8.5 percent of the overall company tender price in the construction industry due to occupational accidents. However, in these calculations of costs, indirect costs and direct costs need to be divided. In the study mentioned, the ratio between the direct and indirect costs starts from 1-8 until 1-36. This estimation is very significant to understand, because it reveals the true impact and weight that the indirect costs have in health and safety issues to the company. They are most of the time unseen, but they constitute a very large amount of value when compared to the direct costs.

However, the situation is not easy to spot and the costs are not easy to be placed. In Spain, in 2009, there was a survey carried by the National Survey on the Management of Health And Safety And Work [Almodovar and Pinilla, 2009]. This study, surveyed all construction sites where accidents had occurred in the last two years, concluded that 87.7 percent of the construction site considered did not possess any data in terms of financial consequences of the projects. The remaining percentage of this value, however is not optimistic as well. It refers to limited data in terms of fees and insurances. This study concluded that companies were showing a lack of estimating the cost of activities

aimed at preventing occupational risks, costs coming from production loss, and costs coming from market share loss as well as company image.

What is important at this point, is to investigate and understand why companies do not take into consideration these costs. Researchers throughout the years have stated that companies do not think investing in health and safety is a profitable move for them. Moreover, the accounting models/programs available to allocate and calculate the costs of Health and Safety prevention, are not easy applicable nor specialized to the companies characteristics [Alonso *et. al.*, 2013]. Alonso *et. al.*, (2013) explains that these accounting models are still based on the manufacturing companies models that were limited to only that kind of production, which creates significant difficulties in applying them to the construction projects traits and their variability. However, Hallowel and Gambatese [Hallowel and Gambatese, 2010] argue about the gap in knowledge known on assessing the health and safety costs and their implications in the real accounting world.

Nevertheless, there are several contradictory studies concerning the importance of a higher budget investment in health and safety. As already mentioned, Alonso *et. al.*, (2013) studied 40 construction sites Spain (Andalusia) and concluded that a higher budget of Health and Safety investment, was not directly linked to lower number of accidents or costs. They analyze that a higher budget on Health and Safety could be because of a higher complexity construction site. As a consequence a site with a higher possibility of accidents. In this case those accidents can not be all prevented because of the site complexity. They state that the number of accidents on a site and their cost implications, are complex variable that are dependent to many more.

However, the situation is even more complex than the earlier mentioned view. According to a study conducted in Brazil by Saurin [Saurin, 2015], an investigation was carried in the Brazilian construction industry, concluding that there is a linkage between

the governmental strategy tenders in the industry and the low health and safety budget considered in the bidding prices the companies issued. The study brings light to the government strategy of accepting the lowest price offer bidder, (after passing the technical specifications round competition) which influences the companies to lower their offer as much as possible by sacrificing mostly the health and safety budget. This problematic of Brazil as a developing country ,is also seen and applied in Albania as well. The government uses the same strategy in bidding tenders, which influences the companies to sacrifice health and safety budgets as well.

1.3. Legislation as a Crucial Factor of Health and Safety of the Construction Industry

Governments do pay a special attention on focusing on OSH issues in different industries and especially construction. The ongoing goal is to reduce the fatalities/accidents in this industry. They produce Legislation Acts that set the Standards of OSH policies for companies by openly setting their obligations /responsibilities and penalties. In the developed countries, the governmental control on this acts is also stricter, while in the developing ones, it is still very low.

However, it is crucial to state that although these Acts are important, companies do have their own OSH procedures and standards in terms of accepted technical procedures and their engineering practice by trying to protect themselves from potential harm.

Nevertheless, throughout the world, there are differences in the governmental management of these Legal Acts. In USA the governmental agencies such as the Occupational Safety and Health Administration (O.S.H.A), enforce strict regulations for health and safety policies. The employer has the responsibility to start and keep the policies and adequate applications for ensuring safety on site.

The European Union also has a big impact in setting legislations in OSH directives. Under this framework, the European Agency (E.A) for OSH at work, has organized the Working Together for Risk Prevention Campaign, where the health and safety principles were issued in the New Law of OSH in Albania.

1.3.1 Organizations and their latest Findings as an Important Factor Influencing on Legislation of European Union Countries of OSH in the Construction Industry

Organizations are also an important part of raising awareness on countries nationally about the significance of Health and Safety Policies and inserting them in the working culture. The International Labor Organization, has played an important role in Health and Safety Policies and working with governments as well as the EU to embed them especially in developing countries nationally [Kim *et. al.*, 2016]. As a matter of fact, their convents focus on establishing a framework for occupational health and safety policies and making them part of the everyday culture. For example, ILO Convention 187 done in 2016 that complements ILO Convention 155, set the baseline for the principles and methods needed for improvements in OSH by governments and companies. ILO Convention 187 added and established a national policy process for OSH and how to prevent accidents in the workplace by interfering in the working environment [Kim *et. al.*, 2016] (See Appendix B).

They suggested a continuous review of the policy nationally and enforcement of legislations by governments. Their main message to governments and companies was to keep a continuous improvement and control in occupational health and safety , specifically the 'Plan Do Check Act Cycle' [International Labor Organization, 2001]. However, it is not always easy adapting these very promising and updated suggestions because governments in developing countries are more bureaucratic and their

development is slow in terms of legislations.. In Albania the ratification of the Convention nr 167 on Safety and Health in Construction 1988, was done only in 24 April 2014. Furthermore, these important organizations in cooperation with EU and its institutions, have continued their research on health and safety issues by focusing also on new elements, such as the psycho social risk factors.

Psycho-Social Risk Factors:- are related to the way work is designed, organized and managed, as well as to the economic and social context of work [EU-OSHA, 2000]. As a concept, psycho- social risks factors have been inserted to the Strategic Framework On Health and Safety at Work 2014-2020 European Commission Framework (E.C.F). In this framework, the crucial issues and challenges for occupational health and safety are presented, where the consequences of change in organizations on physical and mental health is identified [ESENER-2, 2015]. However, there is a debate going on, on if the above mentioned psycho-social risks should be inserted in the 'soft laws' or 'hard laws'. This debate comes as a consequence of several studies which claim that these factors do not provide the ideal outcomes specifically; do not provide what should organizations achieve, so they are not clearly applicable. As a consequence, Psycho-social risk factors are still put on a low priority mode in terms of their insertion to legislations.

Lavicoli *et. al.*, [Lavicoli *et. al.*, 2011] stressed the importance of the gap in legislation where psycho social risks are not identified as hazards in the UK national legislation. In Ireland and UK, these definitions are not clearly understandable.' Employers must make sure no danger is posed to the health and safety workers during their work ', states the legislation [UK Parliament and Queen of England, 1974; Houses of the Oireachtas, 2005]. Although advisory is included, there are no clear duties for employers on how to ensure this safety for their workers. This leads to a low applicability of preventive risks measures for psycho-social factors [Eurofound and EU-OSHA, 2014]. As a matter of fact, the enforcement of the psycho-social factors in the legal framework, is not a

priority in the government and not only programs in UK and Ireland [Health and Safety Authority, 2014, 2015]. As a consequence, the debate still goes on.

In developing countries however, the issues in health and safety legislations seem to be different.

1.3.2 Legislation on Health and Safety in the Construction Industry in Albania

Health and Safety Legislation in Albania possesses a very recent history.

The essential base of the Health and Safety Legislation is part of the Labor Code of the Republic of Albania [Law nr. 7961/1995]. The OSH law was created in 1995 and amended in 1996 by Law nr.8085 and updated in 2010 by law nr. 10 237.

After these improvements, the law includes now all the provisions to ensure the occupational health and safety in the workplace (Chapter 1-9). It also includes clauses linked to employee's and employers responsibilities, their training and preparation, the health and safety conditions in the construction sites, the equipment and their safe materials, the employee' work time, fire protection and explosion protection and adequate sanctions. This conditions would ensure a safe workplace for its employees. According to the provisions of the law, the employer is obliged to adhere to these conditions: to identify the regulations for technical safety, to make the adequate payments in case of accidents or diseases when he is responsible, pay all the expenditures in case he has not socially secured his employees [National Profile of OSH in Albania, 2007]. The law also establishes relationships between employers/companies and the State Labor Inspectorate (S.L.I). As a consequence, public institutions/private companies are required to take a permission for OSH before starting their economic activity [Albania Labor Inspection Audit, 2009]. Moreover, they must keep track of their accidents data and hazardous/dangerous materials used on site as well as their employee data list. Obviously, the law contains other regulations on how the employer has the obligation on creating a safe habitat for the employees to perform their work by respecting these regulations. The public institution in charge of drafting the laws,

government decrees and regulations of health and safety is The ministry of Labor Social Affairs and Equal Opportunities (M.O.L.S.A) [National Profile of OSH in Albania, 2007].

As for the monitoring process the government issues on private and public entities, it is important to mention the Law nr. 9634/2006 ' On the inspection and labor inspectorate' (See Appendix C). This law ensures that the government must establish an inspection system, where monitoring controlling and sanctions are mentioned. As already mentioned MOLSA is responsible of drafting these legal regulations. The State Labor Inspectorate, is in charge of issuing annual health and safety reports to the government as well as International Labor Organization. This provides an overview of the OSH situation in Albania. The government in Albania, has issued decrees in order to sustain the core function of SLI. These decrees, establish the adequate procedures and systems that entities must have in terms of occupational health and safety. Some of the most significant decrees are :

- Decree of the Council of Ministers, Nr. 459/1998 ' On dangerous substances'.
- Decree of the Council of Ministers, Nr, 460/1998 'On occupational accidents'.
- Decree of the Council of Ministers, Nr.461/1998 'On the employer registration for occupational accidents/diseases'.
- Decree of the Council of Ministers, Nr.419/2000 'On dangerous objects'.
- Decree of the Council of Ministers, Nr.692/2001 on occupational special safety measures and hygiene.
- Decree of the Council of Ministers, Nr.207/2002 'On defining hazardous and hard works'.
- Decree of the Council of Ministers, Nr.742/2003 'On some amendments to the Decree of the Council of Ministers No. 692/2201 'On specific measures for occupational health and safety'.

-Decree of the Council of Ministers, Nr.513/2004 'On the Classification of the activity and documentation for permission from the Labor Inspectorate before the start of economic activity.

It is crucial to say that also other ministries provide significant help in issuing occupational health and safety draft laws and regulations such as the Ministry of Health (M.H), Ministry of Public Works Transport and Telecommunication (M.P.W.T.T). In the Ministry of Health there are two institutions within it, the State Sanitary Inspectorate (S.S.I) and The Public Health Institute (P.H.I), which obligate companies to report their sanitary conditions and assess the display to occupational diseases degree. The Ministry of Public Works Transport and Telecommunication, has enabled the entire legal system that is in charge for health and safety issues. Some of the most significant laws that show their focus in enforcing the applicability of health and safety rules are:

-Law nr.8402/1998 'On the Control and Discipline of Construction works.

-Law nr 8408/1998 'On the Construction Police'.

-Some of the Recommendations for the Occupational Health and Safety Legislation from the International Labor Organization in 2007 are :

-'Improvement of Methodologies and procedures for occupational inspection for all inspectorates by using the most advanced EU standards'.

-'Creation of a legislative framework for establishing a coordinating and cooperating national body for OSH where all the inspectorates participate.'

-'Preparation of methodologies for recording accidents and professional diseases'.

In these recommendations, it is clearly seen the need for improvement in the inspection legislation by the government in the entities as well as a better legislation system where cooperation between the responsible governmental institutions is needed. As a matter of fact, following these recommendations, in 2010 a new inspection inspectorate (Central

Inspectorate) was introduced by the government in Albania under the subjection of the Prime Minister [Occupational Safety and Health Policy document, 2016]. Furthermore, the recording of the accidents, which as already mentioned before in this research, is in developing countries a standing issue, requires further developed methodologies to keep track. It is important to mention that Albania has a commitment to the Association and Stabilization Agreement (A.S.A), under which it is obligated to update and conform its legislation within European Standards, including health and safety.

As a consequence, a new Occupational Health and Safety law was issued in 2010, which introduced New principles of OSH management, based on risk prevention, assessment of risk at work considering all aspects of work, and system organization, inclusion of all employees, and proper emergency planning. Furthermore, two other regulations were adopted because of the ASA. They were adopted by Decision of the Council of Ministers (D.C.M), concerning safety signs and health and safety in construction sites [Occupational Safety and Health Policy document, 2016].

In 2014, 2 Conventions of ILO were ratified and they came to have legal force and effect in April 2015. They are the following:

Nr. C187/2006 'On Promotional Framework for Occupational Safety and Health'

Nr. C167/1988 'On Safety and Health in Construction'

The Albanian government has published on its Occupational Safety and Health Policy document in 2016, that the future strategic goals for 2016-2020 will give priority to improvements on legal framework and OSH policies, adequate and better working environment, and efficient OSH structure. Even though there were improvements done in the legislation area considering health and safety in Albania such as the ratification of Conventions of ILO, there is further significant improvement needed especially in the compliance with International Standards.

