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***GRADE WORK PRIOR TO OBTAINING THE TITLE OF INDUSTRIAL ENGINEER***  
  
***SCIENTIFIC ARTICLE***

**TOPIC: "Design and Implementation of a Plan for Occupational Safety and Health Landfill Decentralized Autonomous Municipal Government of Guangzhou Bolivar - Carchi Province."**

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**"Design and Implementation of a Plan for Occupational Safety and Health Landfill Decentralized Autonomous Municipal Government of Guangzhou Bolivar. - Carchi Province"**

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**Summary.** This paper develops grade Implementation of a plan Safety and Health at Work for Environmental Management Unit Decentralized Autonomous Government of Canton Bolivar, who is responsible for the administration and operational management of the landfill Canton Bolivar . In order to comply with current legislation (SART) and safeguard the lives of the workers.

Currently the Environmental Management Unit does not have a Plan of Occupational Safety and Health for the landfill of Canton Bolivar plan should be structured in accordance with all technical parameters established by the Ministry of Labor Relations.

Plans for Safety and Health at Work are the basis for active management of safety and health at work in public and private entities, in order to avoid the adverse effects of industrial accidents and occupational diseases, and also the environmental conditions that are unfavorable to the health of employees and workers.

**Keywords.** Unit of Environmental Management, Legal Regulations, Safety Plan, Safety, Health at Work.

## I. Introduction

Management of Occupational Risk Prevention is the scope of most current importance worldwide, which focuses its target on preventing occupational hazards and tends to expand to the environment and social responsibility, which must be part of the company and the commitment of the Directorate of the Organization for the benefit of prevention of occupational risks, development and business productivity.

Source: (Ecuadorian Institute of Social Security, IESS 2010)

The following research was conducted at the Canton Municipal GAD Bolivar, located at:

Province: Carchi

Canton: Bolivar

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The purpose of this project is to design and implement a Plan of Occupational Safety and Health for the landfill Decentralized Autonomous Municipal Government of the canton Bolivar, Carchi province, meeting the standards and technical parameters, giving this institution tool processes to ensure basic working conditions of human talent that articulates the activities at the landfill, promoting safer, effective, efficient work, minimizing, reducing incidents, accidents and occupational diseases through safety habits and health work.

Processes and activities performed at the landfill have risks, it is therefore necessary and justified design a plan Occupational Safety and Health that allows this administrative direction - meet operational responsibility for safety and hygiene.

### **Objectives.**

- Determine operational processes and applying specific Environmental Management Unit.
- Define the policy of health and safety at work of the Environmental Management Unit.

- Plan structure components of Occupational Safety and Health.
- Identify, evaluate risk factors according to occupational positions.
- Establish preventive measures of risk in occupational positions.
- Determine the assessment of the implementation of the Plan of Occupational Safety and Health.

### **II. Methodology**

The problem of this research and the objectives of this study were aimed at identifying, measuring and assessing risks, allowing us to obtain quantitative information in order to establish control measures to increase the level of security in the landfill Unit Municipal Environmental Management GAD Canton Bolivar.

The following research study consists of three stages.

1. Identification of factors of occupational risks at the landfill GAD Canton Municipal Bolivar.

2. Weighting factors identified occupational hazards
3. Prevention and control of the factors identified and weighted occupational hazards.

For identifying and evaluating and controlling risk factors or use the qualitative method Binary, it is based on severity and probability matrices, expressed as a frequency or feasibility of the damage.

### QUALITATIVE ASSESSMENT TABLE

		IMPACT		
		SLIGHTLY HARMFUL	HARMFUL	EXTREMELY HARMFUL
PROBABILITY	DOWN	Trivial risk	Tolerable risk	Moderate risk
	AVERAGE	Tolerable risk	Moderate risk	Moderate risk
	ALTA	Moderate risk	Important risk	Intolerable risk

Source: Mr. Fabian Silva MSc..

### IMPACT

- Slightly harmful: minor bumps, eye irritation
- Harmful: cuts, sunburn, minor fractures, minor disability
- Extremely Harmful: amputations, major fractures, injuries and fatal diseases.

