



**NORTH TECHNICAL UNIVERSITY**  
**FACULTY OF ENGINEERING IN APPLIED SCIENCES**  
**CAREER OF INDUSTRIAN ENGINEERING**  
**IBARRA - ECUADOR**

**ARTICLE ENGLISH**

**TOPIC:**

**"Development of the System of Occupational Safety and Health  
Implementation in Decentralized Autonomous Municipal  
Government of Guangzhou Cayambe"**

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## SUMMARY

This work is supported throughout its hierarchy in legal documents that relate to the safety and health of workers, such as in Article 326, paragraph 5 of the Constitution of Ecuador, Andean Community Standards (CAN), Conventions ILO international, Labor Code, Health and Safety Regulation and the Workers Improved Working Environment, Ministerial Resolution Agreements IESS.

Health at work, conditions and safety procedures are necessary for the welfare of both employers and employees, as it impacts economically the two parties.

Accidents and occupational diseases significantly affect the ability of an employee to properly perform their job responsibilities, taking into account that the damage factors cause lost time, production, real, this speaking role in the economy and many cases even loss of life. It is important that employers take steps to protect employees from the concerns of health and safety measures, since they are exposed daily to suffer ailments share work with his long working hours.

Occupational health and safety best practices are important because they help to prevent damage to the workers, and invite employees awareness of the potential dangers they face. The acts and unsafe conditions by employees and others within the workplace are of concern because they threaten a global wellness company. Businesses

should raise awareness for education and change a culture of its staff, which for many years safety work has been seen more as an expense rather than an investment. Advantageously applications with current regulations in our country has been improving satisfactorily on the importance of practicing safe habits in order to maintain a safe and healthy environment gives work.

The compilation of the Occupational Safety and Health of the Autonomous Government of the Canton Municipal Decentralization Cayambe (GAD CAYAMBE) is structured as follows:

Taking into account that the GAD Cayambe not have an organized system that allows control of the safety of their processes and the protection of the health of their workers; to achieve greater support for the company and contribute to a better performance. It has shaped the health and safety committee of the company, in order to set goals and responsibilities to each of its members, allowing greater organization and planning which involves preventive management.

## CHAPTER I

### 1. GENERAL CONTEXT AND LAW.

#### 1.1 Introduction.

Accidents and diseases are a constant threat in the workplace; for that reason today Ecuadorian legislation has focused on improving prevention of environmental risk, looking for one way or another to eliminate the dangers from the source

The achievement of a system that allows us to have a healthy and safe environment in each of the jobs is driven by the commitment of all the workers, but it is only possible from a sincere desire to change at all levels of the organization because it is not only to change the behavior or the way people work, rather than on the behavior of directives and middle managers. Nor is it to manage the behavior of workers without performing simultaneous actions on organizational culture, policies, physical conditions and environment, including specific aspects of the prevention needs of each organization.

## 1.2 Background.

Over the years there have been harmful contingencies in the Cayambe GAD from human, and material resources; to not have laws or regulations applicable to the Occupational Safety and Health under the current national legal framework in this field.

However, the concern of the authorities to improve safety and working environment, committed to fulfilling the preventive measures to ensure the welfare of workers.

## 1.3 Constitution of Ecuador.

The Constitution is the supreme law of our country, making it the foundation and source of the legal authority underlying the existence of Ecuadorian nationality and his government. No other standard is above it and any domestic or foreign person shall abide by each of its laws

The constitution in relation to safety, health and environmental improvement has in some of its titles, chapters, and articles the following:

- security

Ensures the inhabitants to live in a decent society through comprehensive security and solidarity aimed under democratic guarantees, fostering a culture of peace, free of corruption preventing all forms of violence to contribute to human security and improve esplendo all the lives of people

the right to a society with values that respect, in all its dimensions, the dignity of individuals and the community directing all their efforts to live in a healthy, safe environment with peaceful coexistence without discrimination of race or sex is recognized or other giving rise to maintaining the care and protection of nature to achieve the good life, sumak kawsay.

- health

Health is a right guaranteed by the state, which is linked to the exercise of other rights, including the right to water, food, education, physical culture, work, social security, healthy environments and other that support good living through economic, social, cultural, educational and environmental policies; and continuous, timely and without exclusion programs, activities and services to promote and comprehensive health care, sexual and reproductive health, as well as older adults, children and adolescents, pregnant women, disabled access, detainees and those who suffer from catastrophic illnesses or highly complex and

specialized receive priority attention in the public and private spheres. It will focus people at risk, victims of domestic and sexual violence, child abuse, natural or manmade disasters.

#### **1.4 International Conventions.**

The International Labour Organization (ILO), is centered on fostering a culture in each national preventative safety and health at work, this involves respect for the right to enjoy a healthy work environment and safe for all levels or stages of the activities performed by the worker, whether women and men, in conditions of freedom, equity, security and human dignity through a system of rights, responsibilities and duties, improving decent employment opportunities, the social protection and strengthen dialogue in handling work-related issues.

##### **1.4.1 World Health Organization (WHO).**

The World Health Organization (WHO) is the directing and coordinating authority principal on international and national health, with the goal of reaching all peoples of the highest degree of health . Is responsible to play a leadership role in global health matters , this organization is responsible for health research , setting standards, articulating policy options based on evidence , providing technical support to countries and monitoring and assessing health trends.

Among various functions we can mention the following:

WHO fulfills its objectives through the following basic functions:

- providing leadership on matters critical to health and engaging in partnerships where joint action is needed ;
- determine the research agenda and stimulating the generation , translation and dissemination of valuable knowledge ;
- setting standards and promoting and monitoring their implementation in practice;
- policy options articulating ethical and evidence-based principles;
- providing technical support, catalysing change and building sustainable institutional capacity ;
- monitoring the health situation and assessing health trends.