The importance of the further compliance with International Standards is crucial to the development of the Albanian Legislation in terms of Health and Safety standards and to the better safe development of the construction industry.

1.4. Measurements and Improvements Systems in Health and Safety within a Company in the construction industry

Definition of an Occupational Health and Safety Management System:

An Occupational Health and Safety Management System (O.H.S.M.S) is a coordinated and systematic approach to managing health and safety risks. OHSMSs help organisations to continually improve their safety performance and compliance to health and safety legislation and standards. In doing so, they establish safer working environments that protect people at work by eliminating, or better managing, health and safety hazards [WorkSafe,2016].

1.4.1 The implementation of Health and Safety Management System within a Company

Management is considered an artistic science. It is crucial to producing performance effectiveness and running efficiently the entity. In a study conducted by Mahmoudi *et. al.*, [Mahmoudi *et. al.*, 2014] in Iran, the elements that influence the management system framework of a construction company were identified. They were divided into 2 categories: organizational level and project level. Leadership and commitment were the influencing factors included in the 1st category of organizational level. In the second level, evaluation and risk management were the factors included. The study concluded that auditing and reviewing contains the same significance level [Mahmoudi *et. al.*, 2014]. Behm [Behmn, 2005] concludes that 42% of fatal accidents are due to non considered safety analysis at the pre-construction phase. As a consequence, a significant number of these accidents could have been prevented at the organizational level.

Furthermore, at the construction site, employees and workers are the ones that better foresee the hazards. As a result, hazard identification , OSH trainings, control measures are the crucial elements that have to be considered within a construction company.

However, Yoon *et. al.*, [Yoon *et. al.*, 2013], argues that in reality it is hard for OSH managers to be part of Top Management decisions. Furthermore, Samuel and Munagala [Samuel and Munagala, 2016] carried out a research by auditing the occupational OSH parameters within a construction company in India. They concluded that except for hand tools and motor vehicles, all the other OSH parameters were not satisfactory. This translates into not meeting more than 80 percent of the requirements for the necessary OSH parameters on site. The researchers concluded that although companies do face some difficulties in ensuring all the OSH parameters on site, most of these difficulties especially costs (tools, equipments, trainings etc) are considered to be inexistent scary myths.

Although there are several frameworks that can be implemented withing a company as a management system, OHSAS 18001 is considered the most effective among researchers. Furthermore, Zeng *et. al.*, [Zeng *et. al.*, 2008] explains the implementation of the framework OHSAS 18001 that can boost the occupational health and safety performance within construction companies. Despite most important factors, the implementation of a framework within companies with the 'Plan Do Act Check' Cycle, is crucial to ongoing boost and for the improvement of safety performance.

According to research, the most important parameters of a Company's Management System in terms of Health and Safety are:

1. Policy

Health and safety Policy is an essential part of how the company aims to structure and regulate itself. According to Lin Teo *et. al.*, [Lin Teo *et. al.*, 2004], a lack of health and

safety policy leads to a lower overall safety performance for the company. Furthermore, Lin Teo concludes that these policies must be understandable and acceptable by all employees.

2. Health and safety responsibility (Top Management)

Top Management plays a crucial role in establishing health and safety standards in terms of policies and applicability. According to Health and Safety Executive Institution in UK, well organized companies have a successful performance in terms of health and safety as well as a result of a better management commitment. As a result, the management commitment needs to be top-down level and influence the applicability on site of its decisions. As a consequence, communication becomes essential for the transport of the health and safety message from the Top Management Team to the workers on site. The message has to be clear and involve everyone, so everyone feels part of being responsible of the attitude toward OSH.

3. Hazard analysis and risk assessment

The EU framework directive on health and safety at work [Directive 89/391/EEC], is the foundation of the Act by settling principles/concepts for the prevention and protection of employees versus occupational accidents and diseases [EU-OSHA, 2013]. This framework emphasizes the management of health and safety obstructively. The foundation of this directive is the implementation of a risk assessment. As a concept, the risk assessment refers to the access and identification of all the hazards that could lead to occupational accidents and diseases in the workplace. Moreover, these assessments must cover both technical and organizational measures. In a study conducted by ILO in 2016 resulted that in Europe 76% of all establishments carry out regularly all risk assessment [ESENER -2, 2016]. It is important to mention, that this percentage does not differentiate significantly within different sectors. Furthermore, it is actually higher when it comes to hazardous industries such as construction. For example, in the construction industry this percentage is 81 %. In Albania 51% of all establishments carried out regularly all risk assessments. However, in the research it is mentioned that the carrying out of these risk assessment does not indicate the quality of these risk

assessments techniques and therefore is not an absolute clear identifier of health and safety measures. According to Fung *et. al.*, [Fung *et. al.*, 2009] most of the staff that is in charge of these risk assessments, does not possess the required expertise. The research of ILO, also studied the reasons why companies did not carry out the risk assessment measures in their planning meetings. In the construction industry in EU, 89 percent of establishments use as an excuse of not carrying out these risk assessment the fact that risks are already known. 79 percent state that there are no major problems, 27 percent state that necessary expertise is not present and 29 percent state that the procedure is too difficult to carry out. However, in Albania the major excuse of 92 percent of establishments for not carrying out these assessments is that there are no major problems. Secondly, 82 percent of them state risk are already known, 36 percent state necessary expertise is lacking, and 28 percent state the procedure is too difficult to be carried out [ESENER-2, 2016].

Table 1. Reasons why RA are not carried out regularly [ESENER-2, 2016].

	Risks are already known	No major problems	Necessary expertise is lacking	Procedure is too burdensome
EU-28 (Only Construction Industry)	89	79	27	29
EU-28 (All Industries)	83	80	28	23
Albania (All Industries)	82	92	36	28
UK (All Industries)	85	73	29	20

4. Training safety meetings and employee involvement

Dejus and Antuchviciene [Dejus and Antuchviciene, 2013] conducted a research on 'Assessment of health and safety solutions at a construction site' and concluded that the main two elements that influence significantly on lowering the OSH risk are education and training of the workers on site. Research shows that in general there is a lack of training in terms of health and safety, not only including the construction workers but also site engineers and supervisors. For example, in Africa studies show that 18 percent of site supervisors and 33 percent of construction site employees have done no trainings in health and safety provisions [Smallwood, 2015]. As mentioned earlier in this research, there is a study conducted in UK, that shows the importance and influence of OSH trainings on the overall company performance. In this study it was seen that after the inclusion of trainings on site, the overall accident rate in a year went from the above average accident rate to a 0 percent rate. Furthermore, not only this target was surpassed, but also the employee involvement and participation was greater in improving health and safety on site. Taking into consideration that the construction workers are in direct contact with the site hazards, the adequate OSH trainings help in making them identify the 'near misses' on site and prevent accidents as much as possible. Moreover, in a study conducted by H. Whenrich in 1950, where more than 300 accidents/incidents in the USA were considered, it was concluded that in every 10 'near misses' an accident will occur [Hughes and Ferrett, 2007].

1.4.2 OSH Culture Promotion

Living in a world where technology development has broken down all the distances possible, gives access to larger investments and fast access to international markets. As Foreign Direct Investments (F.D.I) in Albania increases in all sectors, in the construction sector it is significantly noticeable reaching €80 million in 2014 [Doing business in Albania, 2014]. These events give rise to projects with foreign investors, contractors and local subcontractors. Collaboration is a key element in all fields, but especially in a

project with different players it becomes crucial. Therefore, safety organizational culture and communication/cross management culture become essential in a project's success.

It is crucial to mention that the management of health and safety system, needs not to remain paper based for respecting the legal obligations of the company but to be applied adequately on site. Safety culture is a culture that must be embraced from top management to the construction workers on site, in order to ensure and make everyone's life safe. Robert E. Mckee (Chairman and Managing Director Conoko Ltd) states that safety is the most important investment on a construction project, and that this investment saves more than it costs [Hughes and Ferrett, 2007].

One of the most visible ways to monitor the efficient applicability of the Health and Safety Management System (H.S.M.S), is the number of occupational accidents and diseases on site. It shows directly if the safety culture has been embraced by everyone working on the project. Furthermore, in a study conducted by Kim *et. al.*, [Kim *et. al.*, 2016] with the introduction of safety culture in 2000, there was seen a significant decrease of the accident's number in the construction industry from 150 as a rate to a rate of 90. This number kept decreasing with the enhancement stage of safety culture to accidents to a rate of approximately 40.

According to research there are several elements that the company needs to embrace and adapt in order to offer a healthy safety culture:

-Management Commitment- Monitoring

As already mentioned in this research, a Top Down Management approach is important to ensure that the health and safety policies/incentives of the Management reach every construction worker on site. Moreover, this process should always be accompanied by continuous regular meetings at all level of the organization in order to continuously

assess the current situation and continuously improve the problematic health and safety issues.

-Promotion of OSH Standards / Positive attitude toward safety culture and awareness

It is crucial that Management includes the Promotion of OSH standards and increases awareness among its employees on stating its importance. As a result, the company safety culture will not suffer from a poor behavior toward safety.

According to a study conducted by Smallwood [Smallwood, 2013] in South Africa, several stakeholders of different organizations that won a health and safety award, ranked several elements of health and safety according to their contributions. They ranked health and safety awareness as the 9th important issue while management commitment ranked as the 29th important issue (out of 52 parameters). However, the results are contradictory, because to ensure a high awareness of safety on site, the employees need the maximum effort of their management on commitment to safety. As a result this commitment would spread out and ensure an entire safety culture. Furthermore, from the results, it is seen that the stakeholders had a conflictual ranking between management system (ranked seventh) and management commitment to health and safety and management involvement (ranked 29th). The researchers argue that these actions should be equally considered because they incentivate each other [Smallwood, 2015].

-Effective communication

Language is a barrier that increases the difficulty of an efficient communication on site. Bust and Gibb [Bust and Gibb, 2006] state that in intercultural and different levels of organizational management teams, the chance for the translation to be wrong is significant and this influences the effectiveness of the message delivered and its application. Bust and Gibb [Bust and Gibb, 2006] argue that after a research carried out in the Middle East, Eastern Europe Africa, Asia and India, it was found that it was

necessary to focus more on visual methods of communication about health and safety on site and focus on making it a priority.

Conclusion

It was presented an academic investigation on the hazardous nature of the construction industry, on the level of enforcement of these practices, their application on site and the Safety effectiveness of the Management systems/culture. From the already existing literature, resulted that there were several parameters such as the number of accidents; the poor health and safety systems/behavior; the developing countries as another parameter; and costs that proved the hazardous nature of the construction industry. From the already existing literature resulted a clear historic analysis of the legislation on health and safety in Albania and its compliance with the EU Safety Legislation. From the already existing literature, resulted that there were several issues from companies with the Management Systems of Health and Safety in terms of trainings, risk assessments, top management, employee involvement. Futhermore, the safety culture was dicussed and it was concluded that in order for this safety culture to be adopted within the company is through management commitment, promotion of OSH standards, and effective communication.

1.5 Aim and Novelty of the Study

Considering the little research already existing for developing countries in OSH, the goal of this study is to investigate OSH in a local company in Albania. The study aims to provide a local perspective of both management and employees working in challenging projects dealing with OSH issues/risks by focusing on the accidents/incidents/near misses issue, legislation, and management practices of the chosen company.

Exept from investigating a little research area, the study gives rise to a deeper understanding of how companies in Albaniacan adopt, improve and understand the OSH policies importance in order to be safety successful.

CHAPTER 2

MATERIALS AND METHODS

2.1. Overview

In this part of the study, methodology, the research design, overall strategy and reliability of the research will be explained. The research philosophy as well as the techniques used during the study will be described. The reliability part is crucial to this part of the study because it determines the reliability of the study's conclusions and revelations.

2.2. Research Design

The conducted study is an exploratory study, because its purpose is to explore and analyze 'what is happening; to seek new insights; to ask questions and to assess the phenomena in a new light [Robson, 2002]. This research is mainly concerned in the challenges and occupational safety and health measurements improvements from the local Albanian contractor/subcontractor company perspective, in the civil engineering works of Cerrik and Elbasan 2 Substation Projects. This study would link the manager's and employee's approach in order to gain a more complete view of the challenges in the improvements needed in health and safety measurements. The manager's personal interviews provide a clear analysis of the issues faced in the two projects and the

differences on how these issues were solved and approached. These opinions are then linked and compared to the employee's questionnaires in order to get a better perspective and understand how they differ or not.

2.3. Research Philosophy

The study's research philosophy is the pragmatist approach considering its research method. According to Saunders *et. al.*, [Saunders *et. al.*, 2009] the pragmatist approach is based on a specific research question that will provide a clear position at the end of the study. This approach recognizes that every method that can be used has its own limitations and that the possibility of using a mix of them gives the benefit of complementary methods.

