

“System Design and Implementation of Safety and Health at Work in Decentralized Autonomous Government of San Pedro de Pimampiro”

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Summary. This thesis develops the implementation of a safety management system and occupational health in the San Pedro Municipal GAD Pimampiro, in order to comply with current legislation (SART) and safeguard the lives of the and workers.

The law stipulates the obligation to comply with legislation and regulations on occupational risk prevention established by law for both public and private companies, akin to avoid the adverse effects of occupational accidents and diseases, as well as environmental conditions detrimental to the health of workers. (RESOLUTION 957. CAN. Art. 11).

Keywords.

Employment regulations, Unit Safety and Health at Work, Safety Committee, Health and Safety Regulations in the Workplace, Emergency Plan.

1. Introduction.

The Management of Occupational Risk Prevention greater is the scope of current global importance, which focuses its aim on the prevention of occupational risks and tends to expand the environment and social responsibility, which should be part of the company and the commitment of the Directorate of the Organization for the benefit of

occupational risk prevention, development and business productivity.

Fuente: (INSTITUTO Ecuatoriano de Seguridad Social, 2010).

The present research was conducted in the San Pedro Municipal GAD Pimampiro located at:

LOCATION:

Province:	Imbabura
Canton:	Pimampiro
Parish:	Pimampiro
Sector:	Urban-San Pedro Pimampiro
Address:	2-032 Flowers and Imbabura
Phone:	06 2937117 06 2937118
Email:	municipio@pimampiro.org
Page. Web:	www.pimampiro.gob.ec

The health and safety risks, accidents and illnesses cause that bring unfortunate casualties, and economic life threatening Municipal GAD. So to avoid these drawbacks have enacted laws that regulate these labor woes, establishing businesses and institutions that implement the system safety and occupational health. In a mandatory, remain the responsibilities of the employers. Failure to comply with these legal obligations is subject to severe civil, administrative and even criminal.

Objectives:

- Know the legal regulations applicable occupational safety and health management system Municipal GAD
- Structuring the organization of the safety and health at work.
- Plan and implement the organization's health and safety system of the institution
- Apply the Legal Technical Instruments
- Perform the Working Rules and the contingency plan

Chapter 1

1.1 Rationale.

Brief description of the institution. In the Municipal GAD Pimampiro, risky work is carried out which are not controlled as best as it could give rise to an accident like the example of staff Portoviejo Township worker who suffered a serious accident due to negligence of its officers, for which the system is to implement safety and health at work to avoid accidents or occupational diseases taking into account the legal requirements applicable to the system of administration of safety and health at work.

Fuente: (Rosales Usuyay, 2009)

1.2 Applicable Legal Requirements Management System for Safety and Health at Work.

The Institution will feature a safety and health at work, in order to prevent occupational accidents and diseases and thereby carry out the evaluation SART.

The organization shall keep this information updated. Communicate information relevant legal requirements for their employees and other stakeholders.

Applicable legal requirements are:

a) Constitution of the Republic of Ecuador.

- b) Decision 584 of the Andean Community, Andean Instrument on Safety and Health at Work.
- c) Resolution 954 of the Andean Community, Andean Instrument Rules for Safety and Health at Work.
- d) International Conventions ratified by Ecuador. (15 agreements with the ILO)
- e) Labour Code.
- f) Social Security Act.
- g) Health and Safety Regulation Workers and Workplace Improvement (Executive Order 2393).
- h) Rules for the operation of Medical Services Company.
- i) General Rules of Work Injury Insurance.
- j) Organic Functional Regulation IESS.
- k) Specific Regulations:
 - Mine Safety
 - Safety for the Construction and public works.
 - Safety risks in electrical power installations.
 - Security dockworkers.
 - Safety for the use of asbestos.
 - Radiation Safety.
 - Protective for ionizing radiation spectrum.
- l) Technical Standards INEN.
- m) Ministerial Agreements.
- n) Resolutions IESS.

Fuente: (INSTITUTO Ecuatoriano de Seguridad Social, 2010).

1.3 Organizational Structure GAD Municipal Pimampiro

The organization has 120 employees including employees and workers themselves are distributed in different areas of work such as:

- Department of Planning
- Administrative Direction.
- Directorate of Public Works
- Directorate of Finance
- Head of Revenue and Valuation
- Head of Human Resources.
- Head of Culture, Sport and Recreation.

- Municipal Commissioner.