##### **1.4.2 Community of Andean Nations (CAN)**

###### ***1.4.2.1 Andean Instrument on Safety and Health at Work. Decision 584.***

It is a legal document that safety and health obey the member countries of the CAN committing to take all measures necessary to give effect to the provisions of this instrument in their respective domestic legal systems and also serves as a model to follow minimum guidelines compliance plan and establishment in each of the nationalities of the security system and health in which the fundamental rules is the basis for

the gradual and progressive harmonization of the laws and regulations governing the situations are set individual labor activities taking place in each of the Member Countries

This instrument serves simultaneously to promote in Member Countries adopting guidelines on management systems safety and health at work .

Among various points of the instrument is as follows:

- General Provisions ( Terms and definitions )
- Your security policy and health
- From the creation of workplaces
- Rights and obligations of workers and personal protection
- Sanctions

## **1.5 Codes and Laws**

### **1.5.1 Labour Code.**

The purpose of the Labor Code as well as mentioned in Art.1. The provisions of this Code governing the relationship between employers and workers and to the various terms and conditions of work apply.

All work activities will be regulated by this legal document and attached to all national and international laws as mentioned above; that safety and health should be given strict compliance.

### **1.5.2 Health Code**

Health as well mention WHO is the complete state of mental and physical wellbeing not merely the absence of disease or infirmity , thus considered

as a statement of comprehensive , biological, psychological , social and ecological well-being ; inalienable human right and that of the State as well as to all natural or legal persons, promoting their protection, recovery and rehabilitation.

This code is public order and in case of conflict shall prevail over any other law , with the following titles, chapters and articles personally chosen as most prevalent , leaving aside the importance of each of the items in this code indicates.

### **1.5.3 Social Security Laws .**

This law refers to the right of all people to be and maintain their social well being related to social protection is the protection of being socially recognized needs at national and international levels , such as health, poverty , old age , disability , occupational hazards, illness, death and other general compulsory being administered by the IESS to cover these contingencies.

The Social Security Act guarantees the right to health , health care , protection of livelihoods and social services necessary for individual and collective well-being as well as the granting of a pension , if any , subject to compliance legal requirements will be guaranteed by the State .

### **1.5.4 Public Service Law (LOSEP)**

The LOSEP is a normative document regulating public service, to which every one of the servants and servants of the institutions and agencies that make up the public sector is governed.

This standard is to establish policies , standards, procedures and tools that technical and operational enable state institutions , measure and improve organizational performance from an institutional perspective , units or internal processes , citizens and the competence of the human resources in the pursuit of the activities and tasks of the position.

## **1.6 Ministerial Agreements and Resolutions of IESS.**

### **1.6.1 Regulations on Safety and Health of Workers and Improving the Work Environment . Executive Order 2393.**

The provisions of this Regulation shall apply to all work activities and in any workplace , aiming at the prevention, reduction or elimination of work hazards and improving working environment .

This document focuses primarily on :

- Organization of workplaces.
- Committee and subcommittee safety
- Medical Service Company
- Unit health and safety at work
- Technical staff .
- Adequacy of infrastructure.
- Prevention of occupational risks .
- Security

These above points are strictly enforced for the start of the Management System for Safety and Health at Work.

### **1.6.2 Regulations for the Operation of Medical Services Company. Ministerial Agreement 1404.**

This regulation is a document that provides guidance for the proper performance for the application and implementation of the Medical Service Company and its professionals in charge. Will be based on the practical and effective implementation of Occupational Medicine , it 's main purpose is to maintain the overall health of the worker , which should result in a high state of physical , mental and social well-being of it..

### **1.6.3 General Insurance Regulations Occupational Hazards. Resolution No. 390.**

The new regulation replaces Resolution 741.

Resolution 390 is effective to fulfill the responsibility and response to IESS , covering the General Labour Risk Insurance all bodily injury and any morbid condition arising during or as a result of work done by the member, including those arising in commuting between home and workplace. In addition to regulating the obligation of employers to provide notice of the accidents that workers suffer damages ; and the employer's responsibility for risk prevention<sup>1</sup>

### **1.6.4 Safety and Health Regulations for Construction and Public Works. Ministerial Decision 00174.**

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<sup>1</sup> Fuente (IESS,  
<http://www.iess.gob.ec/documentos/resoluciones/noviembre2011/RESOLUCIONCD.390.pdf>,  
2011, pág. 3)

In order to regulate all activities of construction and civil engineering major benefit for workers according to the risk of accidents is that this regulation for the common good is created with the aim of countering threats often produced by the action of work; thus ensuring working conditions and worker rights .

## CHAPTER II

### 2. INDEPENDENT MUNICIPAL GOVERNMENT OF CANTON DECENTRALI CAYAMBE

#### 2.1 Introduction.

The authorities recognize that GAD is a critical need to protect the lives of people to counter accidents and diseases at work Cayambe, is obliged to implement preventive measures to take the institution to the highest levels of efficiency and thereby comply with the laws that today are increasingly stringent.

#### 2.2 Brief description Definition Management GAD Cayambe.

The GAD Cayambe is located in the province of Pichincha, Cayambe Canton . Currently in its management system has an organizational structure processes , one governing body of the local development processes and public service.

<sup>1</sup> The highest authority (Mayor ) is the Licdo . William Perugachi Cevallos and Vice Mayor Licdo . Anibal Gordon Flores.

In addition the institution has a group of councilors who pursue every step , the long-awaited development and local progress , such as:

Aldermen.