### PROBABILITY

- Low: Damage will occur rarely.
- Media: Damage will occur at times.
- High: Damage always or almost always occur.

### RISK

- Trivial: is required to improve preventive action
- Tolerable: Not required to improve preventive action. It requires monitoring the effectiveness of controls.
- Moderate: You should consider reducing investment risk and determining a reasonable time. If the consequences are extremely damaging

more accurate assessment to determine the urgency of control measures.

- Important: Do not start work until you have reduced the risk, in the case of shares in a short course for implementing additional controls should be established term.
- Intolerable: Do not initiate or continue work to have reduced the risk. (Figallo, 2012)

### III. Results

With the required and obtained from the different methods and techniques applied information, we proceeded to an analysis of the levels of the landfill risks, according to the qualitative matrix or binary method where he analyzed the consequences, the probability of occurrence and the type of risk. Allowing obtain a qualitative picture of the level of risk.

Once the data obtained in this study proceeded to propose measures to control each of the risks, procedures for activities workers perform was created, which allows us to prevent, mitigate and reduce the risks.

The prevention and control of occupational risk factors to prevent accidents and occupational diseases in workers are the following:

- Housekeeping procedure for the Environmental Management Unit of GAD Canton Municipal Bolivar.
- Provision of personal protective equipment for workers in the Environmental Management Unit of GAD Canton Municipal Bolivar.
- Procedure for the selection, delivery and maintenance of protective equipment Environmental Management Unit GAD Canton Municipal Bolivar.
- Signaling Occupational Safety and Health facilities GAD Municipal landfill Canton Bolivar.
- Specific training for health and safety at work:
  - Training concepts of security and health at work
  - Training the proper use of personal protective equipment.
  - Training in ergonomic hazards.

- Training preventive maintenance plan
  - Human relations training.
- 
- Procedure for the control and management of pests and vectors
  - Procedure of preventive maintenance of tools and work equipment.

#### **IV. Conclusions**

- The operational processes of the landfill activities have not been outlined and documented so it can cause various negative events such as mechanical, physical, chemical, biological, ergonomic and psychosocial, in the implementation of solid waste management at the level of risks the operation of the landfill in the various occupational positions.
- The evaluation of risk factors was conducted in order to estimate the magnitude of those risks in

the workplace, operational processes that the human talent in the landfill, for which the risk identification matrix was applied to demands and is validated by the Ministry of Labour Relations for the security plans and health at work, by which it was determined that the estimated risk is tolerable 49%, are moderate 42%, it is important 7% and trivial 2% should be emphasized that in identifying risk factors found no intolerable risks.

- Personal protection and use of PPE is mandatory within the company so that all staff is aware of the mandatory use of it, however there is a smaller group that has confusion and ignorance on the use of PPE in specific activities and unhappy about the comfort of it.
- Through the training program in human relations you can create habits of insurance outside the workplace behavior, helping not only the company but also the community

- To fulfill the plan of occupational health and safety must be established considering document management aspects and more necessary and required procedures following the requirements and all technical parameters, regulated by the generally accepted principles and directed by the Ministry of Labour Relations and the IESS through the General Labour Risk Insurance.

## V. Recommendations

- Flow charts constitute an organized tool, essential to achieve technical compliance standards in the landfill activities and establish continuous improvements in performance management and which becomes a source of risk identification and work occupational positions.

- The methodology for evaluating occupational risks must be governed by the following phases: identification of jobs correlating with processes, analyze risks (identification of extreme dangers, risks, probability of occurrence and assessment). This information will be the basis for action planning and risk prevention measures.
- It should improve the training of specific use of PPE, and reviews of their functionality must be performed regularly and analyze the feasibility of acquiring a more ergonomic EPP.
- It is very important that training is developed in conjunction with the Human Resources department to consider psychological tests and other important data for this department to achieve greater effectiveness in analyzing the behavior of members of the company.



- The plan documentation occupational safety and health into line with the technical parameters regarding the structure of the document and must contain the following processes: training in safety and health at work of staff, delivery record of personal protective equipment to employees , health control register employees, registration of accidents.

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