Fuente: (Social, Octubre 1978)

Chapter 2

2.1 Definition of Terms.

At this point discloses the terms and definitions used throughout the implementation of the system such as:

- Occupational Risk.
- Prevention Measures
- Workplace
- System safety management and occupational health
- Personal Protective Equipment
- conditions and working environment.
- Activities, processes, operations or high-risk work.
- Health
- Worker
- Member Country.
- National system of safety and health at work
- Service Occupational Health
- Occupational Disease.
- Work Accident
- Activities, processes, operations or high risk work
- Health and Safety Committee at work
- Subcommittee on safety and health at work
- Unit safety and health at work
- Contingency Plan
- Doctor on the job
- Occupational Incident
- Danger
- Occupational Health
- Health Conditions
- Risk Map
- Employer

2.2 Organization security system and health at work

- Committee and Subcommittee on Safety and Health at Work

In any workplace in which they work more than fifteen workers must organize a Committee on Occupational Safety and integrated into an equal number of three employee representatives and three representatives of employers, who shall appoint from among its members a Chairman and Secretary to last one years in office may be reelected indefinitely. If the President represents the employer, the Secretary will represent workers and vice versa.

Fuente: (Social, Octubre 1978)

- Unit Safety and Health at Work

In permanent companies have a hundred or more permanent workers; it must have a Health and Safety Unit, led by a skilled person who will report to the highest authority of the company or entity.

Fuente: (Social, Octubre 1978)

- Medical Service Unit

The Medical Service Company, which is based on the practical and effective implementation of Occupational Medicine will have as main objective the maintenance of health of the worker, which should result in a high state of physical, mental and social development of the same.

Fuente: (Social, Octubre 1978)

- Emergency Organization.

Specifically for each plant has a Contingency Plan and Emergency Response which includes procedures for responding to fires, spills, earthquakes, landslides, mudslides, floods, terrorism and health risks.

Fuente: (CINTEC S.A., 2000)

- Supervisors occupational safety and health

The Health and Safety Supervisor Labor plays important positions in the control and accident prevention company, especially in the areas of: Classification and Risk Analysis, Personal Protective Equipment, Development of Industrial Manuals, Accident Statistical Control, Committees of Safety and Occupational Health and Ergonomic Assessment Organization.

Fuente: (CINTEC S.A., 2000)

- Internal Audit.

Within this point indices are checked under Resolution 333 which is System Labour Risk Audits SART

Chapter 3

3.1. Organization according to risk, number of workers and workplaces

To find out what the institution must meet diagrapheme referring to compliance issued by the Ministry of Labour Relations in which you have to answer the following questions:

1. **What is he dedicated the company or the employer?** For the risk rating of productive activity

The Municipal GAD is a public company designated by providing Municipal services.

2. **What is the total number of workers that the company or employer in Ecuador?** To learn how to organize

The Municipal GAD currently has 114 workers between employers and employees and are distributed as follows:

- General Administration 9 Men and 10 Women
- Administrative Management: 14 Men and 4 Women
- Financial Management: 2 Men and 6 Women
- Public Works Management and Maintenance Project: 42 Males and 1 Female
- Planning, Development and Cooperation: 18 Men and 4 Women
- Tips and Projects: 2 Men and 2 Women

3. **How many workplaces have and where are they located?** (places, branches, agencies, fronts or projects)

The GAD Municipal features 4 work centers in which they operate the following entities:

- GAD MUNICIPAL: is the central building in which are located the headquarters and has 39 employees.
- MELGODEPRO: This project is located in the basement of the building CNT in the streets Flores opposite the park May 24 and has 3 employees
- MUNICIPAL BOARD: Located in the upper CNT building located in the streets facing the park Flowers May 24 and has 2 employees
- COMMISSIONER: It is located on Calle Juan Montalvo with room revelations of Canton and has 5 employees
- BODEGA MUNICIPAL: It is located in the pathway Cap. Aguirre Resort Next to the Spring and has 4 employees constant
- PROJECTS INFA: It is located on Calle Juan Montalvo in blast from Commissioner Municipal and has 2 employees constant.



Gráfico. 1.

COUNT ON EMPLOYER:

- Diagnosis or Risk initial examination that reflects the reality of each of the jobs identification and weighting matrix (A3 format, in color)
- Comprehensive Plan designed risk prevention or diagnosis based on initial review of risks and safety rules of procedure approved and current health (2 years).
- Security Unit and Medical Service, permanently installed and running during all work shifts workplaces.
- Workplaces with less than reference number will have the Health and Safety Manager.
- Technical Safety and Occupational Health Risk Prevention Officers have training accredited by the Ministry of Labour Relations and according to the table of skills and qualifications.
- Committee and subcommittees settle for joint 3 employer representatives and 3 representatives of the workers.
- Health and Safety Officer is elected by his colleagues in workplaces with 10 or fewer workers.

a. Organization of the health and safety committee at work

We must organize the committee the same occupational health and safety which will depend for a year to perform the activities according to the risks encountered in applying the three-part test matrix.