- Granda Raul Rodriguez
- Edwin Jame Guamaní
- Nestor Nepas Nepas
- Augustine Novoa Puga
- Well Yessenya Pichogagón
- Salvador Rojas

#### 2.2.1 Development Plan and Zoning.

Vision.

Cayambe in 2022 will be a happy, healthy , respectful and caring , intercultural, inclusive , with quality education and cultural identity society. It will be a canton Free, reliable , orderly, safe , participatory and responsible, an industrial agro- polo productive economic development concerning incorporating value-added information technology and communication in the production process , to provide job security with sufficient sources quality work and fair , a major eco and ethno - tourism destination with a strong institutional framework that promotes participation and responsibility under the principle of multiculturalism, sustainability , food sovereignty, social justice, solidarity and respect for human dignity.

### Geographic Location.

Province Pichincha, Cayambe Canton , the Cantonal Header called San Pedro de Cayambe. The canton covers an area of 1,350 km<sup>2</sup> , with a population of 69,744 inhabitants , being 57.95 % urban and 42.05 % rural population. Bounded on the North : Province of Imbabura, the Metropolitan District of Quito Canton borders the southwest , the southeast province of Napo , Sucumbios province east and west Canton Pedro Moncayo . Taking this as an identifier surface of 1,350 km<sup>2</sup>. Which has eight parishes divided as follows :

#### 2 Urban Parishes:

- Cayambe.
- Juan Montalvo
- Six rural parishes :
- Ascazubi
- Ayora.
- Cangahua .
- Otto .
- St. Rose of Cusubamba
- Olmedo .<sup>2</sup>.

#### **2.2.2 Central Building**

These facilities are the main administrative offices and addresses such as:

- Mayor - Vice Mayor
- Administrative Management
- Human Resource Management
- Financial Management
- Coordination of Technology, Information and Communications

- Coordination of Work Hygiene and Safety
- General Technical Coordination
- Coordination of Planning and Institutional Development External Relations
- Directorate of Social Communication
- Internal Audit
- From Address Council Secretariat
- Appraisal and Management Catastros
- Physical Development Directorate of the Canton
- Directorate of Human Mobility and Public Safety
- Office of Environmental Development
- Directorate of Territorial Development

#### **2.2.3 Municipal Campground**

In this installation are engineering workshops and maintenance of green areas, and consist of the following:

- Workshops
- Area of Parks and Gardens .

#### **2.2.4 Building Espinoza Jarrin.**

This building is considered cultural heritage , since its construction was carried out over a hundred years ago. Is based in Rocafuerte and Bolivar streets , next to the park July 23 .

These facilities include:

- Sustainable Management of Social Development :
  - Culture and Sports
  - Attention to Vulnerable Groups
  - Education and Recreation
  - Library
  - Museum
- Department of Tourism

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<sup>2</sup> Fuente (Cayambe,

<http://www.municipiocayambe.gob.ec/>, 2012)

### **2.2.5 Composting Area.**

This place is located in the area of Good Hope Guachalá. Here all organic waste collected from parishes to turn them into compost, obtained from the decomposition of organic waste used to fertilize and condition soil are deposited

All organic waste is dumped in the courtyard of the composting area for classification of a possible existence of inorganic waste is sorted mixed with products such as molasses , chicken manure , which allows a higher concentration of nutrients, then moved to a greenhouse to proceed to raise the beds and compost prepared.

You must remove the oxygenate fertilizer , while spraying with water to keep the humidity up to complete fermentation . Finally dons and marketed.

### **2.2.6 Landfill.**

It is located 4 kilometers from the toll Cangagua ( north south ) , in this place all inorganic waste has been collected from the parishes of the canton are deposited.

On this site enter inorganic waste was collected daily by garbage trucks gatherers , before landing the dump trucks ; should prepare the ground making a not so deep excavation. Once ready the ground, dump trucks deposit waste only to be uniformly covered by people who are in place with the respective equipment

## **CHAPTER III**

### **3. LEGAL TERMINOLOGY FOR THE IMPLEMENTATION MANAGEMENT SYSTEM TO OCCUPATIONAL HEALTH AND SAFETY ( PRL ).**

#### **3.1 Health**

This name is the state of complete physical , mental and social well-being. Not merely the absence of disease.

#### **3.2 Working**

It is every human activity that has the purpose of producing goods and services.

#### **3.3 Safety and Health (OSH )**

Is multidisciplinary science and art that deals with the assessment of working conditions and the prevention of occupational risks for the physical , mental and social well being of workers , promoting economic growth and productivity.

#### **3.4 Management System for Safety and Health at Work**

It is the set of interrelated and interactive elements that aim to establish a policy and objectives of safety and health at work and how to achieve them.

#### **3.5 Conditions of Work Environment**

Those elements, agents or factors that have significant influence on the generation of risks to the safety and health of workers.

### 3.6 Employer

The person or entity of any kind whatsoever, or for the account by which the work or to whom the service is provided is executed.

### 3.7 Worker

The person who undertakes to provide the service or execution of the work can be called worker and employee or worker.

### 3.8 Skilled Worker or Proficient

One worker more knowledge and experience in their specific field of activity, take into risk prevention within their execution.

### 3.9 Third Worker

They are workers employed in a company but have been hired by intermediaries or outsourcers.

### 3.10 Children and adolescents

Any person under 18.

