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Corporate Social Responsibility as a Competitive Advantage in the Field of Occupational Health and Safety. Comparative Theoretical Overview of the Bridge and Access Road Construction Sector

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ABSTRACT

Corporate social responsibility (CSR) refers to companies' commitment to ethical practices that benefit society and the environment. Occupational safety and health (OSH) ensures safe work environments, preventing risks and promoting employee well-being. The combination of both can contribute to forming a competitive advantage for companies. To this end, a research is proposed with the general objective of: Analyzing corporate social responsibility practices as a competitive advantage in the field of occupational health and safety from a comparative theoretical perspective of the bridge and access road construction sector, with emphasis on developed countries, Latin America, and Ecuador. The methodology was qualitative, descriptive- explanatory, using the inductive-deductive, analytical-synthetic, and comparative methods. The information collection units comprised international and national databases on legislation, regulations, and practices in developed countries, Latin American countries, and Ecuador. The analysis and presentation techniques of the results were structured in comparative descriptive tables and semantic networks coded in the Atlas.ti V-7.5.18 (2019) Software. The results showed that the countries mostly agreed that CSR and OSH practices provide beneficial results in terms of quality of life, talent retention, and improvement of business reputation. However, these efforts face financial and bureaucratic barriers that hinder their adoption, especially in less developed contexts and in smaller companies.

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Introduction

Corporate Social Responsibility (CSR) is defined as the active and voluntary contribution of companies to social, economic, and environmental improvement (Andrade, 2021, p), which allows for management based on strategic practices and management systems based on the economic, social, and environmental dimensions[3]. This approach can also be considered an ethical model that guides new management strategies in the business field (Pérez et al., 2016) since it emphasizes preserving the environment, promoting equity, and guaranteeing social justice; these pillars become key drivers for organizations to adopt responsible management processes.

In this sense, the adoption of CSR represents an important competitive advantage for organizations as part of the attributes that distinguish and can make it possible to obtain superior performance recognized by internal clients (employees) and external clients (State, citizens, and suppliers) (Villacis & Caiche, 2021). As a strategic model that goes beyond simple compliance with laws, in the context of bridge and access road construction companies, it becomes a differentiating factor when integrated with Occupational Safety and Health (OSH) practices, offering not only benefits to workers but also a competitive advantage in the construction industry.

In this vein, the International Labour Organization (ILO) highlights that OSH is essential for the well-being of workers and the sustainability of construction projects. Conventions 155 (ILO, 1981) and 187 (ILO, 2006) establish OSH standards that serve as a basis for national and international regulations. The first establishes that the "object of national policy is to prevent accidents and injuries, minimizing, as far as is reasonable and feasible, the causes of the risks inherent in the work environment" (ILO 2023, p. 05).

Likewise, the second Convention mentioned urges members to "promote the continuous improvement of OSH to prevent work-related injuries, illnesses and deaths through the development of a national policy, system, and program, in consultation with the most representative organizations of employers and workers" (ILO 2023, p. 05). These two fundamental Conventions establish a framework that assigns responsibilities to governments, employers, and workers regarding the improvement of OSH. Highlighting the relevance of the active participation of the actors through specific standards on consultation and collaboration in decision-making and its implementation (ILO, 2023).

On the other hand, the International Organization for Standardization (ISO 26000), in terms of international regulation of CSR, includes standards for safe work practices within the standards of corporate responsibility regulations (See Figure 1), which combined with ISO 45001 that focuses on OSH, promote an ethical and responsible approach that strengthens the competitiveness of companies in this branch of the industry, allowing risk management to be structured.

[3]CSR has become an essential and strategic commitment for companies related to human rights, present in the Declaration of the International Labour Organization (ILO, 1998) on fundamental principles and rights at work and the Guidelines for multinational enterprises on responsible business conduct of the Organization for Economic Cooperation and Development (OECD, 2023), which provides recommendations on appropriate business conduct in areas such as technology, biodiversity, climate change, business integrity and the sustainable management of supply chains.

