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ORIGINAL RESEARCH

Occupational Safety and Health in Peru

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Abstract

Peru is a country located on the Pacific coast of South America with a population of more than 30 million inhabitants. In the past 10 years, Peru has had a steady economic growth. Peru is predominantly an extractive industry country, but the manufacturing and construction sectors are booming. It is in this context that regulations have been implemented to protect the safety and health of workers. One of the most important regulations is the Law on Safety and Health at Work, which has been recently promulgated. Regulations are complemented by training and education in occupational safety and health. The measures are yet to be fully implemented thus a positive effect in reducing accidents and occupational diseases at work has not yet been seen.

KEY WORDS safety, occupational health, Peru, accidents at work, occupational disease

AREA AND POPULATION

Peru is located on the central Pacific coast of South America and borders Colombia and Ecuador to the north, Bolivia and Brazil to the east, and Chile to the south.

The surface area of Peru is 1,285,216 km^2, with a political administrative division comprising 24 departments, a constitutional province, 195 provinces, and 1845 districts.

In 2014, 61.4% of the inhabitants of Peru concentrated mainly in the departments of Lima, La Libertad, Piura, Cajamarca, Puno, Cuzco, and Junin.

Nationally, the population density is 24 inhabitants/km^2, being higher in the Constitutional Province of Callao (6803.5 inhabitants/km^2) and in the departments located on the coast. Considering the density by departments, Lima has a density of 278.3 inhabitants/km^2 followed by Lambayeque 87.9 inhabitants/km^2, La Libertad 72 inhabitants/km^2, and Piura 51 inhabitants/km^2. In contrast, departments such as Madre de Dios, Loreto, and Ucayali (located in the jungle region) have the lowest population density, with less than 5 inhabitants/km^2.

According to the National Institute of Statistics and Informatics, the estimated population for 2014 is 30,814,175 inhabitants, 15,438,887 of who are men and 15,375,288 are women. The annual growth is 339,000 people. It has been estimated that 581,450 children were born and 172,731 people died in 2014, which was equivalent to a natural growth rate of 13 per 1000 inhabitants. Net international migration balance (immigrants minus emigrants) shows a loss of 70,046; thus the annual growth for 2014 amounted to 338,673 representing the growth rate of more than 11 per 1000 inhabitants.

SOCIOECONOMIC DATA[1-7]

The Peruvian economy has shown a high dynamism in the past decade with growth rates above the

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average for the countries of the region. In 2014, the economic growth was 2.9, and the expected rate of growth for 2015 is 5.3. Likewise, inflation in 2014 was 3.0 and for 2015 has been estimated at 2.7, according to the Association of Pension Fund Administrators. This is due to the management of macroeconomic policies and increased competitiveness in exportation, which constituted the main drivers of Peruvian growth. Increased competitiveness, however, is due to external factors such as an increase in the price of raw materials (such as minerals for exportation).

From a socioeconomic perspective, the evolution of poverty has been favorable for several indicators that show a reduction of about 50% between 2001 and 2011. This was not only because of economic growth but also the implementing of important social measures that were prompted by the favorable social context.

The labor market has shown an evident recovery in the evolution of unemployment and job quality. The level of unemployment has maintained a downward trend. The recovery in terms of job quality is evident in the evolution of indicators of social protection and registered employment.

The Inter-American Development Bank (IDB) listed the following indicators:

- Annual unemployment rate: 6.04% (2013).
- Gross domestic product (GDP) growth of 5.0 (2013).
- Poverty rate (income below US$2.5 per day): 15.5% (2013).
- People belonging to the middle class: 30,879 (2014).

The top 5 sectors in terms of employment (which accounts for more than 50% of employment at national level) are construction, transport, communications, agriculture, and hospitality. The construction sector has the highest growth, with employment levels that could be doubled by 2020. The trade sector maintains a stable development, whereas the agricultural sector is the only one that estimates a decrease in demand work. These sectors are characterized by high informal work.

Changes in population structure such as urbanization and demographic transition interact, modifying the epidemiological profile of Peru and thus the pattern of demand for health services. These changes in the epidemiological profile coincide with the relative incidence of causes of death. There is a decrease in infectious diseases and conditions in the perinatal period, in contrast, there is an increase in chronic and degenerative diseases and death by violence or external causes.

To assess the Peruvian epidemiological transition it is useful to monitor costs on health services, which in 2005 reached 4.5% of the GDP. Health expenses have remained relatively stable since the 1990s; health expenses in the 2013 were 5.3% of the GDP. The following health indicators are identified:

- Life expectancy (Table 1).
- Human resources in health (Table 2) Infant mortality rate: 17 per 1000 infants born.