**Fuente** (IESS, Instrumento Andino de Seguridad y Salud en el Trabajo. Decisión 584., 2004, págs. 229,234)

## CHAPTER IV

### 4. ORGANIZATION MANAGEMENT SYSTEM RISK PREVENTION OF CANTON MUNICIPAL CAYAMBE GAD.

#### 4.1 Organization Management System of Occupational Risks.

At Art 14 of Executive Decree 2393 mentions " In every workplace who work in more than fifteen workers must organize a Committee on Safety and Health at Work integrated into a parity of three employee representatives and three representatives of employers " ; and businesses that have more than one work center , will form subcommittees and Safety Committee more than in each of the centers to overcome the figure of ten workers , without prejudice to nominate a central committee or coordinator.

#### 4.1.1 General Structure of GAD Cayambe

##### 4.1.1.1 Workers and Employees of GAD Cayambe.

| <b>TRABAJADORES Y EMPLEADOS DEL GAD CAYAMBE</b> |               |            |                          |                        |
|---|---------------|------------|--------------------------|------------------------|
| <b>CLASIFICACIÓN</b>                            | <b>GENERO</b> | <b>N°</b>  | <b>N° DISCAPACITADOS</b> | <b>TOTAL EMPLEADOS</b> |
| <b>Empleados</b>                                | Masculino     | 69         | 3                        | 72                     |
|   | Femenino      | 56         | 1                        | 57                     |
|   | <b>TOTAL</b>  | <b>125</b> | <b>4</b>                 | <b>129</b>             |
| <b>Trabajadores</b>                             | Masculino     | 173        | 7                        | 180                    |
|   | Femenino      | 29         | 3                        | 32                     |

|                                       |              |            |           |            |
|---------------------------------------|--------------|------------|-----------|------------|
|                                       | <b>TOTAL</b> | <b>202</b> | <b>10</b> | <b>212</b> |
| <b>TOTAL EMPLEADOS Y TRABAJADORES</b> | Masculino    | 242        | 10        | 252        |
|                                       | Femenino     | 85         | 4         | 89         |
|                                       | <b>TOTAL</b> | <b>327</b> | <b>14</b> | <b>341</b> |

Tabla N° 1. Workers of the GAD Cayambe.. Fuente: (Quilumbaquín Navas, 2012)

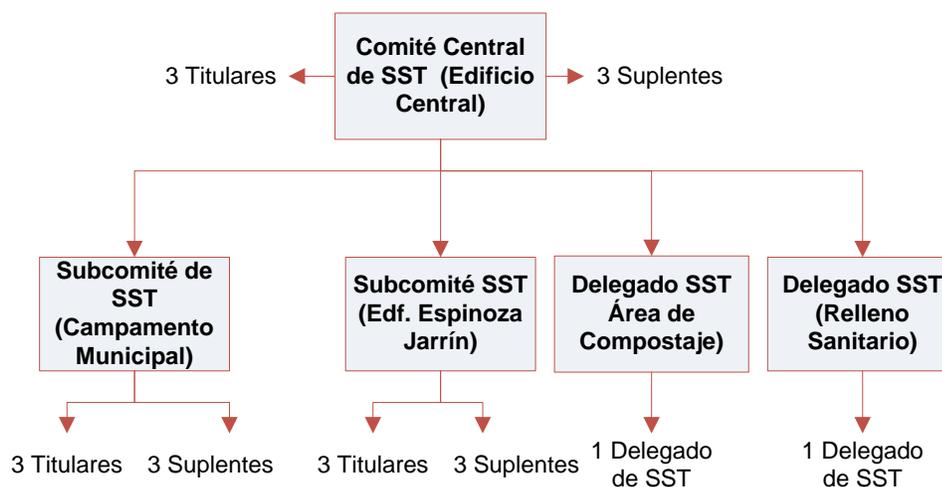
#### 4.1.1.2 Centros de Trabajo

| <b>CENTROS DE TRABAJO</b> |                    |
|---------------------------|--------------------|
| <b>Centro de Trabajo</b>  | <b>N° Personas</b> |
| Edificio Central          | 160                |
| Edificio Espinoza Jarrín  | 41                 |
| Campamento Municipal      | 129                |
| Área de Compostaje        | 8                  |
| Relleno Sanitario         | 3                  |
| <b>TOTAL</b>              | <b>341</b>         |

Tabla N° 2. Ranking Workplaces. Fuente: (Quilumbaquín Navas, 2012)

#### 4.1.1.3 Structure of the Health and Safety Committee.

##### COMITÉ DE SEGURIDAD Y SALUD – GAD CAYAMBE



Gráfica N°1. Committee on Occupational Safety and Health. Fuente (Quilumbaquín Navas, 2012).

#### **4.1.2 Joint Committee on Occupational Safety and Health .**

The COPASSO is an organism that makes up the organizational structure for administration and training centers must work together to create the company to comply with current legislation .

Taking into account that the GAD has 4 Cayambe workplaces begin forming the Central Committee and subcommittees respectively.

#### **4.1.3 Subcommittees Occupational Safety and Health.**

Subcommittees are formed organisms when the company has other work outside the womb or central building. Part of the organizational structure of the System Safety and Health of the institution.

Cayambe GAD has two workplaces exceeding ten permanent workers clearly states the law, and therefore it is necessary to form these subcommittees.

#### **4.1.4 Responsible for Occupational Safety and Health.**

The technical staff in Occupational Safety and Health should be accredited by the Ministry of Labour Relations and according to the table of skills and qualifications training.

#### **4.1.5 Delegates Occupational Safety and Health.**

The Delegate of Occupational Safety and Health is the representative of workers with specific functions in the prevention of risks at work.

#### **4.1.6 Unit of Occupational Safety and Health.**

This Unit is comprised of a multidisciplinary team , which has a head of SSO , leaders and delegates SSO for each of their workplaces , aims to preserve the health of workers, with the possible damage which may result risk factors present in the working environment, created under the principles of the disciplines of Health, Safety and Occupational Medicine, for the service of the institution.