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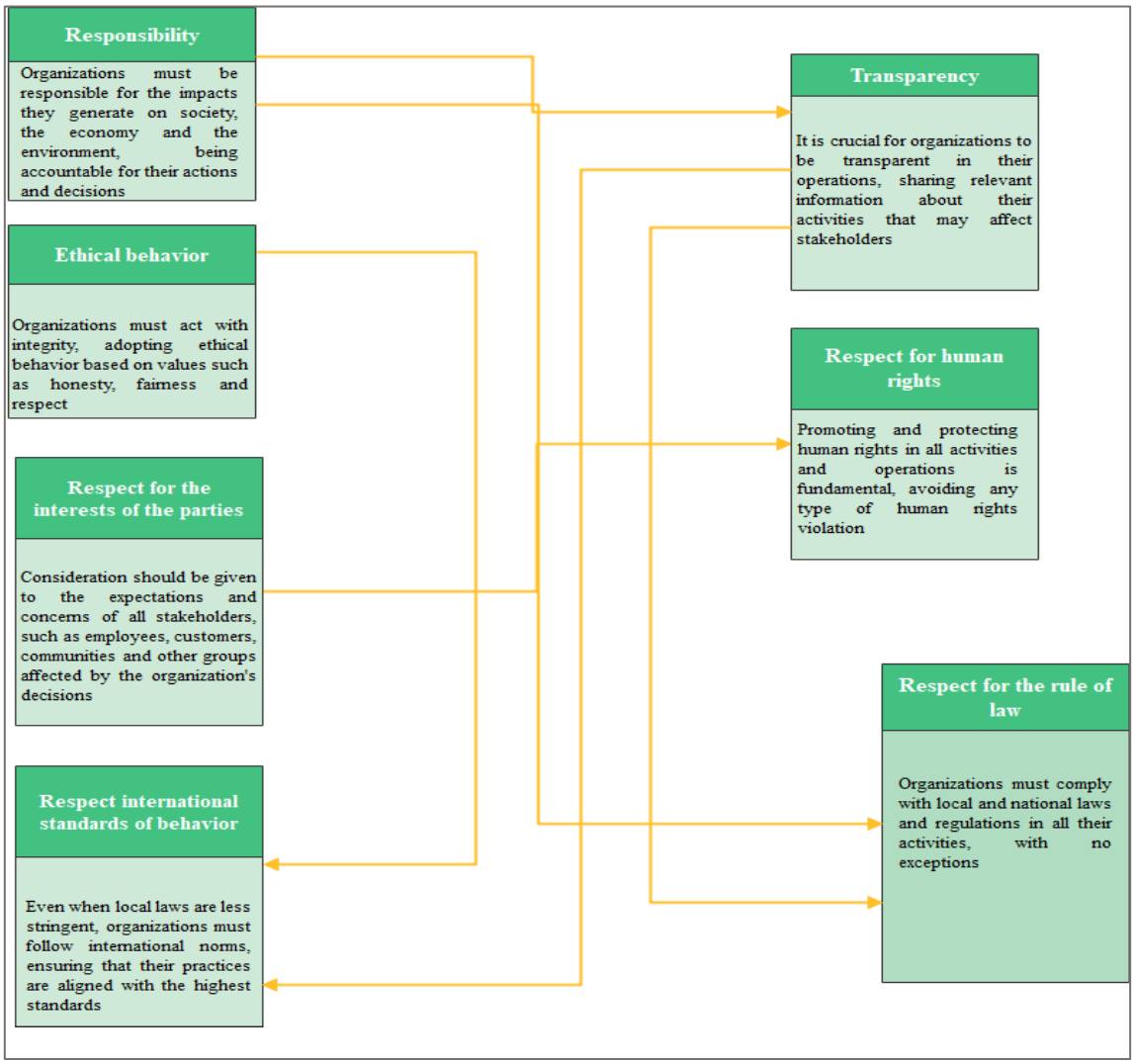
Figure 1

Fundamental principles of CSR, according to ISO 26000 regulations



Note: Adapted from (ILO, 2023) and (Alonso, 2023)

Consequently, when policies and practices are established that promote employee safety based on the foundations and principles of CSR described, which include continuous training of employees on safety issues, investment in advanced protective equipment, and even the implementation of health programs that promote the physical and mental well-being of workers (Spain, 2019) These practices have not only been shown to help reduce the number of workplace accidents and illnesses but can also improve a company's reputation and reduce costs associated with compensation, sick leave and lost productivity.