To be located in a particular paradigm is to view the world in a particular way' [Burrell and Morgan, 1979]. Specifically, in this study this particular way is obtained by conducting the face to face interviews with the manager's of the local company focus group; by conducting the questionnaires with the employee's focus group of the local company and then by conducting/ calculating an analysis of the matching of these two perspectives.

2.3.1. Research Methods

The study is conducted by using both the qualitative and quantitative research methods. It aims to provide a deep explanation of the measurements mentioned in the research question and analyze them during its process. It needs to provide a deep already existing academic knowledge on health and safety measurements in order to understand the critical thinking behind nowadays current focus and issues in health and safety, and link

and compare this knowledge with the information gathered from both focus groups. As a result, the approach it uses is both the inductive and deductive research approach.

2.3.2. Research Strategy

This research is applying a case study approach in order to provide its primary collected data that would later be analyzed. The case study of the two projects of Cerrik and Elbasan 2, provides the possibility to conduct research by focusing on the local company. It explores the health and safety measurements in terms of accidents/incidents/near misses on the construction site, legislation and management systems by linking together the manager's and employee's perspective of the local company EnBi Power. According to Robson [Robson, 2002], the case study approach offers a strategy to conduct research via an empirical investigation of a present event/process in the real life environment by using a mix of research methods. In the present case, the civil works conducted in the two projects of Cerrik and Elbasan 2 can be researched and can provide evidence for conducting the study. Furthermore, case studies are a common research method used to provide insights in an exploratory study. During this specific case study the relationship between the measurements of health and safety in terms of number of accidents, legislation and company's management systems by linking the perspectives of the local company managers and employees, will provide insights versus the real importance of the health and safety measurements in practice and the deviation of the two focus group's perspectives. In this way the study will answer what the issues in this area are and how can a company adopt itself toward a successful health and safety performance. This case study will use as a strategy the single case study in order to understand deeply the process of influence and the differing focus group's perspectives. This linkage offers a unique perspective that will be specific for the company used.

According to Yin [Yin, 2003], there are 5 steps needed to take before conducting a case study.

Step 1- Study questions:

The main Research Question:

What are the challenges and occupational safety and health measurements improvements from the local Albanian contractor/subcontractor company perspective, in the civil engineering works of Cerrik and Elbasan 2 Substation Projects?

Research Sub questions:

1-What are the challenges and occupational safety and health measurements improvements in terms of number of accidents/ near misses from the local Albanian contracto/subcontractor company perspective, in the civil engineering works of Cerrik and Elbasan 2 Substation Projects?

2-What are the challenges and occupational safety and health measurements improvements in terms of legislation from the local Albanian contracto/subcontractor company perspective, in the civil engineering works of Cerrik and Elbasan 2 Substation Projects?

3-What are the challenges and occupational safety and health measurements improvements in terms of management system from the local Albanian contracto/subcontractor company perspective, in the civil engineering works of Cerrik and Elbasan 2 Substation Projects?

STEP 2: Study theoretical propositions:

This case study tries to explore the challenges and occupational safety and health measurements improvements from the local Albanian contractor/subcontractor company perspective, in the civil engineering works of Cerrik and Elbasan 2 Substation Projects. Data will be collected throughout the employees of the projects considered in the case

study.. Their evaluations are extremely valuable to the results of this case study because they provide a deeper explanation of the challenges involved.

STEP 3. The study's unit key of analysis:

The study's unit key of analysis is the face to face interviews and the questionnaires. The personal interviews to 10 managers (electric and civil engineers as well as finance/business specialists) of the local company will provide their own insights on how the health and safety challenges are faced and solved. They will explain in details the steps taken by them on these challenges. The questionnaires directed to the employees (civil workers and technicians) of the local company provide a unique perspective on these challenges and on how they perceive the company's initiative on health and safety on site. Both managers and employees have an experience of at least 10 years in their expertise area. This contributes to having a fuller perspective of these challenges and company's steps.

STEP 4. Logic linking the data to the propositions:

The perspectives by the managers and employees on the challenges faced on health and safety, the steps followed by the company to face these challenges and their own opinions about them, will contribute to a bigger understanding of the bigger picture of the company's approach to health and safety. In this way the study will be as objective as possible and will match these two perspectives together.

STEP 5. Criteria for interpreting the findings:

This case study is based on the subjective opinions and statements of the managers that were interviewed as well as on the subjective opinions of the employees that filled the questionnaires. In order to increase the objectivity of the results, the study approached these two different focus groups. Literature is an important part of the study because it is used in interpreting these results.

2.3.3. Choices

The choice of the study refers to the mixed research method approach. The study makes use of the quantitative research method and of the qualitative research method.

2.3.4. Time Horizon

The longitudinal time horizon applies to the study better because it refers to several observations done to the same subject in a longer time frame (2014-2016). In this case the subject (company) is investigated twice in two projects . The positive outcome of this time horizon usage is that this observational study extends beyond a single moment in time and can state better cause and effect relationships in the statements concluded by it. However, the study does represent the uniqueness of these two projects by linking the challenges to the projects themselves, by linking both the manager's and employee's perspectives.

2.3.5. Techniques and Procedures

Data is collected quantitatively and qualitatively. The face to face interviews are conducted to 10 managers of the local company. These personal interviews are conducted in order to get their opinions and deep evaluations about the challenges on health and safety on the projects civil works process. The questionnaires are submitted by the employees of the local company. These answers would be related and compared with the manager's answers in order to have a fuller view on the mentioned challenges on health and safety.

2.3.6. Research Credibility and Reliability

The credibility of the study depends significantly on the focus group's opinions and responses. The first group that includes the managers of the company that are civil mainly and electric engineers and business/finance specialists but possess a managerial position on the headquarters and on site. Their answers provide a professional but also administrative point of view which gives a better overall picture of the leader's approach to health and safety. The second focus group relates to the civil workers and technicians on site. They have a minimum experience of 10 years which makes them to have the adequate experience in order to evaluate the importance of the challenges faced and the steps taken to improve the company's approach on health and safety. Furthermore, the literature and model usage in the study, do influence positively on the credibility and reliability of this specific study.

2.3.7. Statistical Analysis

The statistical analysis of the data gathered by the employees (civil workers and technicians) was carried out using the Relative Importance Index Method (R.I.I.M). The method was chosen in order for the differences between the two projects to be more visible. For this analysis, the RII formula was used [Somial *et. al.*, 2015]:

$$RII = \frac{\sum W}{A * N} \quad (0 \leq RII \leq 1) \quad (1)$$

Where: W is the weightening given to each statement by the respondents and ranges from 1 to 5; A is the higher response integer (5); and N is the total number of respondents.

Table 2 and *Table 3* give the ranking of all 15 employees for the handled questionnaire respectively for Elbasan 2 and Cerrik Substation.

Table 2. Elbasan 2 Substation.

Question	1*	2*	3*	4*	5*	6*	7*	8*	9	10	11	12	13	14	15	ΣW
1.Adequate emergency response	5	4	4	4	5	5	3	4	4	5	5	5	4	4	4	65
2.Neglecton rate of OSH in high time pressure projects	3	3	3	3	2	4	3	3	3	2	3	3	4	3	2	44
3.Difficulty rate to working after suspension	3	3	4	3	3	3	4	3	4	3	3	3	3	4	3	46
4.Hazard Identification Rate	1	1	2	1	1	2	0	1	2	1	2	2	1	2	2	21
5.Effective Communication Difficulty Rate	3	3	3	4	3	4	4	3	2	2	2	3	2	3	3	42
6.Cleaniness rate of the Workplace	4	4	4	5	5	3	4	4	3	4	5	3	4	3	3	58
7.Facilities Provision Rate	4	4	5	5	5	4	5	4	5	5	5	5	5	5	4	70
8.Transportation safety plan on site	4	4	5	5	4	4	4	5	5	5	5	5	5	4	5	69
9.Injury risk Rate of manual Handling	2	2	1	1	1	1	2	1	2	1	1	1	1	1	1	19
10.Policy Awareness Rate	3	3	3	3	2	3	3	3	2	2	3	3	2	2	2	39

11. Electrical Safety Rate	5	5	5	5	5	5	4	5	5	5	5	5	4	5	5	73
12. Correct Work Equipment Rate	4	5	4	4	5	4	4	5	4	4	4	5	5	5	5	67
13. Training on safely using Equipment Rate	3	3	3	3	3	3	4	4	3	3	4	4	4	4	3	51
14. Access to Adequate PPE-s Rate	4	4	4	5	4	4	4	3	4	4	4	3	5	5	5	62
15. Usage of adequate PPE-s Rate	5	5	4	5	4	4	5	3	5	3	4	4	4	5	5	65
16. Provision of the right control measures	3	4	4	3	3	5	4	3	3	3	3	4	3	3	4	52

Table 3. Cerrik Substation.

Question	1*	2*	3*	4*	5*	6*	7*	8*	9	10	11	12	13	14	15	ΣW
1. Adequate emergency response	4	4	4	5	5	5	3	5	4	5	4	3	5	5	5	66
2. Neglection rate of OSH in high time pressure projects	1	1	1	1	1	0	0	0	2	1	2	2	1	2	1	16
3. Difficulty rate to working after suspension	0	1	1	1	1	2	1	0	2	2	2	1	2	1	2	19
4. Hazard Identification	3	3	4	3	4	3	4	4	3	2	3	2	3	2	2	45

Rate																
5.Effective Communication Difficulty Rate	2	1	2	2	1	1	1	1	2	2	3	2	3	2	2	27
6.Cleanliness rate of the Workplace	4	4	3	4	3	5	5	4	4	5	4	4	5	5	4	63
7.Facilities Provision Rate	5	5	5	4	5	5	5	5	4	4	5	5	5	4	4	70
8.Transportation safety plan on site	5	5	5	5	5	5	5	5	4	4	5	5	5	5	4	72
9.Injury risk rate Of manual handling	1	1	1	1	1	1	2	1	1	1	2	1	1	1	1	17
10.Policy Awareness Rate	4	4	4	5	5	4	4	4	5	5	5	5	4	4	5	67
11. Electrical Safety Rate	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5	74
12.Correct Work Equipment Rate	4	5	5	5	5	5	5	4	5	5	5	5	5	5	5	73
13.Training on safely using Equipment Rate	4	5	5	5	5	4	5	5	4	5	5	5	4	5	5	71
14.Access to Adequate PPE-s Rate	4	5	5	5	4	5	5	5	5	5	5	5	5	5	4	72
15.Usage of adequate PPE-s Rate	4	4	4	4	4	5	5	5	5	3	4	5	5	2	5	64

16. Provision of the Control Measures rate	5	4	5	5	4	5	4	4	5	4	4	5	5	4	4	67
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Note: The numbers with the asterisk * in the first row of the tables, refer to the employees that were present and working both in Elbasan 2 and Cerrik Substation.

Based on the given RII formula, the necessary calculations were performed in order to assess the Relative Importance Index (R.I.I) for each question. This calculations are shown in *Table 4* and *Table 5*, respectively for Elbasan 2 and Cerrik Substation.

Table 4. Assessment of the RII for Elbasan 2 Substation.

Question	$\sum W$	A	N	A*N	RII
1.Adequate Emergency Response	65	5	15	75	0.8666
2.Neglection Rate of OSH in high time pressure projects	44	5	15	75	0.5866
3.Difficulty Rate to working after suspension	46	5	15	75	0.6133
4.Hazard Identification Rate	21	5	15	75	0.28
5.Effective Communication Difficulty Rate	42	5	15	75	0.56
6.Cleanliness Rate of the workplace	58	5	15	75	0.7733
7.Facilities provision rate	70	5	15	75	0.9333
8.Transportation Safety Plan on site	69	5	15	75	0.92
9.Injury Risk Rate of Manual Handling	19	5	15	75	0.2533
10.Policy Awareness Rate	39	5	15	75	0.52

11. Electrical Safety Rate	73	5	15	75	0.9733
12. Correct Work Equipment Rate	67	5	15	75	0.8933
13. Training on Safely using Equipment Rate	51	5	15	75	0.68
14. Access to adequate PPE-s rate	62	5	15	75	0.8267
15. Usage of Adequate PPE-s rate	65	5	15	75	0.8667
16. Provision of the Control Measures rate	52	5	15	75	0.6933

Table 5. Assessment of the RII for Cerrik Substation.