At this point has the council election certificate issued by the MRL, respectively signed.

b. Project to establish the safety and health unit at work

This section specifies the resource materials and staff in charge that carried forward to the unit safety and occupational health, also the equipment to be used therein.

c. Establishment of emergency brigades

The emergency squad should be structured in the following way:

What is an emergency brigade? Workers group is organized, trained and equipped to identify conditions that may generate risk and act appropriately controlling

emergencies or minimizing their consequences.

Who should be the brigade? It is recommended that members of the brigade meet certain characteristics:

- To be volunteers
- Representar all areas and shifts.
- Have stay within the institution.
- Poseer leadership that allows participation and creativity of other members.
- Estar in proper physical and mental state.
- Conoce the Institution and its process
- Be able and properly trained

How can they be emergencies?

1. Técnicas: Fire, explosion, escape of gases and vapors, structural failures in buildings, public order.
2. Naturales: Earthquakes, Earthquake, Flood and Windstorm.
3. Sociales: Epidemics, Crimes and Crime

What is included in the emergency brigade? It consists of three basic groups support.

1. Group fire.
2. Group first aid.
3. Evacuation Group

This includes the act of choosing different emergency brigades

Chapter 4

4.1 Occupational risk assessment method William Fine.

Identification was performed job hazard by applying the method CHEC LIST in each of the work areas.

QUALIFICATION OR ESTIMATE RISK QUALITATIVE - TRIPLE STANDARD METHOD - PGV			
probability of idea	Severity of Damage	of vulnerability	Risk Estimation

BAJA	MEDIA	ALTA	LIGERAMENTE DAÑINO	DAÑINO	EXTREMADAMENTE DAÑINO	MEDIANA GESTIÓN (acciones puntuales, aisladas)	INCIPIENTE GESTIÓN (protección personal)	NINGUNA GESTIÓN	RIESGO MODERADO	RIESGO IMPORTANTE	RIESGO INTOLERABLE
1	2	3	1	2	3	1	2	3	4 Y 3	6 Y 5	9, 8 y 7

RIESGO MODERADO	RIESGO IMPORTANTE	RIESGO INTOLERABLE
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Tabla. 1.

Fuente: Matriz para la evaluación de riesgos laborales Ministerio De Relaciones Laborales Ecuador.

ESTIMATE: Using a sum score of 1-3 for each parameter set a total, this data is essential to determine priority in management.

moderate risk	Important Risk	Intolerable Risk
4 Y 3	6 y 5	9, 8 y 7
Efforts should be made to reduce the risk, determining the necessary investment.	It should reduce the risk, determining the necessary investment. The risk reduction measures should be implemented in a given period.	Do not begin or continue work until reduced risk, even with limited resources.

Tabla. 2.

Elaborado por: Luis Cusicagua

Fuente: Método de triple criterio Ministerio de Relaciones Laborales.

After applying the three-part test matrix was detected different types of risks such as mechanical, ergonomic, physical, Psychosocial, Chemical, Biological, where you have to work every day and these are integrated into the work plan of the Committee SST to be addressed.

4.2. Committee Work Plan

The committee's work plan it develops according to the hazards encountered once applied the criterion matrix triple Like all requirements and regulations to comply formats are granted by the MRL and SGRT for committee work plan as is shown in Fig.

COMITÉ PARITARIO DE SEGURIDAD Y SALUD EN EL TRABAJO DEL GAD MUNICIPAL DE PIMAMPIRO												
Actividades planificadas acorde al Reglamento de Seguridad y Salud en el Trabajo	CRONOGRAMA ANUAL DE TRABAJO											
	ENERO	FEBRERO	MAZO	ABRIL	MAYO	JUNIO	JULIO	AGOSTO	SEPTIEMBRE	OCTUBRE	NOVIEMBRE	DECEMBER
Adscripción de las áreas de trabajo a los inspectores del distrito a partir del 2015												
Revisión de cumplimiento de la implementación y la ejecución en el Art. 153 y 156												
Capacitaciones en el uso y manejo de herramientas agrícolas y tipos de seguridad												
Contribuciones de ergonomía y responsabilidad en el lugar de trabajo												
Entrenamiento a través de simulaciones y colocación de señales de prevención de riesgos												
Capacitación para la implementación del sistema de S&S en las áreas de trabajo												
Satisfacción de roles de evacuación y señalización vehicular en las diferentes áreas												
Revisión del taller mecánico debido a la ubicación y colocación de baterías luminosas para el personal de trabajo												
Elaboración de todos los implementos necesarios y adecuados para los trabajadores ante las exposiciones (EPI)												
Verificaciones periódicas de mantenimiento de maquinaria y herramientas de los equipos y herramientas que utilizan personal de COPI y Medio Ambiente												
Elaboración de la mapa de trabajo adecuada, para realizar los trabajos de las áreas asignadas												
Verificar que se de mantenimiento preventivo a las instalaciones y áreas de trabajo con el fin de prevenir accidentes laborales												

Gráfico. 2.