#### **4.1.7 Medical Service GAD Cayambe..**

To promote and maintain the highest level of psychophysical health workers , placing greater emphasis on prevention and less time in recovery. The medical service of the institution will be provided by a general practitioner with expertise in occupational health

## CHAPTER V

### 5. IDENTIFICATION AND ANALYSIS OF OCCUPATIONAL HAZARDS OF GAD CAYAMBE

#### 5.1 Initial Diagnosis System on Occupational Safety and Health GAD Cayambe.

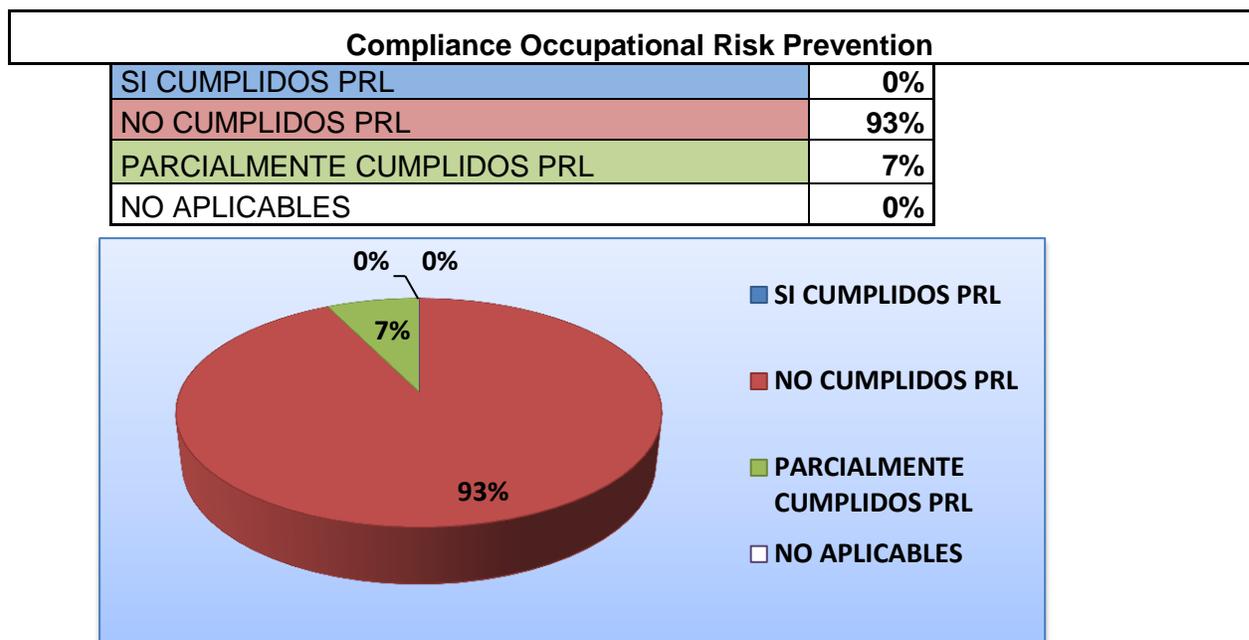
Currently the GAD Cayambe has begun the process of implementation of safety and health system , thus allowing them to strategic planning in the development of current and future activities.

The highest authority committed to profound changes in the institution, is committed to putting all their effort to carry out this project is seen as a new form of decent work for all workers , without leaving aside the progress community .

At this time the GAD , does not have a structured management system functions and responsibilities to enable the development of:

- Administrative Management
- Technical Management
- Human Resource Management
- Core Operating Processes .

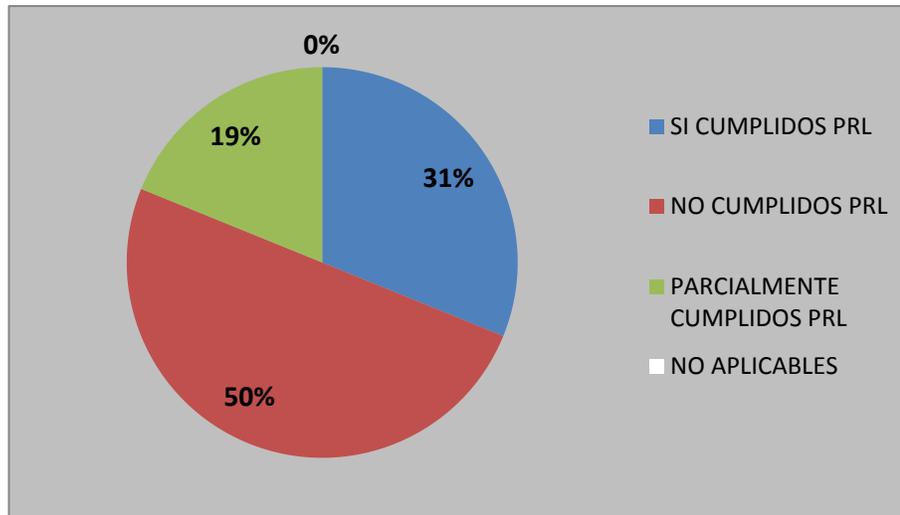
#### 5.1.1 Initial Verification Management System of Occupational Risks



Fuente: (Quilumbaquín Navas, 2012)

### Cumplimiento en Prevención de Riesgos Laborales

|                            |     |
|----------------------------|-----|
| SI CUMPLIDOS PRL           | 31% |
| NO CUMPLIDOS PRL           | 50% |
| PARCIALMENTE CUMPLIDOS PRL | 19% |
| NO APLICABLES              | 0%  |



Accordingly found in the following general shortcomings:

- Infrastructure
- Machines and Tools
- Electrical System
- Signs and Safety
- Personal Protective Equipment
- Training workers
- Documentation .
- Organization of Work Centers

#### 5.2 Procedure for Identification , Measurement , Evaluation and Control of Occupational Risk.

This procedure gives us a methodology and logical sequence to understand the development process of the evaluation of occupational hazards , with the aim of identifying

risk factors and dangers encountered when performing work activities , to eliminate or decrease by a preventive management and controls each of the processes of the facility.