Question	$\sum W$	A	N	A*N	RII
1. Adequate Emergency Response	66	5	15	75	0.88
2. Neglection Rate of OSH in high time pressure projects	16	5	15	75	0.2133
3. Difficulty Rate to working after suspension	19	5	15	75	0.2533
4. Hazard Identification Rate	45	5	15	75	0.6
5. Effective Communication Difficulty Rate	27	5	15	75	0.36
6. Cleaniness Rate of the workplace	63	5	15	75	0.84
7. Facilities provision rate	70	5	15	75	0.9333
8. Transportation Safety Plan on site	72	5	15	75	0.96
9. Injury Risk Rate of Manual Handling	17	5	15	75	0.2266

10. Policy Awareness Rate	67	5	15	75	0.8933
11. Electrical Safety Rate	74	5	15	75	0.9866
12. Correct Work Equipment Rate	73	5	15	75	0.9733
13. Training on Safely using Equipment Rate	71	5	15	75	0.9466
14. Access to adequate PPE-s rate	72	5	15	75	0.96
15. Usage of Adequate PPE-s rate	64	5	15	75	0.8533
16. Provision of the Control Measures rate	67	5	15	75	0.8933

CHAPTER 3

RESULTS AND DISCUSSION

3.1. Company background

EnBi Power ltd is a local company that operates in the electrical and construction field. The company was established in September 2003 in Tirana, Albania. Since then, the company has been working on different projects with both local and international clients, however its main focus has been Substations. In January 2008 the company received the 9001:2008 Certificate on the "Quality Management System" for the design and construction of civil and electrical works for distribution, transmission and generation. Wanting to expand their current activity in 2009 the company opened a branch in Kosovo. Considering the FDI especially in Albania for the Energy Sector and the need to comply with the European standards due to these investments in 2007 the company gained the British Standard (B.S) Occupational Health and Safety Assessment Series (O.H.S.A.S) 18001:2007 Certificate. In this way they certified the Occupational Health and Safety Management System of the organization on "Planning, commercialization and installations of electrical equipment for low, medium, high voltage and related civil works.

3.2. Case study: Elbasan 2 and Cerrik Substations

The two considered projects, Elbasan 2 and Cerrik Substation fall within the Devoll Hydro Power Project. As a matter of fact building two new hydropower plants in the valley of Deboll, Banja and Moglica required the extension of the two existing Substations, in order for the connection to be made with the existing electrical network. Respectively Elbasan 2, to make the connection with the Banja HPP and Cerrik for Moglica HPP. At the time speaking. Moglica HPP is the only part of the project yet to start. When concluded, Devoll Hydro Power Project will increase the Albanian electricity production approximately by 17%, supplying 729 Gigawatt hours (G.W.h) annually [Devoll Hydro Power, 2016].

Devoll Hydro Power project is an estimated investment of EUR 535 million made by Stadkraft. It relies upon a concession agreement between Stadkraft and the Albanian Government, giving the investor (Stadkraft) the right to build, operate and own the Plants untill the end of the consession period. Moreover, the construction of a third plant will be considered on the Devolli River, but only after the conclusion of the construction of Moglica Plant.

As already mentiond both Elbasan 2 and Cerrik Substations consist on the extensions of the already existing substations. Elbasan 2 was the first project to start in October 2014 and finish in May 2015, whereas Cerrik started in October 2015 and finished in 2016. This study will only consider the related civil engineering works needed to be done for the connection of both Moglica and Banja Hydro Power Plants with the existing electrical network. The civil engineering works consist on the construction of the foundations and steel structures for Busbar equipment installation for Overhead Line connection in Elbasan 2 Busbar 210 kv and in Cerrik Busbar 110 kv. Moreover, other civil works for both substations include dranaige system, fence wall and necessary cable fenches that serve for the placement of the cables in order to make the connection between the equipments (as switchgear, disconnectors, current and voltage transformers, surge arrested, etc) with the Control Room.

3.3. Analysis

The analysis section was divided into two parts: the analysis of the interviews of managers of the company and the analysis of the questionnaires of the technicians and civil workers of the company. This will give a more comprehensive view of the questions asked and their perspectives.

3.3.1 Part 1

Part one, includes the analysis of the interviews of the managers of the company. This part includes both Elbasan 2 and Cerrik Projects. From *Table 6* to *Table 12* the analysis is done considering the responses of both projects since the standard and the Management team are the same in both projects. Furthermore, it also avoids repetitions on the both project's answers.

Table 6. Procedures for recording, reporting and OSH accident perceivment on site.

<i>Management Team</i>	<i>Elbasan 2 Project/ Cerrik Project</i>
1.Health and Safety Manager	There is an immediate recording in the company's accident registry, and a reporting process in the Labour Inspectorate within 24 hours.
2.Chief of Civil Engineer Department	Strict procedure on reporting/recording accidents Zero tolerance in high time pressure events.
3.Project Manager	In high time pressure events, neglection attitude of small hazards by wokers on site becomes an issue.
4.H&S Site Manager	In high time pressure projects, OSH becomes secondary.
5.General Manager	Zero tolerance in high time pressure events.
6.Contract Manager	There is a reporting within 24 hours in the Labor Inspectorate and Social Security Institute.
7.Logistic Manager	These procedures are in compliance with the European

	Certificate Standards the company holds.
8. Quality Manager	There is not an updated coordination at high time pressure events in terms of management meetings.
9. Chief of Electrical Dep.	Strict procedure on reporting/recording accidents.
10. Chief Financial Officer	Strict procedure on reporting/recording accidents in general but no significant issues in these two projects.

Considering the importance of the hazardous nature of the construction industry, the accidents are taken into consideration as an indicator of such nature. The literature review discussed the high number of accidents and unreporting problems especially in developing countries. It discussed of problematic under reporting events in countries like India [Samuel and Munagala, 2016]. The Health and Safety (H&S) Manager states affirmly that it is a legal obligation for the company to hold an accidents recording registry. Furthermore, this obligation is also part of the supervision from the Owner (Statkraft) and Contractor (Alstom). They commit to record the accidents immediately in order to not only comply with the legal obligations but also help as soon as possible the employees in need.

The Contract Manager adds that the company's take on this accidents registry that becomes controlled from the Labor Inspectorate, is monthly filled and checked by the company as well. Furthermore, she adds that in an accident case, the accident is recorded and reported to the Labor Inspectorate and Social Security Institute within 24 hours. The company did not deal with an accident in Elbasan 2 and Cerrik Projects.

However, in the past the company did deal with an extremely difficult case where there was an accident in the Koman Project. One employee slipped while taking down the stairs on site, and the site management did not report this issue within 24 hours because they valued it as insignificant. However, the site management did notify the Top Management with a 2 days delay which was also applied to the delay in reporting to the

Labor Inspectorate and Social Security Institute. The Labor Inspectorate did an investigation on the case and concluded that the accident was because of a human factor non carefulness. Moreover, the Contract Manager states that the company was fined for the delay and started to focus more on immediate recording and reporting of the accidents/incidents within the company itself.

The Health and Safety Manager explains that Elbasan 2 was a high time pressure project because it was first given to Alstom in terms of civil works, but the company decided to subcontract the civil works to EnBi Power. As a consequence, the organisation of the company was facing a strong pressure in terms of allocation of time, people and machineries. The Health and Safety Manager explains that before he joined the company there was no specified expert that was focused into managing Health and Safety Issues. It was a department led by the Site Engineers mainly.

However, Elbasan 2 Project proved the company of the necessity of an expert in Health and Safety. The Site Manager (who was also in charge of H&S in Elbasan 2), with a civil engineering background, explains the difficult situation the company experienced which almost took the project on a significant health and safety failure. During the construction of the concrete fence wall, with a height of 2.2 meters, the adequate scaffolds were not used. As a consequence, this problem was detected from Alstom and Statkraft leading to a suspension of the works for two weeks. Furthermore, the project was already in a high pressure time, which adding the OSH issue worsened the situation in terms of schedule organization, costs, obligated trainings and employee allocation. As a result, the Top Management concluded that there was a necessity at the company of a Health and Safety expert. As a consequence, they hired the Health and Safety Manager, who had an experience of 15 years in the field and had worked specifically with international firms that applied the highest Health and Safety standards.

After Elbasan 2 Porject finished, Cerrik and Banja Hydro Power which are complementary of the same big project Devoll Hydro Power Project. According to the Chief of Civil Engineer Department, the Health and Safety Manager was more focused in Banja Project than at Cerrik Project, while being involved at both. As a matter of fact there was a three days work suspension in Cerrik Project, where one employee was working unsafely at the top of a steel structure. The employee was not equipped with the necessary Personal Protective Equipment (P.P.E). This issue, as well as the Elbasan 2 one, are both related to fall hazards on construction sites that are also in line with the Bureau of Labor Statistics [OSHA, 2010] which specifies that the falls make up the majority of the construction site accidents leading to worker's injuries. This issue was fully investigated, and it was concluded that the employee himself did not respect the company's regulations. This issue put the company's focus into promoting more the importance of the application of H&S measures on site and the PPE-s via meetings, supervision and trainings. Furthermore, PPE-s are considered the most boring facets of health and safety by workers [Hands, 2010]. Especially in developing countries where PPE-s can become the first mechanism of defense to avoid accidents or near misses in the construction site. Moreover, this conclusion is in line with the research done in Nigeria [Tanko and Anigbogu, 2012] where 81.1 percent of the workers of the respondents said they do not wear PPE-s on site.

It is important to state that while the Top Managers explained their focus toward zero tolerance in H&S, the site managers do explain a reality with its ups and downs, time pressure and H&S issues that need trainings, focus and planning. This conclusion is in line also with the already existing literature in accident events, reportings, recordings and near misses on site, which are always present especially because of the changing nature of the construction industry and the ongoing developing focus of H&S in developing countries.

Table 7. Focus of Health and Safety in the Pre-Construction Phase.

<i>Management Team</i>	<i>Elbasan 2 Project/ Cerrik Project</i>
1.Health and Safety Manager	High focus in pre construction phase in terms of method of statement and risk assessments preparation.
2.Chief of Civil Engineer Department	High Coordination of the civil and electric engineers groups working on site.
3.Project Manager	The OSH focus is part of the Management Meetings in the Pre-Construction phase.
4.H&S Site Manager	Good focus but not enough Preparation in terms of H&S at Elbasan 2 Project.
5.General Manager	High focus of H&S and a good planning of the construction site (Elbasan 2 problematic).
6.Contract Manager	High focus on calculating the costs of H&S measures .
7.Logistic Manager	High focus on purchasing the Health and Safety Protective Collective Systems and PPE-s according to European Standards.
8.Quality Manager	High focus in terms of meetings and site plannings.
9.Chief of Electrical Dep.	High Coordination of the civil and electric engineers groups working on site.
10.Chief Financial Officer	High focus on stating the Labor Inspectorate suggestions on H&S measures.

As already mentioned in the Literature Review, the pre-construction phase of a project is really influential in the overall project performance in terms of health and safety. Saurin [Saurin, 2015] stated clearly the importance of prioritizing Health and Safety in the design phase as well as prioritizing the awareness raised among employees about OSH.

The Health and Safety Manager mentioned the practice they followed in the project's Pre-Construction Phase. He stated that in Cerrik Project the meetings with the technical staff that followed this phase were accurately planned with the presence and priority of Health and Safety. He continues saying that this prioritization came at a high cost of the company after the 2 week suspension at Elbasan 2 Substation H&S issue. Although the

Project Manager states there were careful site visits done before both Elbasan 2 and Cerrik Projects started, he also agrees the need for greater accuracy in Elbasan 2.

The Chief of Civil Engineers Department and the Chief of Electrical Department do state the importance of another factor that hardens the project's successful performance. Considering the company works in electrical substations, they both mention the critical coordination between the civil and electric groups on site. This coordination among them, is considered in the pre-construction phase, but it is still problematic due also to high risks imposed from working under voltage.

The logistic Manager and the Contract Manager when referring to the Pre-construction phase and the focus of this phase on health and safety, mention an extra attention to the health and safety equipments and tools that need to be purchased. They do agree that this purchase was not accurately done in Elbasan 2. The Logistic Manager mentions the difficulty the company faces on buying the adequate equipments in the Albanian or Balkans market. He adds that the equipments needed that fulfill the adequate Health and Safety standards, are hard to purchase in the local market. As a consequence the company needs to research in the western market and purchase the tools in more time and spending more capital. He refers to this problem as a technological limit that the developing countries market has and as a challenge the companies that work with big international companies need to overcome.

The company hired an expert in Health and Safety after the suspension in Elbasan 2 (the Health and Safety Manager interviewed). As a result, the necessary corrective measures were taken and all the necessary Protective Collective Systems (P.C.S) (in this case scaffolds) were rented. However, the table for Cerrik is different in the pre-construction phase. All the necessary health and safety equipments were purchased in the Italian market according to the strict specifications of the Owner (Stadkraft). Moreover, the already existing Health and Safety tools, equipments and PPE-s (the ones from Elbasan 2) were inspected in order to be ready for usage at Cerrik Project.

The Health and Safety Manager restated the importance that the adequate H&S practices, management practices and their promotion to employees are crucial influencing the employee's positive attitude toward H&S and the adequate equipment usage. As a result, while among academics the discussion still is ongoing on whether the Health and Safety Policies or the employee's attitude influence more on accidents on site, in this case study it appeared that the adequate Protective Collective Systems (H&S tools and equipments) were more influential on a free accident/incident performance. Furthermore, this conclusion is in line with Hughes and Ferrett [Hughes and Ferrett, 2007] research, where as already mentioned in the Literature Review, state that 70 percent of all accidents in the construction industry caused by humans can be avoided in case of adequate management practises and interventions.