Infant mortality is higher in the southern Andes of Peru, an area where poverty, abandonment, and very low temperatures converge. Departments on the coast have a lower mortality rate.

For the period 2010-2015, differences in the crude mortality rate average are expected to be less pronounced than those for the period 1995-2000. For the period 2010-2015, the lowest crude mortality rate corresponds to Callao, Tumbes, and Madre de Dios and the highest rate corresponds to Puno (7.01 per 1000), and the average will be 5.52 per 1000 (Figure 1).

LEGISLATION ON SAFETY AND HEALTH AT WORK[8]

In August 2011 Law 29783 on Safety and Health at Work was promulgated. The law entails a number of requirements aimed at creating a culture of prevention of occupational hazards in the country. Compliance with this law is enforceable in all companies operating in Peru.

To meet the objectives of the law, a prevention strategy must be developed with levels of responsibility:

- Government: through inspection and supervision.
- Company: through prevention.
- Worker: through participation.

Peru has established the National System of Health and Safety at Work, which consists of the National Council for Safety and Health at Work

Table 1. Life Expectancy

Year	1995-2000	2000-2005	2005-2010	2010-2015
Age (years)	68.3	69.8	71.2	72.5

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Table 2. Human Resources in Health

Population 2012	Number of Physicians	Number of Nurses	Number of Obstetricians
30,135,875	33,669	33,491	11,533

and the Regional Council for Safety and Health at Work. Both councils are composed of representatives of the Ministry of Labor, Ministry of Health, Social Health Insurance, private companies, and national workers.

Historically in Peru, regulations that have dealt with labor rights before risk for accidents and occupational diseases have not had a continuity that builds a doctrine and orderly and permanent legal structure.

Because the first regulations related to safety and health at work were established in 1908 to the present, 80 legal regulations in this area have been issued. At the same time, 70 international conventions and 30 International Labor Organization (ILO) recommendations have been signed and ratified.

Before the issuance of Law 29783 on Health and Safety at Work, a Reglament on Safety and Health at Work had been promulgated in 2005. This reglament came from the Law on General Labor Inspection, which was established in 2001.

Reglament on Safety and Health at Work was prepared by a commission formed by the Department of Labor, Department of Health, Department of Energy and Mines, Department of Transport and Communications, Social Health Insurance, Department of Agriculture, and representatives of employers and workers. A commission of labor and social security of the Congress revised and updated it.

Changes on the Reglament on Safety and Health at Work were made in order to give it the category of law.

The following are some important points of the Law on Safety and Health at Work:

Universal Safety and Health at Work

The law applies to workers in the private and public sectors, armed forces, national police, and independent workers (the previous Reglament on safety and health at work applied only to private industry dependent).

Gender Dimension

The precautionary principle incorporates gender (male/female) in occupational health. It strengthens the protection of pregnant workers, who have the right to be transferred to safe positions regardless of their category or remuneration. The employer should adopt a gender perspective in the initial assessment and hazard identification.

Joint Committee

For installation of the Joint Committee and the issuance of Safety Rules, the employer must have at least 20 employees (previously the minimum was 25 workers to establish a Joint Committee).

Labor Union Participation

If there is a union in the company, it may designate a representative as an "observer" in the Joint Committee. The Department of Labor will notify the union representative in case of issuance of the outcome of any investigation.

Compensation for Injuries

At the failure of the employer to take preventive measures that generated an accident or occupational disease, compensation costs are assumed by the employer.

Scope of Prevention

The employer's duty of prevention not only covers the work carried out within the workplace but also the work done outside the workplace, out of working hours, and even during work mobilization.

Management System Safety and Health at Work

The employer must provide at least 4 trainings a year about issues on Safety and Health at Work.

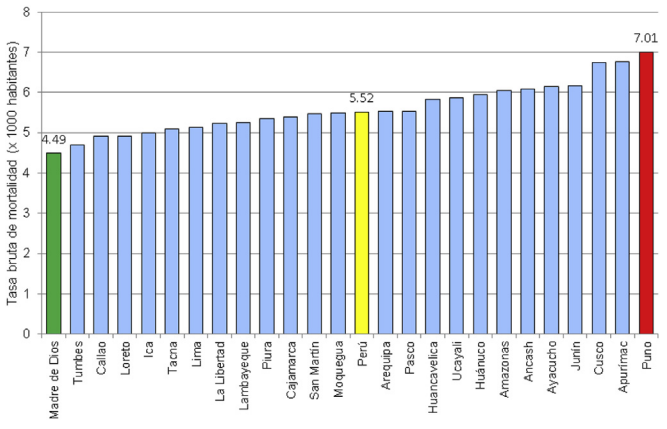

Figure 1. Estimated crude mortality rate by department 2010-2015.