Consequently, the process for the identification, measurement, evaluation and control of occupational hazard " SSO - PR- 001" was developed.

#### 5.3 Workplace id.

To make the identification of jobs began according to the areas set out in the functional organic. To which will be taken into account :

- a) Workplace
- b) Process / Activity
- c) Risks
- d) Exposure time

The identification of workplaces were divided according to the workplace .

- Municipal Campground
- Central Building
- Building Espinoza Jarrin
- Landfill
- Composting Area

#### **5.4 Weighting of Risk Factors.**

To assess the hazards has been conducted following the guidelines of the general procedure for the identification, measurement, evaluation and control of occupational hazard "PR -SSO -001" , and with reference to the analysis, the matrix format Hazard Identification , Assessment and Risk Control ( FO-SW -001) method Triple Criterion - PGV

#### **5.5 Risk Matrix**

The risk matrix allows us to visualize and evaluate the results of the estimates made in the original weight . Format Matrix Hazard Identification , Risk Assessment and Control ( FO-SW -001 ), Triple Criterion Method - PGV , which are:

- Moderate risk (3, 4 )
- Important risk ( 5, 6)
- Intolerable Risk (7, 8, 9 )

#### **5.6 Preventive Management.**

Preventive Management are all actions the institution must taken and is taking effect throughout the sequence of processes , both technical and administrative , thus becoming fundamental integral to the Management System Safety and Health GAD Cayambe , in order to avoid unwanted events that can cause accidents and diseases , using

the matrix format Hazard Identification , Risk Assessment and Control ( FO-SW -001) method Triple Criterion - PGV

#### **5.7 Policy Occupational Health and Safety**

It is a letter under legislation which commits us to identify and manage risks inherent in their activities workers , ensuring safe and healthy conditions for their operations work ; making compliance with the regulations and practices of Health and Safety at Work, with the sole mission of safeguarding the physical and psychological conditions of workers , the environment and motivate staff commitment .

#### **5.8 Regulation of Health and Safety at Work.**

The rules of Cayambe GAD workers is to establish the safety , health and environment , which must meet and respect the employer and employee of the institution

To provide policy management company must take into account the following requirements .

- This policy should be defined and approved by the highest authority of the institution
- It is appropriate for the nature of the institution , as the risks of the same
- Engagement with the preventive management to reduce injuries , illnesses, and continuously improve the system
- Commitment to meet the demands and legal requirements
- This documented , implemented and maintained

- Be communicated to all stakeholders (Employees , contractors , neighbors, etc. . )
- It is updated periodically.

### 5.9 Emergency and Contingency Plan

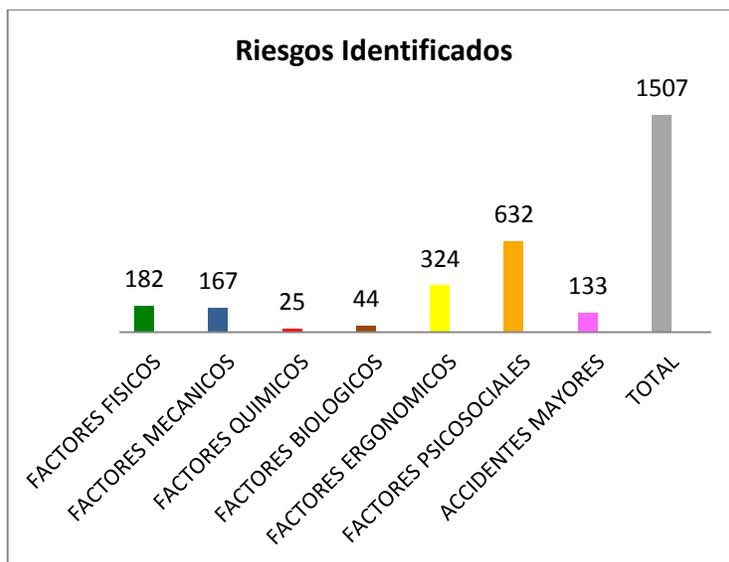
The Emergency and Contingency Plan defines procedures for prompt and coordinated action in emergencies ; event arising from human or natural activities in order to prevent, control , and reduce disasters or potential threats in GAD sucinten Cayambe.