Table 8. Governmental/owner/contractor supervision on H&S on the construction site.

<i>Management Team</i>	<i>Elbasan 2 Project/ Cerrik Project</i>
1.Health and Safety Manager	Governmental supervision mostly on checking site and documents. Owner/Contractor Supervision on checking site, documents and Management practices.
2.Chief of Civil Engineer Department	Strict supervision of the Owner/Contractor in applying the H&S European Standards.
3.Project Manager	Owner/Contractor Daily Supervision on site .
4.H&S Site Manager	No Detailed Governmental Supervision on Management practices.
5.General Manager	Owner/Contractor supervision on a daily basis and very high in terms of European Standards.
6.Contract Manager	No Detailed Governmental Supervision on Management practices.
7.Logistic Manager	Strict Owner/Contractor Supervision on the Protective Collective Systems and PPE-s on site according to European Standards.
8.Quality Manager	No Detailed Governmental Supervision on Management practices.
9.Chief of Electrical	Strict supervision of the Owner/Contractor in applying the H&S

Dep.	European Standards.
10.Chief Financial Officer	Detailed inspection from Government/Owner/Contractor on the Legal Documents/Insurance of employees.

This case study eagers to also know the reality perceived by the local company of the government's role in prioritizing health and safety. As mentioned Ngowi and Mamuja [Ngowi and Mamuja, 2015] state the lack of government commitment in terms of financial resources and motivated governmental supervisors together with the illness of corruption when concerning governmental health and safety inspections in developing countries. However, not all developing countries share the same patterns and at the same level.

In this case study, the main supervision of the company on the construction sites is performed by either the Owner or Contractor, since the govermental supervisors don't have a regular visiting pattern on supervising construction sites of a company in Albania. However, in case of an accident/ incident or a notice from an employee, the adequate institutions do provide the neccessary measures. These visits are either made by two inspectors or one inspector and a controller. Furthermore, only 5% of them are motivated by complaints. [Albania Inspection Labor Audit, 2009]. According to the Health and Safety Manager, the govermental supervisors make sure the application of the health and safety standards by checking the documentation and the health and safety measures on site.

The Health and Safety Site Manager explained that during the Elbasan 2 supervision, they were mostly concerned in checking if all employees are insured as well as on raising awarenes in terms of health and safety than on inspecting the Management Policies of the company and their application.

In contrast to the govermental supervisors, the Owner/Contractor supervision is done on a daily basis and with a greater focus on the Management Practices, in terms of Method

of Statement and Risk Assessment application on the construction site. In accordance to this, the work was stopped whenever the right measures were not taken in both Elbasan 2 and Cerrik Substation. According to the communications of the Health and Safety Manager and the supervisors of Alstom/ Stadkraft the work continued after the right measures were taken followed by trainings in Elbasan 2 conducted by the contractor itself (Alstom) and toolbox talks for working at height, trainings as well as two minute Risk Assessment in Cerrik conducted by the company. The measures taken for both Elbasan 2 and Cerrik can be respectively assessed in *Figure 1* and *Figure 2*.



Daily Photos Report No.009 date 29.01.2015



There is no work in the site.

Figure 1. Corrective measures taken for Elbasan 2 Substation [EnBi Power].

CERRIK SWY TOOLBOX TALK



Figure 2. Corrective Measures taken for Cerrik Substation [EnBi Power].

Besides the daily supervision of the Contractor/Owner, they are able to check the health and safety measures also through an investigation before a specific task. The request for inspection is issued and scheduled in advance by EnBi Power itself. As a result, the Contractor/Owner supervisors can see how the process is done and give their

approval/recommendations. An example is given in Elbasan 2, before concreting the new fence wall, *Figure 3*.



Power
Hydro

REQUEST FOR INSPECTION NOTIFICATION				
PROJECT	FROM	TO	II	DATE
Elbasan 2 S/S	RFI	Enbi - Power	Alstom	07.02.2015
PROJECT NAME : DEVOLL HYDROPOWER PROJECT – Elbasan 2 S/S Civil Works				
DESCRIPTION AND LOCATION OF WORKS / SYSTEMS TO BE INSPECTED :				DATE & TIME OF INSPECTION
Inspection: Reinforcement steel in the top of New Fence before concreting				Date: 09.02.2015, Hour 14:00
Inspection: Static test for the ground in the extension part of the Substation				Date: 09.02.2015, Hour 14:00
COMMENTS :				
SIGNATURES				
Originator of the Notification				

Figure 3. Request for Inspection Notification [EnBi Power].

Furthermore, the Owner/Contractor also asks for specific controls for the collaudation of the machineries in order for the work to be performed safely. The Health and Safety Manager states that the company faced some challenges since there is no collaudation control that can be done in Albania. As a consequence, the necessary machineries

(lifting equipments) that needed to be collaudated had to be sent in Greece, which turned into a challenge in terms of money and time for the company. See Appendix D.

Table 9. Forecast and Calculation of direct and indirect costs.

<i>Management Team</i>	<i>Elbasan 2 Project/ Cerrik Project</i>
1.Health and Safety Manager	Greater focus on the direct costs in terms of machineries,equipments and trainings.
2.Chief of Civil Engineer Department	The costs were forecasted and calculated however, there was a difficulty because of a time limit.
3.Project Manager	There has been an analysis used to calculate and forecast the costs but no reference to a specific model
4.H&S Site Manager	No clear forecast of costs but mainly an immediate calculation of them in problematic events (Elbasan 2 Substation).
5.General Manager	Time and budget limit.
6.Contract Manager	The forecast and calculation of H&S costs are considered a part of the overall ones.
7.Logistic Manager	The forecast and calculation of H&S costs are considered a part of the overall ones when entering the tender.
8.Quality Manager	The direct costs were their main focus to respect the H&S standards.
9.Chief of Electrical Dep.	In general direct costs are easier to be forecasted and calculated while the indirect ones are mainly considered after the project.
10.Chief Financial Officer	In tendering process the direct costs were mainly considered and the indirect ones when the problematic events happened.

Costs are another element that seem to harden the way on focusing on health and safety measures and investing on them. In the literature review, the difficulty of calculating the indirect costs, the not easy placement of these costs in nowadays programs and the small tendering budget of the projects, do influence in perceiving costs on health and safety as unclear and scary.

According to the General Manager of the company, the budget for health and safety in these projects was between 1.4-2.8 percent of the tender price. This is in line with the

already existing literature, where Saurin [Saurin, [2015] points out the governmental strategy in tenders which includes a low budget in health and safety. He specifies this budget was mainly focused on direct costs. As already mentioned in the literature, according to Academics there is a difficulty in calculating indirect costs in general in construction projects considering the accounting models are still limited to manufacturing production models [Alonso, 2013]. The Health and Safety Manager together with the Contract, Logistic and Quality Manager confirm the focus of the company in the direct costs at the pre-planning phase when entering the tender process. However, due to the critical issues in H&S, faced at Elbasan 2 Project, the company realized it had to calculate the indirect costs associated with the unexpected event.

More specifically, The Contract Manager explains a critical communication with Alstom Contractor due to an OSH issue on the construction site. On 22 January 2015. During the placement of concrete for the fencing wall, there was a lack of proper scaffolding and the Contractor immediately stopped casting concrete until measures were taken to comply with safety work standards. This event, both costly in time and employee management, resulted in intensive training from the Contractor in H&S. The Chief Financial Officer explains that the indirect costs were calculated considering the opportunity cost of suspending the workers for two weeks, and for the purchase of renting the scaffolds as the necessary equipment. On the other hand, the trainings were an investment made by the Contractor (Alstom) itself .

At Cerrik Project, which came after Elbasan 2 and included work with the same International Contractors, although the progress in H&S was significantly better, there was a suspension of the work. This suspension of three working days was related with unsafely working staff climbing around on top of a steel structure at the switchyard. According to the H&S Manager, there was a corrective action from the company EnBi Power and a Non Conformity Report. The corrective action referred to taking the necessary steps and measures approved by the Client to solve the problem, and in the non conformity report EnBi Power analysed the indirect costs of the unexpected event

(Fig. 4). Such costs referred to toolbox talks to employees and the necessary barriers at the construction site.

NON CONFORMITY REPORT		Update NC register	NCR N°: NC120
		Prepare for printing	
1 - NC LOCALIZATION AND RELIEF	NC Localization:	Products acceptance: <input type="checkbox"/>	During production processes: <input type="checkbox"/>
		Services/performance acceptance: <input type="checkbox"/>	During company's processes: <input checked="" type="checkbox"/>
	Presumed Responsibility:	Supplier <input type="checkbox"/>	Other <input type="checkbox"/>
	Reference documents:	Email date 14.04.2016 08:16 AM	From CUSTOMER'S COMPLAINTS: <input type="checkbox"/>
	NC Description:	staff working unsafely ad climbing around of top of the steel structure at the switchyard	
		4/14/2016	
	Name/Function	Date	Signature
2 - NC ANALYSIS AND RESOLUTION TREATMENT	Possible causes:	Not in accordance with safety rules	NC Cost estimation: € 2,200.00
	Disposals for treatment:	Give back to supplier (for products) <input type="checkbox"/>	Other: <input type="checkbox"/>
		Reworking <input type="checkbox"/>	in accordance with safety rules
	NOTES:		
	Description of the resolution:	Activity	Responsibility
		Tool books talk to all workers at switchyard and prepared the attendance sheet	Artur Malo
		daily site for tool books talk	Artur Malo
		Barriers at place	Artur Malo
		EHS inspection weekly	Artur Malo
	Activities STARTING DATE :	PRESUMED Activities ENDING DATE	Notes
		4/18/2016	
	Responsible	Date	Signature

Figure 4. Non Conformity Report for Cerrik Substation [EnBi Power].

Table 10. Changes in legislation and their application.

Management Team	Elbasan 2 Project/ Cerrik Project
1. Health and Safety Manager	The company already applies a high standard of H&S according to its BS OHSAS 18001:2007 Certificate. However, there is a higher H&S governmental focus and a greater collaboration with the company.
2. Chief of Civil Engineer Department	Increased governmental inspections and recommendations.
3. Project Manager	Greater governmental control in accidents recordings.
4. H&S Site Manager	Although there is a bureaucracy when dealing with the starting of work permissions, there is a higher collaboration with the government.
5. General Manager	Higher collaboration of the company with the government on H&S standards.
6. Contract Manager	In these two projects there was a good collaboration with the state, however in general there is a significant bureaucracy in

	permissions of starting the works.
7.Logistic Manager	The application of latest law is applied within the company with a setting of a new committee on H&S.
8.Quality Manager	No significant changes since the company already has committed and applies the BS OHSAS 18001:2007 Certificate on H&S standards.
9.Chief of Electrical Dep.	Increased inspection of the government in compliance with H&S standards considering the high risk involved due to the work under voltage.
10.Chief Financial Officer	Increased governmental inspections and recommendations.

Legislation is an important point into making a step forward in developing countries in prioritizing Health and Safety in companies. As already mentioned in the Literature Review, complying with International Standards by setting the employer's responsibilities and safety conditions in construction site is only the start of making these policies applicable in reality. This case study researches the applicability in local companies of the changes/updates with International Standards that have happened in the Albanian legislation in terms of H&S.

The Contract Manager explains that the company stays updated with the changes in law via the Official Governmental book and via the official website of the adequate institutions. Every six months the new changes in law are published in these books, which gives the company a positive impact not only in being updated to these changes and applying them but also to be in a correct position in the audits by the Labor Inspectorate.

The Contract Manager states that the company has updated its management system according to several changes in the H&S law. As a consequence, according to law nr 10 237/2010 Article 16 (See Appendix E) the company must have set a H&S committee since the company has more than 50 employees. The Health and Safety Committee 'de juro' consists of three members, respectively the Health and Safety Manager, the Contract Manager and Logistic Manager. However, because the company is a medium local

company that is focused in the Albanian market, therefore the employees are very close to each other. The committee involves de facto more than 3 employees such as the Project Manager, Chief Of Electrical Department, Chief of Civil Department , the Health and Safety Manager, the Contract Manager and the Logistic Manager etc. According to the H&S Committee, there is a meeting scheduled before every project as well as in every emergency event. Furthermore, it is crucial to say that they all explain the presence of this Committee even before the law was set since the company was already working with International firms and was possessing the BS OHSAS 18001:2007 Certificate. As a consequence, this finding is important to highlight, since it explains a hunger of this albanian local company to absorb the latest H&S requirements of its international clients and apply them on site.

The Project Manager explains that a milestone for the company to overcome has always been taking 'the start of work permissions'. The government's permission lasted up to 30 days to be taken, which slowed down the company's efforts to start their project on time and resulted costly in terms of time. In 2016, with a legal update of the Government decisions, resulted in making some of these 'start of work permissions' available online, reducing the time of obtaining them from 30 days to within 7 days. The Contract Manager says that the bureaucracy of dealing with the governmental institutions is a reality that the company has been dealing with since their start in 2003, but they have seen positive changes such as the latest one just mentioned.