Studies such as those by Andrade (2021); Domínguez (2020); Villacis & Caiche (2021); González et al. (2019), among others, show that incorporating CSR practices in companies can bring favorable results in terms of OSH. Furthermore, a company that incorporates CSR in its OSH strategy tends to gain greater trust and loyalty from its employees, which improves the organizational climate when workers perceive that the company actively cares about their well-being and, in return, they show greater commitment, which translates into better performance.

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Talent retention is also an important competitive advantage in the construction sector, as it is a market that requires qualified and experienced personnel. Companies recognized for their CSR policies and good OSH practices are more attractive to professionals, which can reduce turnover costs and improve the quality of projects since stable and well-trained teams tend to work more efficiently. Another advantage is that it enhances the company's image in the eyes of clients and local communities. Construction companies that demonstrate a commitment to OSH and CSR are often seen as trustworthy and ethical, which can facilitate obtaining new contracts and permits, especially those in the public sector, where companies are required to comply with specific CSR standards, especially in OSH issues.

Global, regional, and local overview of CSR and OSH in construction companies

Within this context, at a global level, bridge and access road construction companies are entities that operate in the management of complex, large-scale projects with a high social, economic, and environmental impact. They require a high level of technical specialization since bridge and access road construction projects demand advanced skills and knowledge in areas such as geology, structural engineering, and construction materials, as well as advanced technology and specialized machinery, such as 3D modeling software, drones for mapping and monitoring, and heavy machinery specific to the construction of large-scale structures, the use of geographic information systems (GIS) and information technology for project management.

Under these precepts, it is essential to focus on sustainability and the environment, which includes the use of recyclable materials, the reduction of carbon emissions, and the minimization of environmental impact during construction, as well as standardization and regulatory compliance, are mostly subject to strict international regulations that seek to guarantee the safety, durability, and sustainability of the infrastructures built. In addition to the ISO standards described above, for the operational process, both ISO 9001 (quality management) and ISO 14001 (environmental management) have become essential to compete in this sector.

Furthermore, since bridge and road construction projects often involve large investments and a high level of complexity, Risk Management (RM) is an essential practice. These companies must identify, evaluate, and mitigate hazards related to terrain, climate, human resources, and materials to minimize the possibility of accidents and economic losses (Andrade, 2021). Therefore, the contributions of operational and strategic management based on CSR and OSH can cover important aspects of the competitiveness of these companies in the public works construction industry market.

Particularly in Latin America, according to ILO estimates (2018), 11.1 fatal accidents are recorded per 100,000 industry workers each year, among the most important sectors of the region's economy, such as mining, construction, agriculture, and fishing. Due to this, the ILO places special emphasis on the importance of regulatory frameworks that promote coordinated action between the institutions in charge, as well as having better systems for recording and notifying work accidents and occupational diseases (ILO, 2024).

In the region, bridge and access road construction companies share many of the same global characteristics, although they face additional challenges related to the regional context. They play a fundamental role in the development of infrastructures that facilitate connectivity and promote economic growth in the countries of the region and are involved in projects that, due to their scale and complexity, require high levels of specialization, planning, and responsibility (Máttar & Cuervo, 2017).

One of the main challenges faced by these companies is to carry out constructions, taking into account the adaptability to diverse geographical conditions that include mountains, jungles, deserts, and coastal areas. This factor forces them to develop techniques and designs adapted to each environment. In mountainous areas such as the Andes, it is common to build elevated bridges and tunnels that allow passage through rugged terrain. This type of project requires specialized human talent and has a high risk of accidents and constant danger to which workers are exposed, as well as a high environmental and surrounding impact.

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Likewise, challenging economic and financial factors are faced with budgetary constraints due to restrictions on public and private investment. The region relies heavily on financing from multilateral agencies such as the Inter-American Development Bank (IDB) and the World Bank (WB) to carry out infrastructure projects. Therefore, these companies must be effective in managing their resources and seek innovative financing methods to ensure the viability of their projects (Cobos, 2021).