### 5.10 Results of Risk Analysis by Departments -GAD Cayambe..

### 5.11 Final Results of GAD Cayambe

| RIESGOS IDENTIFICADOS  | N°          |
|------------------------|-------------|
| FACTORES FISICOS       | 182         |
| FACTORES MECANICOS     | 167         |
| FACTORES QUIMICOS      | 25          |
| FACTORES BIOLOGICOS    | 44          |
| FACTORES ERGONOMICOS   | 324         |
| FACTORES PSICOSOCIALES | 632         |
| ACCIDENTES MAYORES     | 133         |
| <b>TOTAL</b>           | <b>1507</b> |

Tabla N° 3. Total Identified Risk Analysis. Fuente (Quilumbaquín Navas, 2012)

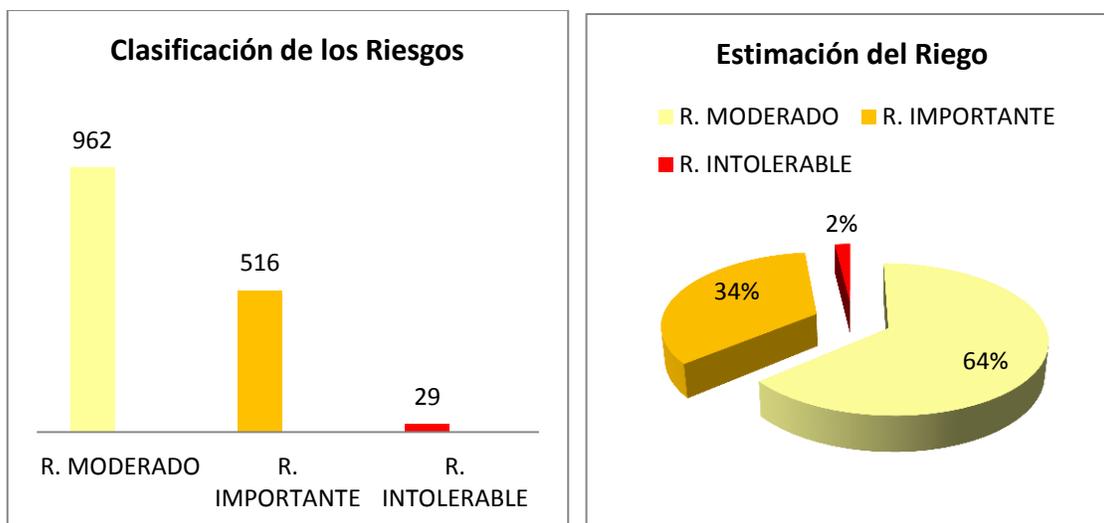


Gráfica N°2.

Analysis of Total Identified Risks. Fuente (Quilumbaquín Navas, 2012)

| ESTIMACIÓN DEL RIESGO | N° de Riesgos | PORCENTAJE (%) |
|-----------------------|---------------|----------------|
| R. MODERADO           | 962           | 64             |
| R. IMPORTANTE         | 516           | 34             |
| R. INTOLERABLE        | 29            | 2              |
| TOTAL                 | 1507          | 100            |

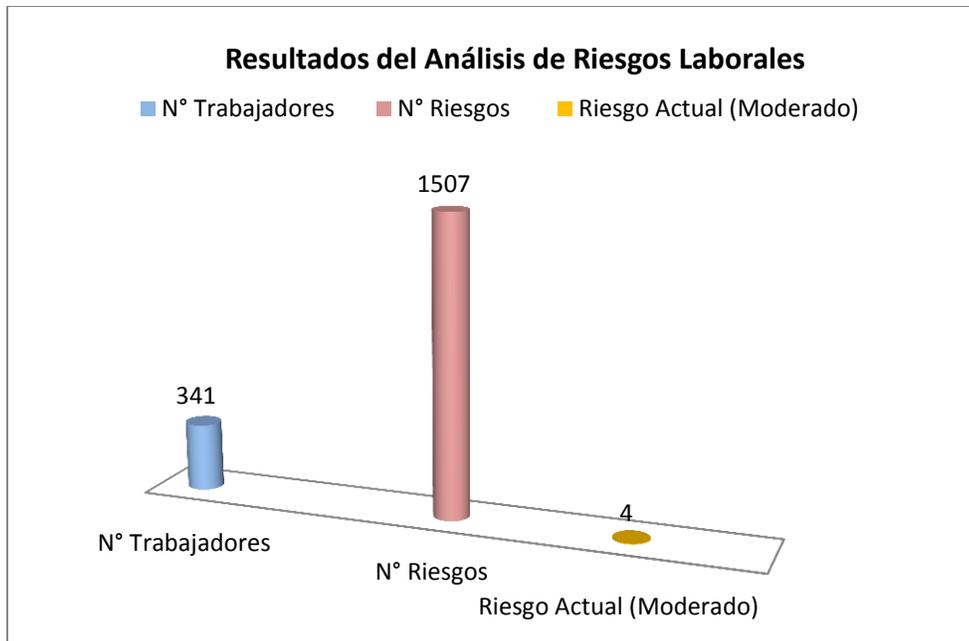
Tabla N° 4. **Estimated Risk.** Fuente (Quilumbaquín Navas, 2012)



Gráfica N°3. **Estimated Risk.** Fuente (Quilumbaquín Navas, 2012)

| GAD CAYAMBE     |                          |                          |                   |
|-----------------|--------------------------|--------------------------|-------------------|
| N° Trabajadores | N° Riesgos por actividad | Riesgo Actual (Moderado) | N° de Indicadores |
| 341             | 1507                     | 4                        | 78                |