The Health and Safety Site Manager, explains that another challenge for the company in Cerrik was taking the permission from the governmental institutions to outage the Substation. The company needs to outage the Substation in order to let the employees work in a safe condition mode without the danger of electricity. Considering the company in Cerrik was a subcontractor of Alstom (for electrical works), the bureaucracy to connect with the public institutions for this permission, was higher than having these public institutions as a client directly which would only take 24 hours. The company had to contact Alstom and then Alstom had to contact the public institutions, which took

approximately two weeks. As a consequence, the work was suspended and the company had to bear costs in terms of open site, money and time.

Table 11. OSHMS, its promotion and importance within the company.


<i>Management Team</i>	<i>Elbasan 2 Project/ Cerrik Project</i>
1.Health and Safety Manager	Improved Top Down Management Approach, Improved OSH Management and Decision Making, Increased Awareness among workers.
2.Chief of Civil Engineer Department	The company is investing into keeping OSH a priority.
3.Project Manager	There was a boost of the importance and focus of OSH Management System after Elbasan 2 Project.
4.H&S Site Manager	Elbasan 2 Project was crucial to raise awareness on OSH importance and site hazards.
5.General Manager	Greater general focus of OSH Management system in the company.
6.Contract Manager	Elbasan 2 Issues raised the 'Planning' element as a must in terms of the company's focus.
7.Logistic Manager	The BS OHSAS 18001:2007 Certificate and its yearly audits are important to keep the OSH Management system a priority.
8.Quality Manager	The client's supervision and OSH Management system is important into setting the company in a safe OSH Management system path.
9.Chief of Electrical Dep.	Greater focus of OSH Management System.
10.Chief Financial Officer	The company invests yearly into keeping the BS OHSAS 18001:2007 Certificate Standards.

The implementation of Health and Safety Management System within a company is crucial to be applied at its organizational and project level. In the literature review these two levels were specified by closely looking at leadership and commitment for the first level as well as at evaluation and risk management at the second level [Mahmoudi *et. al.*, 2015]. The interviewees were specifically asked about the company's Management System in details as well as about the promotion of such system concerning OSH.

According to the Logistic and Health and Safety Manager, the health and safety management system has been implemented since the acquisition of the BS OHSAS 18001 2007 (Occupational Health and Safety Management System of the Organization) Certificate. This certificate stands for the planning, commercialisation and installation of electrical equipment for low medium, high voltage and related civil works. The two main policy points the company agrees to comply with in this certificate are : ' no job or no task is more important than worker health and safety; if a job can not be done safety, it will not be done'.

The H&S Site Manager of Elbasan 2 explains that Elbasan 2 Project was the first project where the company faced a client with a high H&S standard and the first project where this standard was highly required. As a consequence, the company had to focus on applying and conforming to these high H&S standards by also hiring an experienced expert in H&S such as the Health and Safety Manager who focused on raising awareness on health and safety policies. This event is also in line with Lin Teo *et. al.*, [Lin Teo *et. al.*, 2004], who states the importance of health and safety policy by leading to higher overall safety performance in a company.

As a matter of fact, in both Elbasan 2 and Cerrik, the Method of Statement has been used as a tool to analyze all the works needed to be done, materials, tools and equipments needed to be used and the way they needed to be used. Furthermore, the Method of Statement includes the scope of work, specifies the responsibilities and how the work is going to be executed respecting the health and safety standards. In *Figure 5*, there is a guidance example given by Alstom, on how the excavation works should be performed safely.

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SAFE EXCAVATION WORKS – Technical Requirements

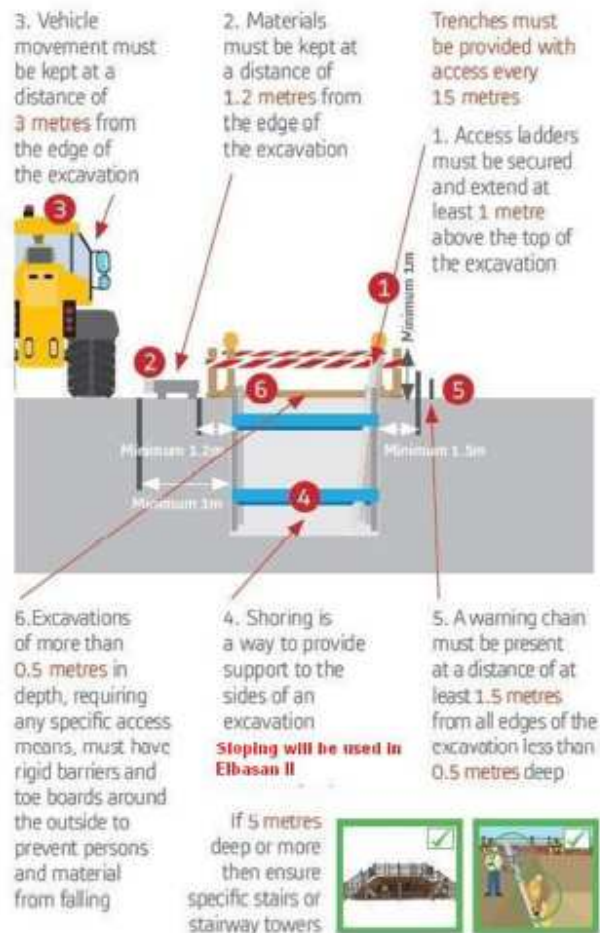



Figure 5. Guidance by Alstom on safe excavation works [EnBi Power].

The Health and Safety Manager explains that once they perform the Method of Statement, they perform the Risk Assessment tool as a function of the likelihood and severity of the works to be executed (Fig. 6). This is extremely crucial since it is an

important tool on assessing on site the possible risks as well as implementing the right control measures. *Figure 7* shows a guiding format of a Risk Assessment given by Alstom in Elbasan 2 for foundation works.

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15. RISK ASSESSMENTS

Work Risk assessment about all works and possible risks at the site, is listed as follow.

Guidance

Likelihood	Definite	5	5	10	15	20	25
	High	4	4	8	12	16	20
	Moderate	3	3	6	9	12	15
	Low	2	2	4	6	8	10
	Negligible	1	1	2	3	4	5
Risk Assessment Matrix		1	2	3	4	5	
		Minor	Moderate	High	Major	Catastrophic	
		Severity					

Tolerable
Low Priority
Medium Priority
High Priority

Figure 6. Guidance by Alstom on calculating the Risk [EnBi Power].

ALSTOM GRID		EHS RISK ASSESSMENT and MANAGEMENT TABLE for PYLON and EQUIPMENT FOUNDATION PROJECT: İÇ ANADOLU CCPP					Page No:	
							Rev No:	1
							Date	24.04.2014
#	Hazards and Risks	L	S	Existing Risk	Control Measures Implemented	L	S	Residual Risk
Preparation								
1	Inexperianced and unqualified personel involvement can cause injury or equipment damages	3	3	9	To be avoided access of unqualified person to the site Personal qualification check Personal legal compliance check Occupational training certificate check Health check report Occupational job certificates check Orientation training Health & Safety training Observation of safety rules compliance Discipline policy	2	2	4
2	Unsafe working environment and condition can cause injury and equipment damages	3	3	9	To meet PR.446.01 Site EHS Management Procedure Requirements To meet Alstom Zero Deviation Plan requirements To meet occupational health safety legislation Preparation of Risk Assessment and Method Statement for each task Underground facilities shall be identified and drawing shall be provided before commencing activity. Proper equipment with specifications and maintenance records. PTW system shall be followed Prevention plan, Team safety visit, hierarchical safety visit Toolbox talk Safety signs, barriers Before commencing activity, supervisor will ensure that all moving parts of equipment	2	2	4

Figure 7. Guiding Format of Risk Assessment given by Alstom [EnBi Power].

Both the Method Statement and Risk Assessment tools are given as a format from either the Contractor or Owner, and are performed from the staff itself of the company EnBi Power. After both the Method Statement and Risk Assessment are performed, the planning process takes place. The planning process includes the project planning in terms of trainings and meetings concerning health and safety. The time period of each month is the base unit in which these trainings and meetings are planned.

The Health and Safety Site Manager states that there was a difference in Management of Health and Safety in the Cerrik and Elbasan 2 Project. These changes consist mainly in the different planning technique. In Elbasan 2 Meetings (concerning only health and safety staff of the company) were not held once a month, trainings were held only once a week before a specific task started. On the other hand in Cerrik, toolbox talks (a reminder of the main training points that the workers had to consider), were assessed.

However, as previously mentioned problems arised in both projects. Beside the fact that the corrective measures were taken for the work to be perfomed safely, in Elbasan 2 the training of the workers and engineers was done by the contractor (Alstom). Trainings are one of the most important elements to lower the OSH risk on site [Dejus and Antunchviciene, 2013]. Whereas in Cerrik, since the arised prolem (working unsafely at the top of the steel structure) was due to human factor, the company itlself proceeded with working at height trainings (toolbox talks) (*Fig. 8*). This re-emphasized once again the "Zero Tolerance Policy versus Health and Safety", the responsabilites of the supervisors, employees and the necessary fall prevention measures. In addition to this, in order to raise the awareness among the workers a ' two minute risk assessment ' was performed and communicated to them (*Fig. 9*).

Toolbox talk WORKING AT HEIGHT CERRIK SWITCHYARD.

DATE April 15, 2016.

Name (Print)	Title	Signatura	Date
ARTUR MALO	EMS-RES. BRANSA	<i>[Signature]</i>	16/04/16
Soljano Nuredini	ELEC. ENGINEER	<i>[Signature]</i>	16/04/16
Rea Leuko	CIVIL ENG.	<i>[Signature]</i>	16/04/16
Edmond Laskari	Electrician	<i>[Signature]</i>	16.04.2016
FATJON HAKIJA	INSPECTOR	<i>[Signature]</i>	16/04/2016
Adem Lalo	Inspector	<i>[Signature]</i>	16.04.2016
ERIND BEHELAJ	Electrician	<i>[Signature]</i>	16.4.2016

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www.enbi-power.com
 Identification Number of Taxable Person NIPT **K 47905860 J** ; Fiscal
 Code: 20050000

Figure 8. Working at height Toolbox Talk [EnBi Power].

BS'2
Be Safe Before Start – the 2 minutes Risk Assessment

DATE 16/04/16 LOCATION Switchyard CERRIK

1) I know the task, the risks and the preventive measures:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2) I have the adequate PPE and they are in good shape	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3) I have the adequate tools and equipment's, they are in good shape and they have been inspected (portable power tools, machines...)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4) Nothing significant has been modified at my workplace (Barrier, platform, equipment removed?)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5) There are no risks of slips, trips and falls (Uneven ground, grease, obstacles or objects on the ground)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6) There is no coactivity that could interfere with mine	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7) There no major change in the environment that could impact my task (Light, ice, wind, humidity ...)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8) I know what to do in case of emergency	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9) Escape routes are clear	<input checked="" type="checkbox"/>	<input type="checkbox"/>

If one of the above is NOT OK. DO NOT START WORK and CONTACT YOUR

Figure 9. Be Safe Before Start - The 2 Minute Risk Assessment [EnBi Power].

According to the Engineering Staff, Elbasan 2 did indeed boost the importance and focus of the company towards Health and Safety, especially during the "Planning Phase" of each project (as the Contract Manager explains). Moreover this project also increased the awareness among the staff into continuously improving the "Plan, Do, Act, Check" Cycle. Furthermore, after the suspensions of the works in both Elbasan 2 and Cerrik Project, it was necessary for the Health and Safety Team to inform and check all the other construction sites that the company was currently working on. As a matter of fact, besides the taken Corrective Actions, the Preventive Action took place re-emphasizing once more the need for the "Plan, Do, Act, Check" Cycle in order for the Management System to be effective. See Appendix E.

The Top Down Management Approach in terms of Promotion of the Health and Safety to the Worker was highly efficient in Cerrik Project due to the monthly trainings, as well as weekly and daily toolbox talks. In Elbasan 2 Project, as already mentioned, this approach was limited to only obligatory trainings from the Contractor and weekly toolbox talks.

Furthermore, the employees that worked in Cerrik Substation after working in Elbasan 2, showed a higher involvement toward H&S and identification of the hazards/ near misses, according to the Health and Safety Site Manager. Their efficient performance came as a result of intensive trainings from the contractor and of understanding the importance of HS&S because of the critical events happening at Elbasan 2 Project. The Health and Safety Manager does specify that there is still work to be done to bring the employee involvement toward H&S at a significant satisfactory level.

Table 12. Company Safety Culture.