These organizations are active in social impact and community development, given that in some Latin American countries, the transport infrastructure is deficient, and bridge and access road construction companies play a crucial role in the integration of isolated communities and the economic development of the regions (Máttar & Cuervo, 2017). Therefore, they are not only committed to the creation of infrastructure but also to the social development of the areas in which they operate, which includes the generation of local employment and the support of education and training programs (Dominguez, 2020), which in some way commits them to the adoption of mechanisms associated with CSR, both directly and indirectly, in some countries where these practices have not been formalized.

On the other hand, and even though regulatory frameworks may be less strict in some countries in the region, international companies operating in Latin America tend to adhere to global standards to maintain their reputation and meet the requirements of funding agencies, in addition to the specific local regulations on OSH and environmental protection to which they must adhere to operate (Fontes, 2017). Likewise, in various countries, the adoption of new technologies that improve the efficiency and quality of projects has been important. These include using prefabrication techniques, modular construction, and digital technologies such as BIM (Building Information Modeling). However, economic and financial factors continue to be a challenge for the region, where the Inter-American Development Bank (IDB, 2021) has estimated that "building 1 kilometer of road in Latin America can be up to five times more expensive than doing so in the European Union" (Henríquez & Lacaze, 2021).

In this order of ideas, the panorama seen from the survey carried out in Latin America and the Caribbean by the BIM Forum Latam Specific Working Group of the Inter-American Federation of the Construction Industry (FIIC), with the participation of more than 750 companies in 18 countries in the region, estimated that the construction area from the perspective is heterogeneous from its operational practices, to the regulatory and strategic framework of each one (Lacaze, 2020).

Specifically in Ecuador, the transport infrastructure construction sector is vital for the country's connectivity and development. The construction of bridges and access roads has been prioritized to improve connectivity, particularly in mountainous regions and rural areas with difficult access. This has led to local companies specializing in projects that seek to unite communities and promote economic development in remote areas.

They face geographical challenges, factors such as seismic activity in the Sierra and dense vegetation in the Amazon, where these conditions require companies to adapt their projects to geological and climatic risks, which highlights the importance of OSH mechanisms that protect workers from occupational hazards and occupational diseases, as well as effective CSR practices that reveal the commitment of these companies to their internal clients, external clients, and the environment.

At present, in Ecuador, as a regulatory mechanism, it is necessary to comply with the Regulations on Safety and Health at Work (RSHW) and international standards if they seek foreign financing, among other laws that are carefully analyzed in the results. Quality and sustainability certifications are important to access public investment projects and improve competitiveness. They also commit to the development and training of the local workforce, together with the promotion of sustainability policies that include environmentally responsible practices, the use of recycled materials, and the restoration of ecosystems affected by construction.

For this reason, studies such as the one presented can generate a significant impact at an academic, social, and professional level, allowing changes to be made toward the understanding of the competitive advantage and other benefits that can be obtained by adopting mechanisms that provide

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OSH and CSR conditions in the work of building bridges and access roads, and which in turn respond to a healthy interaction with the environment, the community, internal and external clients.

Materials and methods

Research focus

CSR as a competitive advantage in the field of OSH in bridge and access road construction companies is part of a doctoral study currently in progress. Given the dimensions involved in the doctoral work and those that have been required to explore the reality under study, this framework has been structured in a qualitative paradigmatic approach since, initially, it has been necessary to focus on understanding experiences, meanings, and contexts in depth, through theoretical content, studies, previous research and content analysis. According to Creswell & Poth (2018), qualitative research allows researchers to "explore the meaning that individuals attribute to their lives and their environment" and facilitates the discovery of patterns in the documents and studies analyzed.

Type and level of research

In this context, the type and level of the research were descriptive-explanatory; with this integration, the aim was, firstly, to exhaustively describe the phenomenon without interfering with the variables. With the explanatory level, the aim was to find the causes and effects of the underlying factors and relationships and to estimate a comparison that allowed the researchers to understand not only what has occurred but also the reasons behind it. As Yin (2018) points out, this approach is useful in case studies where the researcher intends to describe the context and understand the dynamics of reality in that context. To this end, the general objective was set: To analyze corporate social responsibility practices as a competitive advantage in the field of Safety and Health at Work from a comparative theoretical overview of the bridge and access road construction sector, with emphasis on developed countries, Latin America, and Ecuador.