The employer must provide licenses for workers to participate in training courses on safety and health at work. The employer must develop a risk map with the participation of trade unions. At the time of hiring, the employer must attach the recommendations for safety and health at work.

Sanctions

Peru has changed its penal code regarding the definition of a crime when it occurs against safety and industrial hygiene.

Now, this crime is typified by not adopting preventive measures for safety and health at work established by law. It is not necessary for injuries to be detected. Failure to adopt these measures could lead to imprisonment for not less than 1 year or more than 4 years. The offense is aggravated if death occurs; this would lead to imprisonment of not less than 4 years or more than 8 years. Should serious injury occur, the employer could be imprisoned for not less than 3 years or more than 6 years.

One of the features of the Law on Safety and Health at Work is empowering the Department of Labor to monitor, control, and sanction employers. The National Superintendency of Labor Inspection, an agency of the Department of Labor that performs its function through labor inspections throughout the country, including the safety and health at work, was established in December 2012.

ACCIDENTS AT WORK AND OCCUPATIONAL DISEASE INSURANCE

Social Security is a recognized fundamental right and is governed by several principles including universality, integrity, solidarity, and internationality.[9–12]

Social Security covers the medical care and benefits in case of accidents at work or occupational disease.

The ILO has established Convention 102 relating to the Minimum Standards of Social Security, and Convention 121 relating to benefits for accidents at work and occupational diseases[13].

Latin America Convention 102 has been ratified in most countries (Table 3). Only a few countries (Ecuador, Mexico, Venezuela) have accepted part VI relating to benefits for accidents at work and occupational disease. Bolivia, Chile, Ecuador, Uruguay, and Venezuela have ratified Convention 121.

Table 3. Ratification of Convention 102 by Country in Latin America

Country	Parts Accepted	Country	Parts Accepted
Argentina	None	Honduras	II, III, V, XIII, IX, X
Bolivia	II, III, V, X	Mexico	II, III, V, VI, VIII-X
Brasil	II-X	Nicaragua	None
Chile	None	Panama	None
Colombia	None	Paraguay	None
Costa Rica	V-X	Peru	II, III, V, VIII, IX
Cuba	None	Rep. Dominicana	None
Ecuador	III, V, VI, IX, X	Salvador	None
Guatemala	None	Uruguay	II, IV, VII, VIII
Guyanas	None	Venezuela	II, III, V, VI, VIII-X

Protection against accidents in Peru has evolved over time as follows:

- First decade of the 21st century: promulgation of Law 1378 on Accident at Work.
- January 21, 1935: Promulgation of Law 7975 in which compensation for diseases such as pneumoconiosis and gas poisoning was considered.
- April 29, 1971: Promulgation of Decree Law 18846, which gave coverage to all workers.
- May 17, 1997: Promulgation of Law 26790 on Social Security in Peru. This provides coverage to affiliates of the Social Security who engage in high-risk work activities.

After the promulgation of Law 26790, the Supreme Decree 003-98 was published. The decree established technical standards of Complementary Insurance for Hazardous Work (CIHW).

CIHW provides coverage for accidents at work and occupational diseases to workers covered by social insurance. CIHW provides coverage for the following 2 areas:

- Health costs: Costs that are incurred in relation to medical expenses for accidents at work and occupational diseases.
- Pensions: Benefits for permanent disability, for survival (benefits for family in case of death), compensation for disability, and funeral expenses.

CIHW only considers companies that perform high-risk activities. The list of work activities considered high risk includes fishing, mining, coal mining, and construction.

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Table 4. Benefits from Complementary Insurance for Hazardous Work

Degree of Disability	Impairment	Benefit	Payment Type
Great disability	Dependent on others	100% average remuneration	Annuity
Total permanent disability	Impairment >66.6%	70% average remuneration	Annuity
Permanent partial disability	Impairment between 50% and 66.6%	50% average remuneration	Annuity
Permanent partial disability	Impairment between 20% and 49%	70% average remuneration X% Impairment × 24	Single payment

In Peru, CIHW is provided by private and social insurance. Benefits from CIHW are provided according to the degree of impairment (Table 4). The manufacturing sector has the highest number of reported accidents at work (Fig. 2); however, this is not included in the list of high-risk activities.[14] Therefore, workers engaged in activities not on the high-risk list, could be vulnerable.