<i>Management Team</i>	<i>Elbasan 2 Project/ Cerrik Project</i>
1.Health and Safety Manager	Growing Management Commitment Workers facing difficulties in Communication with the Contractor- different working culture and language.
2.Chief of Civil Engineer Department	The company is focusing on increasing awareness on its safety culture via certificates, trainings, open meetings.
3.Project Manager	Growing Management Commitment.
4.H&S Site Manager	Improved Management Commitment but there is still room for improvement.
5.General Manager	Greater investment in promoting H&S Management Commitment in the overall company.
6.Contract Manager	Top-down Management Approach Effective. Delays in information reports from site to Management.
7.Logistic Manager	The company focuses on promoting the BS OHSAS 18001:2007 Certificate through its employees with trainings and open discussions.
8.Quality Manager	Effective Communication within the company is very satisfactory.
9.Chief of Electrical Dep.	The company is focusing on increasing awareness on its safety culture via its BS OHSAS 18001:2007 Certificate and adequate trainings.
10.Chief Financial Officer	With the implementation of BS OHSAS 18001:2007 Certificate the Labor Inspectorate commented the significant progress of EnBi Power in terms of safety culture.

The company's safety culture is not an immediate event that changes from day to night. As a consequence it is a slow process that takes place in a longer period of time.

The Health and Safety Manager explained a greater management commitment in the company toward Health and Safety issues as well as a greater promotional effort via trainings and regular meetings. He stated that there is still a lot of promotional work to be done, especially by using visual methods which appear more efficient to workers. This idea stands in line also with the research of Bust and Gibb [Bust and Gibb, 2006], who argue that after a research carried out in the Middle East, Eastern Europe Africa, Asia and India, it was necessary to focus more on visual methods of communication about health and safety on site and focus on making it a priority.

The Health and Safety Site Manager states that the Effective communication is still a challenge for the company. Considering the fact that the company is working with international specialized teams, communication appears to be a challenge not only because of different working cultures but also because of different languages. As a matter of fact, Bust and Gibb [Bust and Gibb, 2006] stated that in intercultural teams, the chance for translation to be wrong is significant and it can influence the effectiveness of the delivery of the message.

Furthermore, the typical working culture in Albania where issues are discussed indirectly and slowly solved comes across a western working culture of the Contractor/Owner teams that is a direct and problem solving one.

The Health and Safety Site Manager explains that both in Elbasan 2 and Cerrik these milestones were efficiently passed since the teams collaborated with each other effectively, but the language barriers do tend to create misunderstandings sometimes. She adds that in order to break down this issue, the company focuses on hiring employees with at least a good understanding of the English language and that this is still an ongoing process.

3.3.2 Part 2

In part two, there is an analysis made of the questionnaires of the civil workers and technicians. As a result, the analysis of the interviews of managers will be put into perspective by linking it with the analysis below in order to provide a more comprehensive view on the matter.

In the questionnaires sent to the civil technicians and civil workers of Elbasan 2 Project, there was a distinction made with the group that was also part of Cerrik 2 Project. As it can be seen by the *Table 2* and *Table 3* (on the Material and Methods Section), the group participant in both project is noted with an * sign after the employee number at the table representation. In the second question 'Are health and safety standards neglected in high time pressure projects', the workers of Elbasan 2 Project rated this neglect higher than in Cerrik Project. In terms of RII the difference was significant, 0.5866 for Elbasan 2 and 0.2133 for Cerrik (*Table 13*). As analysed in the manager's interviews, this derived because of the problematic issue of the two weeks suspension in Elbasan 2 Project.

Table 13. Relative Importance Index for Elbasan 2 and Cerrik Substation.

Question	Elbasan RII	Cerrik RII
1.Adequate Emergency Response	0.8666	0.88
2.Neglection Rate of OSH in high time pressure projects	0.5866	0.2133
3.Difficulty Rate to working after suspension	0.6133	0.2533
4.Hazard Identification Rate	0.28	0.6
5.Effective Communication Difficulty Rate	0.56	0.36

6.Cleaniness Rate of the workplace	0.7733	0.84
7.Facilites provision rate	0.9333	0.9333
8.Transportation Safety Plan on site	0.92	0.96
9.Injury Risk Rate of Manual Handling	0.2533	0.2266
10.Policy Awareness Rate	0.52	0.8933
11.Electrical Safety Rate	0.9733	0.9866
12.Correct Work Equipment Rate	0.8933	0.9733
13.Training on Safely using Equipment Rate	0.68	0.9466
14.Access to adequate PPE-s rate	0.8267	0.96
15.Usage of Adequate PPE-s rate	0.8667	0.8533
16. Provision of the Control Measures rate	0.6933	0.8933

In the third question, 'Was it difficult to get back on track, after any delays event?', it is also understandable the difference that the workers (especially the group present at both projects) made between Elbasan 2 Project and Cerrik Project. Specifically the RII of Elbasan 2 was 0.6133 and in Cerrik 0.2533. Considering that Elbasan 2 had a higher suspension time, it is understandable to receive a higher RII at this project from the workers. Furthermore, when asked about being able to identify the hazards on site, the workers (especially the group present at both projects) rated higher the Cerrik Project than Elbasan 2, respectively 0.6 and 0.28, since the issues on health and safety were lower in this project and better manageable..

In the fifth question' How difficult was the effective communication', the workers specified a lower rate, therefore an easier communication at Cerrik Project. This is seen

especially for the workers present at both Projects, who gained an experience from Elbasan 2, and learned on how to approach health and safety and communicate better with the contractor. The achieved results in terms of RII for the effective communication rate, reached 0.56 and 0.36 respectively for Elbasan 2 and Cerrik Project. In the tenth question 'How is the company doing on raising awareness on its H&S policies?', the workers in general (especially those present at both projects), rated higher in awareness the Cerrik Project, where the company focused even more on raising the awareness among its employees in order not face the same problems as in Elbasan 2. While this difference was achieved with monthly meetings, daily and weekly toolbox talks for Cerrik, (as mentioned by the Health and Safety Manager), its Relative Importance Index reached 0.8933 and only 0.52 for Elbasan 2. In the thirteenth question, 'Are all employees trained into using safely the equipments?', the workers again rated higher in training the Cerrik substation. This concept is in line with the managers explanations as well on the high focus that the company put in Cerrik and health and safety in general in its projects. In the sixteenth question 'Does the company provide the adequate control measures for eliminating/reducing the risk?', the workers at Cerrik substation rated this provision with a RII of 0.89333, whereas in Elbasan 2 only 0.6933. Cerrik was rated higher since in this project the adequate scaffolds were provided by the company since the beginning of the project, contrary to what happened in Elbasan 2.

Moreover, it is important to emphasize that there are several questions in which there is no noticeable difference in terms of comparative RII. As a matter of fact in questions 1, 6, 7, 8, 9, 11, which focus on the overall safety standards of the construction site in terms of its emergency response, cleanliness, facilities provision, transportation safety, and also risks concerning manual handling and electrical safety, the company shows to have a standard stability.

CHAPTER 4

CONCLUSION AND RECCOMENDATIONS

This case study put an effort in researching health and safety in civil works in a local company in a developing country such as Albania. Considering that Health and Safety is a current issue, especially in developing countries where governmental programs and organisational policies are said to be non sufficient, this research tried to investigate the reality of health and safety of an operating company in the Albanian Market.

Initially the case study investigated the source of accidents and incidents/ near misses on site. Although there were no accidents on site, near misses were present. The study concluded that in Elbasan 2 there was a neglect in high time pressure projects, where the company lacked the adequate pre- planning health and safety, lacked the adequate supervision because of a non presence of the health and safety expert. Furthermore, the company lacked a clear promotion of health and safety in terms of top down management. All these elements were a clear indication of a higher indirect cost when the measures were not taken adequately.

The study shows that although this company works efficiently with an already established management standard, possesses the BS OHSAS 18001:2007 Certificate and is highly recommended from the international partners, it has to improve its health and safety approach by raising more awareness in terms of management practices among the employees with toolbox talks, trainings and weekly meetings.

The study investigated also the governmental approach both in terms of legislation and inspection. The study concluded that despite all the improvements and updates done to

the albanian legislation concerning health and safety, especially in 2010 considering the Association and Stabilization Agreement, the governmental inspection focuses only on the basics of health and safety. Specifically, it focuses more on inspecting the site, and making sure employees are insured from the company. However, there is a lack of control on management practices on health and safety, and how the company must promote it more. Furthermore, the government should continue to adopt all ILO Recommendations and make sure they are applicable in Albania.

Finally, the study concluded that the company took act on improving significantly its measures and management practices after the Elbasan 2 Projec experience. As a matter of fact, Cerrik project was successful in terms of improved management practices, health and safety promotion and no significant delays from the Customer. The study deepened its research by investigating that despite all the measures taken from the company, a near miss occured in this project due to human attitude toward health and safety. The study concluded that the company must raise awareness among its employees on site for the usage and importance of the PPE-s.

The reccomendations deriving from this case study investigation are:

-It is reccomended for albanian companies to invest in health and safety by obtaining a European Standard Certificate together with a certified health and safety expert. As a result, the companies not only will comply with the legal requirements but also will implement 'The Plan Do Act Check ' Cycle. As a consequence the companies will develop the Method of Statement and Risk Assessment, which are crucial to raise the company's health and safety standards. As a matter of fact, in this way the company will increase the employee's productivity and lower significantly the indirect health and safety costs.

- It is strongly reccomended for Albania to keep adopting the ILO's law reccomendations. Furthermore, the government should raise more awareness through its

institutions and focus more on the supervision of the implementation of the management practices in companies.

4.1 Limitations of the study

This case study focuses initially on the investigation of the Management Safety practices that the company enforces on its employees, on the level of enforcement of these practices, and on their application on site. Moreover, this study brings together the management point of view on health and safety and the worker's perception on how it is actually being applied on site. It is crucial to mention that this case study focuses on the local subcontractor/contractor point of view, information which gives rise to a more realistic research on the reality of construction challenges/risks in developing countries. This study gives rise to a deeper understanding of how companies in Albania can adopt, improve and understand the OSH policies importance in order to be safely successful.

The study should be taken into consideration with the limitations it provides. It is a specific single study of two projects of the same company, which can not lead to generalizations in the construction industry for the Albanian market.

This case study is also subjective, since it investigates based upon opinions the people working in the company which could be biased or not honest. However, considering the privacy statement that was approached with the managers and employees before continuing the study, the bias of their answers were limited as much as possible

4.2 Future Research

This study leads to future research since it tries to investigate a topic that is not researched in developing countries. Health and Safety, an issue that is becoming more

and more important worldwide, is also gaining importance in developing countries where its data is very limited. This study would provide an opportunity to further research on developing countries on health and safety and its application, in order to later bring generalizations in construction and valuable recommendations.

This study also brings the opportunity for future research to link the perspectives of the local companies with the international partners and differences on the research done among national partners.

This study brings light also to future research in the other consequences of construction work on employees, such as different occupational diseases and how companies can avoid such problems.

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APPENDIX A

Occupational Accidents and Diseases in Albania

Table 14. Occupational accidents and diseases [National Profile on OSH, 2007].

Indicator	Value	Unit: in numl of cases	Year	Trend (increasing/ decreasing/ stable)
Fatal accidents	14		2006	Stable
Injury at work (resulting in more than 3 days absence)	143		2006	Decreasing
Compensated workplace accidents	140		2006	Increasing
Commuting accidents	10		2006	Decreasing
Serious work accidents causing disability of over 30 days	143		2006	Decreasing
Notified occupational diseases (total)	143		2006	Decreasing
Compensated occupational diseases	25			
Repetitive strain injuries	N.I.*			
Noise-induced hearing loss	N.I.			
Respiratory diseases	N.I.			
Skin diseases	N.I.			

APPENDIX B

Seoul Declaration on Safety and Health at Work The Safety and Health Summit

Seoul Declaration on Safety and Health at Work The Safety and Health Summit

4. Governments should

- *Consider the ratification of the ILO Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187) as a*

priority, as well as other relevant ILO Conventions on safety and health at work and ensure the implementation of their provisions, as a

means to improve national performance on safety and health at work in a systematic way.

- *Ensure that continued actions are taken to create and enhance a national preventative safety and health culture.*

- *Ensure that the occupational safety and health of workers is protected through an adequate and appropriate system of enforcement*

of safety and health standards, including a strong and effective labour inspection system.

5. Employers should ensure that

- *Prevention is an integral part of their activities, as high safety and health standards at work go hand and hand with good business*

performance.

- *Occupational safety and health management systems are established in an effective way to improve workplace safety and health.*

- *Workers and their representatives are consulted, trained, informed and involved in all measures*

related to their safety and health at

work.

6. Affirming the workers' right to a safe and healthy working environment, workers should be consulted on safety and health matters

and should:

- Follow safety and health instructions and procedures, including on the use of personal protective equipment.*
- Participate in safety and health training and awareness-raising activities.*
- Cooperate with their employer in measures related to their safety and health at work.*

7. The World Congress on Safety and Health at Work is an ideal forum to share knowledge and experiences in achieving safe, healthy

and productive workplaces.

8. Progress made on achieving safety and health at work should be reviewed on the occasion of the XIX World Congress on Safety

and Health at Work in 2011.

9. The Summit participants commit to taking the lead in promoting a preventative safety and health culture, placing occupational safety

and health high on national agendas.