Methods

For the analysis and organization of the discourse, it was necessary to use different methods. Firstly, the inductive-deductive method, which allowed the observation of information and then generalizing from it; for Hernández & Mendoza (2018), the inductive method "allows the construction of theory based on observed reality" and is especially useful for discovering unanticipated patterns and relationships. Likewise, the deductive method, that goes from the statement of a general idea to more specific conclusions, where previous theories and/or theoretical frameworks were used and then verified through the collection of information. The combination of both methods provided researchers with the discovery of new ideas through induction and then validating those ideas through deduction.

Also, the analytical-synthetic method was used, which involved the use of two complementary research processes. Through the analytical method, the information obtained was broken down into its constituent parts for a better understanding, examining each of the components, their functioning, and their relation.

The synthetic method focused on bringing the parts of that information into a coherent whole after analyzing each separately, building an overview and understanding of the variables in their entirety. Through using the analytical-synthetic method, the information could be divided into its basic elements and then reintegrated to obtain a global understanding. For Feria et al. (2020), this method is essential for carrying out detailed and complex studies, especially when it is wanted to understand both the components and the whole.

The comparative method was also used to analyze the similarities and differences between variables, normative aspects, and international and national practical perspectives. Through comparison, relevant patterns, relationships, and trends could be identified, determining variations in how variables manifest and the possible causes behind those variations. As Hernandez et al. (2014)

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indicate, the comparative method "helps to discover regularities and exceptions when studying contrasting cases," which provides a basis for formulating more general theories.

Information collection units

Within the information collection units, international and national data sources were used, including the European Agency for Safety and Health at Work (2023); International Labour Organization (2024); ILO (2018); Labor and Employment Insurance (2024); Gesetzliche Unfallversicherung (DGUV, 2024); Health and Safety Executive (HSE, 2024); Canadian Centre for Occupational Health and Safety (CCOHS, 2024); Safe Work Australia (2023); National Agency for Occupational Health and Safety (NAOSH, 2024); Occupational Safety and Health Administration (OSHA, 2024); Legislative Observatory of Colombia (2016); Superintendence of Occupational Risks of Argentina (2007); Ministry of Transport and Public Works of Ecuador (MTPW, 1895); Ecuadorian Social Security Institute (ESSI, 1928); Ministry of Labor of Ecuador; Ministry of Environment, Water and Ecological Transition of Ecuador (1996); Ecuadorian Consortium for Social Responsibility (ECSR, 2005).

Techniques for analyzing and presenting information

The information was initially collected and interpreted by coding in the Software Atlas.ti V-7.5.18 (2019), which allowed encoding of the content extracted from the different sources reviewed; this generated tables and semantic networks that allowed to relate and compare more easily for the respective analysis of CSR practices as a competitive advantage in the field of OSH from a comparative theoretical overview of the bridge and access road construction sector, with emphasis on the Sierra Centro Region of Ecuador. Likewise, Microsoft Office Software (2019) was used, especially Microsoft Excel (2019), to organize the information in the tables and Microsoft Word (2019) to present and develop the results and the manuscript speech.

Results and discussion

Overview of CSR and OSH in developed countries

Analyzing corporate social responsibility as a competitive advantage in the occupational health and safety field from the perspective of bridge and access road construction companies has provided a perspective of how different nations address OSH and CSR within the business environment. Regulations and their implementation vary according to the cultural, economic, and legal context of each country, but, in general terms, they all seek a common goal: to improve working conditions and encourage a broader business commitment to society and the environment.

This comparison begins with the visibility of developed countries; they are initially taken into consideration to observe the practices most up-to-date in these terms that respond to the OSH and CSR mechanisms in construction companies (See Table 1).

Table 1

CSR and OSH regulations and practices in developed countries

Country	Law or institution	Brief description	Management results
Sweden	Occupational Health and Safety Act, Swedish CSR Institute	This law establishes mandatory OSH measures in all companies, supported by CSR policies that promote corporate responsibility towards employees and communities.	Significant reduction in workplace accidents. High levels of satisfaction and well-being among employees in CSR-certified companies.