CIHW does not cover occupational accidents that occur during the commute to and from the workplace.

Coverage for disability pension starts at completion of the maximum period of temporary disability allowance (11 months and 10 days) covered by social insurance. If the worker does not have social security, he or she would not receive disability coverage.

According to socioeconomic indicators, the economically active population rose by 6% in between 2009 and 2013.[15] The affiliates to CIHW rose by 74% in the period from 2009 to 2012 (Table 5).

In 2012, CIHW had 978,000 affiliated workers and the economically active population was 15,541,000. Therefore, of approximately every 16 workers in the economically active population, only 1 was covered by the CIHW, which demonstrates insufficient protection considering that insurance coverage for accidents at work and occupational disease is a fundamental right that must be universal.

The population covered by Social Security[16] and included in the employed economically active population (EEAP) and performing high-risk activities is about 9,879,000 (Fig. 3). Consequently, of every 10 workers in EEAP performing high-risk activities, only 1 is covered by the CIHW.

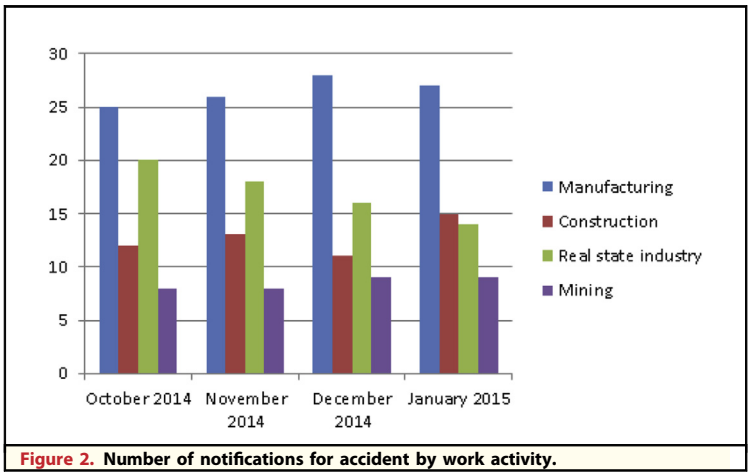

Figure 2. Number of notifications for accident by work activity.

STATISTICS OF ACCIDENTS AT WORK AND OCCUPATIONAL DISEASES

Law 29783 on Safety and Health at Work was promulgated in 2011. It is from this point that the management of occupational safety and health takes an boost, with highs and lows, to ensure the safety and health of workers in Peru.

Law 29783 not only indicates the need for statistics, as one of the functions of the Regional Council for Safety is to implement notification of occupational accidents and diseases, but also indicates who must report accidents and occupational diseases (companies and medical centers). Table 6 presents 2011 statistics before the promulgation of Law 29783 and Table 7 presents statistics from 2012, when Law 29783 was implemented.

When comparing the results from 2011 with those from 2012, an increase in accidents reports can be seen. The implementation of the Law on Safety and Health at Work required medical centers and companies to report incidents, enabling a more serious incident statistics system to be developed.

In 2013, the Law on Safety and Health at Work was already implemented and the statistics were required in formats and documents. Table 8 presents 2013 statistics.

In 2014, measures that reduced the fines to violators of Law 29783 were issued, and also the requirements to be met by companies in safety and health declined in some aspects. Table 9 presents the statistics from 2014. These statistics demonstrate that the number of accident reports decreased in

Table 5. Insurance Indicators (Numbers per Thousand)

Indicator	2009	2010	2011	2012	2013
EAP	15,448	15,735	15,949	16,142	16,328
Employed EAP	14,757	15,089	15,307	15,541	15,683
Affiliates to Social Health Insurance	8143	8627	9129	9786	10,296
Affiliates to CIHW	561	695	777	978	
EAP employed/affiliates CIHW rate	26.30	21.71	19.70	15.89	

CIHW, Complementary Insurance for Hazardous Work; EAP, economically active population.

2014. In 2011, Law 29783 had not been implemented and the number of accident reports was low. After implementation of the law in 2013, the number of reports increased, formats had been implemented, training was provided for the development of statistics, and information flowed from both medical centers and companies. In 2014, the rules were more flexible and the number of reports started to decline (Table 10).

Since the implementation of Law 29783, the number of fatal accidents has declined due to implementation of safety measures, and although in 2011 the number was lower, this probably was because of lack of notification.