Elaborado por: Luis Cusicagua
Fuente: Ministerio de Relaciones Laborales

4.3. Policy development

Once the current situation Pimampiro Municipal GAD in which is the highest authority has declared the following health and safety policy at work.

- Municipal GAD's commitment to provide safe working conditions and health to all those involved in its services and conduct their operations safely. The Health and Safety is a core value that must be incorporated into all aspects of our business.
- The mayor is responsible for the prevention of accidents and occupational diseases clear action to improve the conditions and working environment in which workers perform all the Municipal GAD.
- The institution will provide a safe and healthy working environment and in turn, we hope that everyone that contributes to the maintenance of safe environment with responsible behavior and active and visible commitment of each.
- The Municipal GAD has a structured plan of Occupational Safety and Health suited to the needs of the organization in order to identify, prevent, manage risks and maintain continuous improvement projects aimed at preventing disease and accidents.

- Considers the continuous training of our staff is key to achieving the goals and objectives of the Committee on Safety and Health at Work and therefore the Municipal GAD, creating a safety culture that will promote the organization to the highest standards quality.
- The Municipal GAD recognizes that a job well done, it is possible under the due compliance with the Health and Safety standards. It is because in pursuit of higher productivity should take into account these aspects. As organizational priority will be allocated financial and human resources as well as a continuing administrative management staff likely to implementation and enforcement of policies, processes and standards developed by the Committee related to the Occupational Safety and Health as a way to ensure the following objectives and goals: Compliance Regulations governing the Health and Safety at Work
 - The psychophysical integrity of its employees.
 - The protection of the environment.
 - The protection of company assets.

4.4. Regulation of safety and health at work

In the current health and safety regulations at work establishes the rights and obligations of each of the workers, in addition to a very encuesta taken risks in the institution to act on them in the most emerging and safe. This regulation contains:

- Health and Safety Rules
- The municipal mayor GAD Pimampiro
- Regulatory requirements
- the system of health and safety at work
- Risk prevention in vulnerable populations
- From prevention of risks inherent to the local gad
- From major accidents
- From health surveillance of workers
- the registration and investigation of incidents and accidents
- From the information and training in risk prevention
- From protective equipment
- In environmental management
- General arrangement

4.5. Emergency Plan

The Contingency Plan - Emergency provisions intended to respond adequately to the various emergencies that may

occur are these (fires, explosions) or any action which may arise from injury to persons, damage to facilities, business interruption or degradation of the environment, thus obtain the least potential effects on all of them.

The process to create a contingency plan is determined by the following parameters:

1. La identification and assessment of potential risks possible.
2. La determination or inventory of existing protection means
3. The establishment of the most appropriate organization of people who should be involved, defining the functions to be performed by each of them in the course of the various possible emergencies, establishing the chain of command and the procedure for starting the proceedings when it occurs alarm.
4. And finally implementing the emergency plan evacuation procedures by the general dissemination among employees.

2. Conclusions

- The design of the System Safety and Health (OSH) - San Pedro Municipal GAD Pimampiro, I performed as stipulated in the "Regulations on Safety and Health at Work" (Decision 584, Resolution 957, Agreement 1404, Decree 2393, Resolution 333, among others.).
- The current situation analysis determined that the Municipal GAD Pimampiro, has a high level of uncertainty regarding all aspects of the management of Health and Safety at Work.
- We performed the Health and Safety regulations Workers based on the risks identified by three criteria matrix PGV.
- Policy was developed occupational health and safety in order to commit the ultimate authority to enforce and ensure the health and safety of each worker.
- It is completed and approved by the fire department emergency plan of the institution in order to know how to respond to an emergency is either natural or artificial.
- Composed, arranged and in the process of legalizing the Committee on Occupational Safety and Health Institution.
- The unit Safety and Health at Work Pimampiro Municipal GAD, formed for the purpose of

ensuring the safety and health of workers and training in regard to Health and Safety at Work.

- In order to protect health and prevent all accidents and worker employee has a training plan that meets the same working methods to use, proper management tools and create a culture of safety among workers.

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About the Author

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I was born on September 5, 1988, in Canton Pimampiro. My parents are Wilfrido Cusicagua and Carmen Puerres, I am the fourth of six children.

My primary studies conducted in the Canton school Pimampiro Antonio Ricaurte, then log in to make my high school at the National College Pimampiro, where I obtained a Bachelor of Mathematical Physical specialization, then go to North Technical University to specialize at a higher level career to opt for the Industrial Engineering degree.

"If you plant the seed of faith and perseverance care with only a matter of time reap the rewards."

Thomas Carlyle

"Bureaucracy is the art of making the difficult easy through the useless".

Carlos Castillo Peraza