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Germany	Occupational Health and Safety Act, German Industrial Safety and Protection Act (GISPA)	The law sets standards for OSH and CSR, with strict safety and social management rules, especially in high-risk industries.	Reduction in workplace accidents. International recognition of German companies in CSR practices.
Japan	Labor Standards Act, Ministry of Health, Labor and Welfare (MHLW)	Japan promotes OSH and CSR through regulations requiring the adoption of workplace wellness policies, such as the Corporate Wellness Program.	Reduction of work days lost due to accidents and improvement in the workers' mental and physical health.
United Kingdom	Health and Safety at Work Act 1974, Health and Safety Executive (HSE)	The HSE regulates occupational health and safety, as well as promotes CSR as a strategy to reduce risks at work and improve the reputation of companies.	High level of compliance and reduction of workplace incidents. Greater companies' commitment to sustainable practices.
Canada	Occupational Health and Safety Act, Canadian CSR Council	The OSH Act sets out safety guidelines to protect workers. CSR is a key focus for businesses, encouraged by the government to improve practices.	Decrease in the rate of workplace injuries. Recognition of CSR-certified companies in global markets.
Australia	Occupational Health and Safety Act 2004, Safe Work Australia	Businesses are required by law to maintain a safe and healthy working environment. Safe Work Australia promotes CSR to minimize workplace risks and promote well-being.	Improved workplace safety culture, with a reduction in workplace incidents. Increased employee well-being and satisfaction.
France	Labor Code, PACTE Law (2019), National Agency for Occupational Health and Safety (NAOSH)	The PACTE Law establishes that companies must consider their activities social and environmental impact. NAOSH regulates and promotes safety and health at work.	Companies that implement these regulations report fewer workplace accidents and greater internal cohesion.
Norway	Work Environment Act, Norwegian Institute of Occupational Health	Companies are required by law to ensure a safe working environment. CSR practices are promoted as a competitive advantage and a way to improve the working environment.	Low rate of workplace accidents. High employee satisfaction and a positive reputation of Norwegian companies for responsible practices.
USA	Occupational Safety and Health Act	OSHA regulates workplace safety standards and promotes CSR as a tool to	Companies that meet OSHA standards report fewer accidents and have

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(OSHA), Department of Labor (DoL)	reduce risks and improve competitiveness.	higher	employee retention.

Note: Adapted from European Agency for Safety and Health at Work (2023); International Labor Organization (2024); ILO (2018); Arbetsmiljö verket (2024); Gesetzliche Unfallversicherung (DGUV, 2024); Health and Safety Executive (HSE, 2024); Canadian Center for Occupational Health and Safety (CCOHS, 2024); Safe Work Australia (2023); Agence Nationale pour l'Amélioration des Conditions de Travail (ANACT, 2024); Occupational Safety and Health Administration (OSHA, 2024)

From Table 1, it can be seen that in Sweden, the Occupational Health and Safety Act, in conjunction with the Swedish CSR Institute, regulates OSH and promotes CSR in companies. Swedish regulations require all companies to implement occupational safety measures as part of their responsibility towards their employees and the community. Other laws and regulations associated with OSH and CSR also deal with the work environment, such as the Industrial Accident Insurance Act (Lagen om arbetsskadeförsäkring), the Environmental Protection Act (Miljöbalken) and the Working Time Act (Arbetstidslagen).

According to the Swedish CSR Institute, these regulations have led to a significant reduction in workplace accidents and have generated high levels of satisfaction among employees working in CSR-certified companies. The integration of these measures has increased the quality of working life, attracting talent and improving the reputation of companies. However, small companies face difficulties implementing these standards due to high costs, which can sometimes affect their competitiveness in the market (European Agency for Safety and Health and Work, 2019).