APPENDIX C

Law nr. 9634/2006 ' On the inspection and labor inspectorate'

[Inspektoriati i Punes, 2006]

KREU II

SISTEMI I INSPEKTIMIT TË PUNËS

Neni 5

Politikat shtetërore të inspektimit në punë

1. Shteti përcakton, për të gjitha vendet e punës, një sistem të inspektimit në punë, në bazë të të cilit kërkohet zbatimi i dispozitave të legjislacionit të punës, kontratës kolektive dhe mbrojtjes gjatë procesit të punës të punëmarrësve dhe që sigurohet nga inspektorët dhe kontrollorët e punës.

2. Ministri harton politika dhe merr masa, që synojnë zbatimin e tyre nëpërmjet:

- a) zbatimit të dispozitave të legjislacionit të punës në të gjitha vendet e punës;
- b) nxitjes së masave të sigurimit në vendet e punës, ku përdoren substanca të rrezikshme;
- c) fuqizimit të masave për parandalimin e aksidenteve në punë dhe të sëmundjeve profesionale.

Neni 6

Misioni i Inspektoriati Shteteror qe mbulon fushen e punës

1. Misioni i përgjithshëm i Inspektoriati Shteteror qe mbulon fushen e punës është kontrolli, konstatimi, këshillimi, njoftimi, formimi, zbutja e konflikteve, parandalimi dhe sanksionimi.

2. Inspektoriati Shteteror qe mbulon fushen e punës ngarkohet:

a) të sigurojë zbatimin e dispozitave ligjore për kushtet e punës dhe mbrojtjen e punëmarrësve në ushtrimin e profesionit të tyre, për kohëzgjatjen e punës, pagat, sigurimin, higjienën dhe mirëqenien, punësimin e fëmijëve, të të miturve dhe grave, si dhe për çështje të tjera, që lidhen ngushtë me to, në atë masë, që inspektorët e punës ngarkohen të sigurojnë zbatimin e këtyre dispozitave;


b) t'u japë të dhëna dhe këshilla teknike punëdhënësit dhe punëmarrësit për mjetet më efikase të shqyrtimit të dispozitave ligjore;

c) të vërë në dijeni autoritetin përgjegjës për mangësitë dhe abuzimet, që nuk mbulohen në mënyrë të veçantë nga dispozitat ligjore në fuqi, si dhe të propozojë mjetet dhe instrumentet e nevojshme për përmirësimin e gjendjes.

APPENDIX E

Preventive Action For Cerrik Substation.

[EnBi Power]

 PREVENTIVE/CORRECTIVE ACTION															
<input type="checkbox"/>	CORRECTIVE ACTION	N°: <input type="text" value="AP 11"/>	Date: <input type="text" value="4/14/2016"/>												
<input checked="" type="checkbox"/>	PREVENTIVE ACTION														
Part A: Origin of Preventive/Corrective Action	Related documents														
	<input checked="" type="checkbox"/>	Non Conformity N°: NC120													
	<input type="checkbox"/>	Internal audit N°:													
	<input type="checkbox"/>	External audit N°:													
	<input type="checkbox"/>	Other:													
Causes analysis															
Is not respected all safety rules on site															
Description of suggested actions:															
To have an urgent meeting on site to evaluate the situation and to understand what really happened and why not are respected all approved safety procedures as per company standards															
Part B: Planning of the actions	Actions/Activities:	Resp.	Within												
	intervention on site to secure the works	Artur Malo	4/15/2016												
	information to all other sites related to this problem in order for them to check their procedures to be followed	Arber Polovina	4/17/2016												
		Arber Polovina	4/17/2016												
Activities Start ing Date:		Presumed Ending Date: 4/17/2016													
Part C: Verification and closing	It has been verified that the CA/PA is: <table border="1"> <tr><td>Actuated</td><td><input checked="" type="checkbox"/></td></tr> <tr><td>Partially actuated</td><td><input type="checkbox"/></td></tr> <tr><td>Unactuated</td><td><input type="checkbox"/></td></tr> </table>	Actuated	<input checked="" type="checkbox"/>	Partially actuated	<input type="checkbox"/>	Unactuated	<input type="checkbox"/>	The realized activities were: <table border="1"> <tr><td>Effective</td><td><input checked="" type="checkbox"/></td></tr> <tr><td>Partially effective</td><td><input type="checkbox"/></td></tr> <tr><td>Uneffective</td><td><input type="checkbox"/></td></tr> </table>	Effective	<input checked="" type="checkbox"/>	Partially effective	<input type="checkbox"/>	Uneffective	<input type="checkbox"/>	
		Actuated	<input checked="" type="checkbox"/>												
		Partially actuated	<input type="checkbox"/>												
	Unactuated	<input type="checkbox"/>													
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Partially effective	<input type="checkbox"/>														
Uneffective	<input type="checkbox"/>														
The CA/PA is: <table border="1"> <tr><td>CLOSED</td><td><input checked="" type="checkbox"/></td></tr> <tr><td>OPEN</td><td><input type="checkbox"/></td></tr> </table>	CLOSED	<input checked="" type="checkbox"/>	OPEN	<input type="checkbox"/>											
CLOSED	<input checked="" type="checkbox"/>														
OPEN	<input type="checkbox"/>														
NOTES: <div style="border: 1px solid black; height: 20px; width: 100%;"></div>															
VERIFICATION DATE	4/17/2016	CLOSING DATE (if different from verification)	4/17/2016												
CA/PA issued from (Readable signature)	CA/PA approved from GM (Readable signature)	CA/PA verified from QMR (Readable signature)													

APPENDIX F

L I G J Nr. 10 237/2010 "PËR SIGURINË DHE SHËNDETIN NË PUNË".

[Inspektoriati i Punes, 2010]

Neni 14

Këshilli i sigurisë dhe shëndetit në punë

1. Në ndërmarrje ngrihet këshilli i sigurisë dhe shëndetit në punë, i cili ka si mision të kontribuojë në mbrojtjen e shëndetit fizik dhe mendor dhe të sigurisë së punëmarrësve, si dhe në përmirësimin e kushteve të punës.
2. Këshilli është organ partneriteti këshillues me përfaqësues të punëdhënësve dhe të punëmarrësve, të përfaqësuar në mënyrë të barabartë, i cili ka si qëllim këshillimin e rregullt dhe periodik të veprimtarisë së ndërmarrjes, për parandalimin e rreziqeve në punë.
3. Përfaqësuesit e këshillit kanë të drejtë të marrin pjesë dhe të analizojnë problemet për parandalimin e rreziqeve në punë në ndërmarrje.
4. Përbërja dhe rregullat për organizimin dhe funksionimin e këshillit të sigurisë dhe shëndetit në punë përcaktohen nga Këshilli i Ministrave.

Neni 15

Kompetencat e këshillit të sigurisë dhe shëndetit në punë

1. Këshilli i sigurisë dhe shëndetit në punë ka këto kompetenca:
 - a) merr pjesë në vlerësimin, hartimin dhe vënien në jetë të programeve të parandalimit të rreziqeve në ndërmarrje;
 - b) nxit nisma për mënyrat dhe procedurat për parandalimin efektiv të rreziqeve, duke i propozuar ndërmarrjes përmirësimin e kushteve dhe mënjanimin e rreziqeve.
2. Punëdhënësi është i detyruar të zbatojë propozimet e bëra nga këshilli i sigurisë dhe shëndetit në punë, duke bashkëpunuar me Inspektoratin Shtetëror të Punës dhe Inspektoratin Sanitar Shtetëror.

Neni 16

Numri i përfaqësuesve të punëmarrësve në këshillin e sigurisë dhe shëndetit në punë

1. Numri i përfaqësuesve të punëmarrësve në këshillin e sigurisë dhe shëndetit në punë, sipas nenit 14 të këtij ligji, përcaktohet në varësi të numrit të punëmarrësve.
2. Në ndërmarrjet me deri në 50 punëmarrës zgjidhet një përfaqësues në këshillin e sigurisë dhe shëndetit në punë, të ngritur në nivel profesional ose ndërprofesional.
3. Në ndërmarrjet me mbi 50 punëmarrës, ngrihet këshilli i sigurisë dhe shëndetit në punë.
4. Në mjediset e punës, ku ka rrezikshmëri të lartë për sigurinë dhe shëndetin në punë, përfaqësuesi zgjidhet pavarësisht nga numri i punëmarrësve, sipas përcaktimit të pikës 2 të këtij neni.



APPENDIX G

Interviewee Information:

Occupation: _____

Experience of work: _____

Purpose of the Study:

The study aims to provide a local perspective of both management and employees working in challenging projects dealing with OSH issues/risks by focusing on the accidents/incidents/near misses issue, legislation, and management practices of the chosen company.

Interview:

1. Accidents Information:

1.1 Is there a procedure for recording accidents/diseases/near misses on site?

1.2 Do you think the company reports every accident/disease / near miss on site?

1.3 How do you perceive OSH as a factor/principle taken into consideration in this company? Is it neglected in high time pressure projects?

1.4 How do you manage keeping OSH as a priority in time pressuring projects?

1.5 Is there a procedure for formally reporting accidents/diseases/near misses on site?

1.6 Have there been any fatal accidents in this projects? Company?

2. Pre-Construction Planning:

2.1 In the pre-construction phase, is there an OSH focus ?Are there meetings done to take into consideration the risks/costs on the coming project?

3. Inspection Information :

3.1 How are the governmental supervisors making sure OSH standards are being applied?

-Documents check

-Site check

-Management practices check

3.2 How are the owner / contractor supervisors making sure OSH standards are being applied?

-Documents check

-Site check

-Management practices check

4. Cost Information:

4.1 How were direct and indirect costs linked to OSH calculated? Did the company make a forecast of them? Is the company checking them after the end of the project?

4.2 Is there data that provides the cost of trainings or events that were costly in time such as significant delays?

4.3 Was it difficult to get back on track after any delays events, needed but non forecasted trainings? Were the trainings effective?

5. Legislation:

5.1 The late changes in Legislation, have they been updated accordingly? In terms of trainings, accident recording, adequate sanctions, safe conditions.

5.2 Is there a committee since the company has more than 50 employees?

5.3 Is it difficult to take an OSH permission before starting the work from Labor Inspectorate? How is this collaboration? Is there bureaucracy in it?

5.4 Your company also has obtained the BS OHSAS 18001:2007 Certificate of Health and Safety. Do you think it is important for the compliance with the international standards? Do you consider it a priority?

5.5 There were changes in the Albanian legislation after 2007(ILO compliance). Have you noticed any changes in the governmental inspection and accidents recording ?

5.6 Have you noticed/ applied any changes after 2010 in inspection and new principles of OSH management in your company?

6. Health and Safety Management System:

6.1 Does the company have an OSH management system? Do you use more the Client's one? Are there any significant differences between these two?

6.2 How is the OSH focus of organizational and management level ? Does this management system forecast organizational measures before and after work?

6.3 Does this management system include: trainings, hazard identification , control measures, risk assessment, policy , top management?

6.4 Do you have an inspection system' Plan do Act Check 'Cycle?

6.5 Is the OSH specialist part of Top management decisions and meetings?

6.6 Does Top management promote OSH and communicate it to the workers?(TOP DOWN APPROACH)

6.7 Have the workers been able to identify hazards on site and report them?

6.8 Do you think the employee involvement on OSH is adequate? Why?

7. Safety Culture:

7.1 How would you rate your company safety culture in terms of

-Management commitment

-Standard promotion

-Effective communication/ cross management culture

7.2 Was language a barrier?

Note: This questions refer to both Elbasan 2 and Cerrik Substation



APPENDIX H

Employee Information:

Occupation: _____

Experience of work: _____

Purpose of the Study:

The study aims to provide a local perspective of both management and employees working in challenging projects dealing with OSH issues/risks by focusing on the accidents/incidents/near misses issue, legislation, and management practices of the chosen company.

Questionare:

Rate from 1 to 5:

1. Are you being taken care of adequately when an injury happens? Emergency, hospital?
2. Are the Health and Safety Standards neglected in high time pressure projects?
3. Was it difficult to get back on track after any delays events/ suspension of work?

4. Have you been able to identify hazards on site and report them?
5. How difficult was the effective communication on the construction site?
6. How would you rate the clean conditions of the workplace?
7. Are all the necessary/required facilities (Adequate WC and hand washing facilities, Changing Rooms/ Staff Room (Rest Area) provided on the construction site?
8. How would you rate the transportation safety on the construction site?
9. How would you rate the injury risk of manual handling?
10. How is the company doing on raising awareness on its H&S policies?
11. How would you rate the electrical safety on the workplace?
12. Does the company provide you all the correct work equipments to perform the job?
13. Are all employees trained on using safely the equipments?
14. Does everyone have access to the PPE-s in order to perform the job safely?
15. How would you rate the adequate usage of the PPE-?
16. Does the company provide the right control measures in order to reduce the risk?

Note: This questions refer to both Elbasan 2 and Cerrik Substation.