Tabla N° 5. **Results of the Analysis of Occupational Hazards**

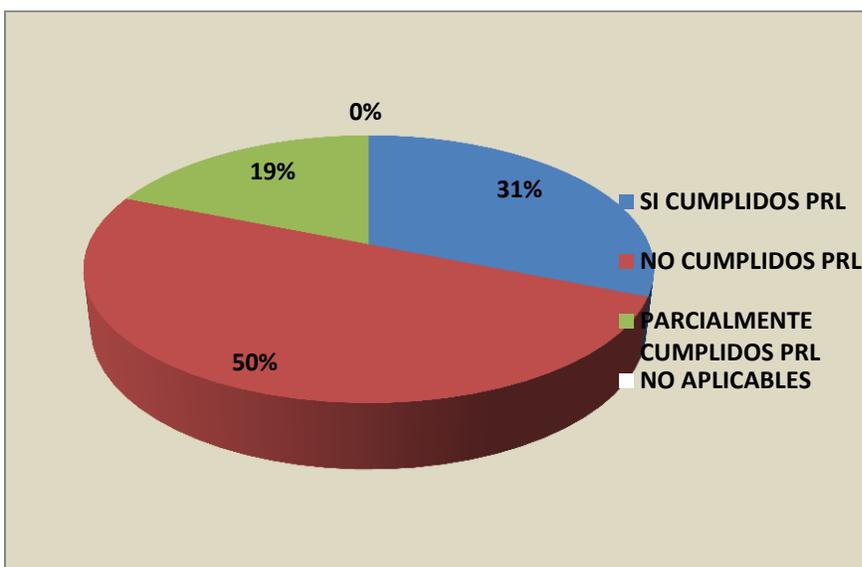
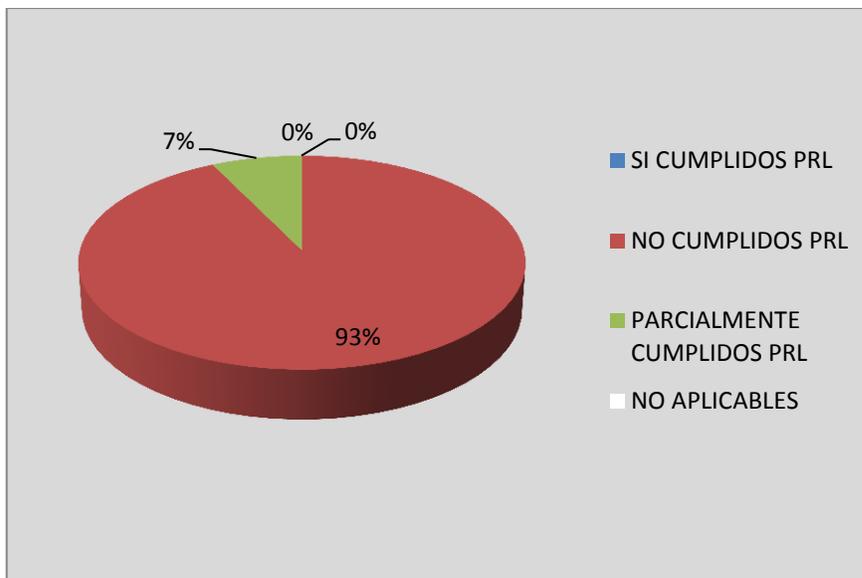


Gráfica N°4. **Results of the Analysis of Occupational Hazards.** Fuente (Quilumbaquín Navas, 2012)

#### 5.11.1 Comparison of Initial and Final Assessment System Risk Management Labour IESS (SGRT-IESS).

| % COMPLIANCE RISK PREVENTION |                             |       |
|------------------------------|-----------------------------|-------|
| N° de ítems evaluados        | Comparación Inicial y Final |       |
|                              | Inicial                     | Final |
| 123                          |                             |       |
| SI CUMPLIDOS PRL             | 0%                          | 31%   |
| NO CUMPLIDOS PRL             | 93%                         | 50%   |
| PARCIALMENTE CUMPLIDOS PRL   | 7%                          | 19%   |
| NO APLICABLES                | 0%                          | 0%    |

Tabla N° 6. **Enforcement in Occupational Hazards.** Fuente (Quilumbaquín Navas, 2012)



Gráfica N°5. Compliance Occupational Risk Prevention.  
Fuente (Quilumbaquín Navas, 2012)

## CONCLUSIONES

1. Chapter I, allows us to understand the fundamental basis of the applicable law relating to safety and health at work , you must meet the municipality.

The importance of these documents is that they have a law that promotes occupational health and safety , such as the Constitution of the Republic of Ecuador , the DE 2393 Regulation of Occupational Safety and Health of Workers and Improvement of the Environment Force, the Ecuadorian Labor Code and the conventions we have with ILO ,

among others. These are some of the laws that justify an implementation of health and safety at work within the independent companies of the activity they are involved or have some private insurance.

2. After completing the analysis and quantification of occupational risks , it was meet and make a comparison of the level of risk that each area and the preventive measure and / or control to be , to take , so it determines that the GAD Cayambe is classified at moderate risk , allowing also identify the critical areas such as mechanical maintenance , which has a high percentage of important and intolerable risk , as seen in the final results, and technical operations related to the deficiency that exists in its infrastructure.
3. Raised With the results in the matrix, is analyzed each of the risks, and then develop preventive or control measures , since workers are continuously exposed to risk. The possible negative consequences ranging from musculoskeletal disorders , skin conditions , eye irritation , nose and throat, hearing loss due to excessive noise is present in the areas of mechanical maintenance, composting , parks and gardens, the administrative department excels psychosocial and ergonomic factors . This mention some of the problems evidenced by risk analysis .
4. Organizing the workplace is an essential cornerstone for the realization of the technical and administrative procedures , for this

reason the creation of the Health and Safety committees allow continuous monitoring and improvement of the operations executed in institution , allowing to ensure the best working condition , and take every possible action to address harmful eventualities that develop daily by work activity.

5. Safety regulations and health was conducted as stipulated in the Ministerial Agreement 220. Through the results of the analysis and quantification of risks could give criteria clear in each of the articles in the paper provides rationale .

This Regulation shall be binding and observation by all workers at each and every one of the facilities belonging to GAD Cayambe ; himself for all staff of complementary activities that could work in the institution

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**Thinking is the hardest work there is. Perhaps this is the reason why there are so few people who practice it. Henry Ford**