It is important to note that the data in the tables is displayed in absolute numbers, and the trend could present some kind of bias, thus not showing an adequate rate for comparison. In contrast, the mining sector reports accident indicators through rates that consider frequency and severity of accidents and the man hours worked. Comparison of accidents data between mining companies has more accurate trends.[17] Unlike other sectors, the mining industry implemented a safety and health management system before the promulgation of Law 29783 because of the hazards and risks inherent in this industry.

The formulas for accident indicators in the mining sector are:

- Frequency rate: number of lost day and fatal accidents × 10,000,00/man hours worked.
- Severity index: Lost days × 10,000,00/man hours worked.

TRAINING IN OCCUPATIONAL SAFETY AND HEALTH

Training programs in occupational safety and health are carried out through postgraduate programs in different public and private universities located mainly in Lima.

The following are the main training programs:

- Specialty in occupational and environmental medicine.
- Master program in occupational and environmental medicine.
- Master program in occupational and environmental health.
- Master program in ergonomics.
- Specialty in occupational nursing.
- Master program in prevention of occupational hazards.

CONCLUSIONS

Economic growth and industrial development have been favorable due to implementation of measures that protect workers. This protection is provided by the government and by employers as an integrated system.

Since the promulgation of Law 29783, companies have been adapting an occupational safety and health management system that previously had not been paralleled by an adequate inspection system or supervision by the government.

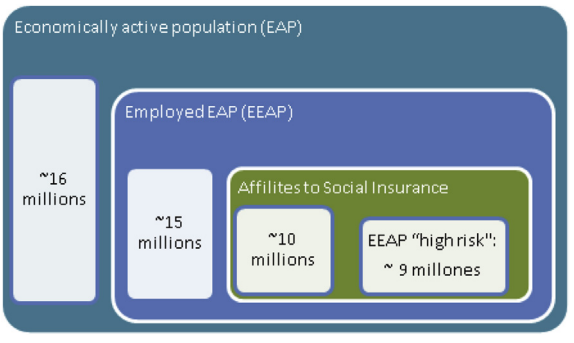

Figure 3. Proportion of population and insurance affiliates. EAP, economically active population; EEAP, employed economically active population.

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Table 6. Statistics on accidents at Work and Occupational Diseases (2011)

Month	Fatal Accident	Nonfatal Accident	Occupational Disease
January	9	96	5
February	10	86	6
March	8	102	3
April	13	122	7
May	12	125	-
June	13	560	4
July	10	132	3
August	11	918	3
September	11	968	10
October	12	688	52
November	11	594	1
December	25	337	7
Total	145	4728	101

Regulatory frameworks mark a turning point, and have led a number of companies to be engaged in the management of occupational safety and health.

At the present time, Peru is still developing its worker protection system. Inspection procedures and accident reporting system, in industries other than mining, are still being improved.

Table 7. Statistics on Accidents at Work and Occupational Diseases (2012)

Month	Fatal Accident	Nonfatal Accident	Occupational Disease
January	6	526	18
February	20	1014	6
March	18	1570	17
April	23	1458	5
May	6	1645	11
June	6	1072	10
July	17	846	12
August	24	1477	2
September	15	1868	9
October	22	1683	7
November	21	1270	5
December	12	1079	5
Total	190	15,508	107

Table 8. Statistics on Accidents at Work and Occupational Diseases (2013)

Month	Fatal Accident	Nonfatal Accident	Occupational Disease
January	22	1100	3
February	15	2138	2
March	19	1137	33
April	25	1097	5
May	9	1464	22
June	10	1544	16
July	14	1607	4
August	14	1637	-
September	14	1528	-
October	8	1540	6
November	15	2598	-
December	9	1492	2
Total	174	16,754	93

Table 9. Statistics on Accidents at Work and Occupational Diseases (2014)

Month	Fatal Accident	Nonfatal Accident	Occupational Disease
January	10	1100	1
February	10	1279	3
March	10	1113	10
April	9	1122	5
May	11	1431	1
June	14	803	2
July	14	1628	1
August	8	1279	1
September	13	1183	3
October	11	1302	5
November	7	1702	1
December	34	1209	3
Total	148	14,750	36

Table 10. Statistics on Accidents at Work and Occupational Diseases (2011-2014)

Year	Fatal Accident	Nonfatal Accident	Occupational Disease
2011	145	4728	102
2012	190	15,508	107
2013	174	16,754	93
2014	148	14,750	36
Total	657	51,740	337

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