Germany also has an Occupational Health and Safety Act (Arbeitsschutzgesetz - ArbSchG) overseen by the DGUV (2024), which sets strict standards for workplace safety and CSR management, especially in high-risk industries such as construction. This law has contributed to a decrease in workplace accidents and has allowed German companies to be internationally recognized for their CSR practices. In addition, these regulations improve the productivity and competitiveness of companies, which can also access tax benefits for meeting these standards. However, the implementation of these measures can be bureaucratic and demanding, especially for small and medium-sized enterprises (SMEs), which complicates their certification and their ability to comply with all legal requirements (Rivermate, 2019).

In Japan, the Labor Standards Act, under the supervision of the Ministry of Health, Labor and Welfare (MHLW) promotes OSH and CSR through policies such as the Corporate Wellness Program, designed to improve employees' physical and mental health. As a result, a reduction in work days lost due to workplace accidents and an overall improvement in worker well-being have been observed. These policies have also had a positive impact on productivity, attracting talent, and strengthening employee loyalty. However, cultural demands in Japan, which often favor long working hours, can lead to negative effects, such as karoshi (death from overwork), affecting the effectiveness of these well-being policies in different sectors (International Labor Organization, 2022).

In the UK, the Health and Safety at Work Act 1974 is implemented by the Health and Safety Executive (HSE), which regulates workplace safety and promotes CSR as part of strategies to reduce work risks. The high compliance rate with OSH regulations has resulted in a significant reduction in workplace incidents and encouraged greater corporate commitment to sustainable practices. British companies also benefit from tax incentives and CSR support programs, which enhance their reputation. However, compliance with these regulations can be costly and complex for SMEs, limiting their competitiveness against larger companies (Health and Safety Executive, 2024).

Similarly, in Canada, the Occupational Health and Safety Act, overseen by the Canadian CSR Council, sets out clear workplace safety guidelines, and CSR is promoted as a key approach to improving business practices. The implementation of these policies has led to a decrease in the rate of workplace

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injuries and has allowed Canadian CSR-certified companies to gain recognition in global markets. These policies also strengthen community relations and improve employee satisfaction and loyalty; however, as in other countries, small businesses face difficulties in implementing comprehensive CSR programs due to limited financial resources in their implementation (Canadian Center for Occupational Health and Safety, 2024).

In Australia, the Occupational Health and Safety Act 2004, administered by Safe Work Australia, requires companies to ensure a safe and healthy work environment, also promoting CSR as a means to minimize workplace risks and improve employee wellbeing. As a result, workplace safety culture has improved significantly, with a notable reduction in workplace incidents and an increase in employee wellbeing. Furthermore, these CSR practices have increased the sustainability and competitiveness of Australian companies, improving their public image and attracting talent. However, the initial costs of implementing and maintaining CSR policies can be high, especially for SMEs (Safe Work Australia, 2024).

In France, the Labour Code and the PACTE Act of 2019 require companies to consider their activities' social and environmental impact. The National Agency for Occupational Safety and Health (ANACT) is responsible for regulating and promoting OSH at work. Companies that implement these regulations have recorded fewer workplace accidents and greater internal cohesion. In addition, compliance with these laws improves the companies' reputation and social commitment, increasing their competitiveness and attracting customers and investors. However, regulations can be complex and costly, especially for SMEs (European Agency for Safety and Health at Work, 2024).

In this vein, Norway has the Work Environment Act, which requires companies to ensure a safe working environment, and the Norwegian Institute of Occupational Health promotes CSR as a competitive advantage. As a result, Norway has a low rate of workplace accidents and high employee satisfaction, which enhances companies' reputation for responsible practices. However, regulatory demands can be high, which represents a challenge in terms of costs (European Agency for Safety and Health at Work, 2023).

In the United States, the Occupational Safety and Health Act (OSHA) regulates workplace safety standards, and the Department of Labor (DoL) promotes CSR as a tool to reduce workplace risks and improve business competitiveness. Companies that comply with OSHA standards report fewer accidents and have higher employee retention. These regulations also strengthen companies' image and enhance their competitiveness in the global marketplace. However, complying with all OSHA regulations can be costly and complex (European Agency for Safety and Health at Work, 2023).

After studying the aforementioned characterizations of each developed country in terms of its regulations, standards, practices, and results regarding CSR and OSH, some similarities have been observed that are important to highlight (See Figure 2) from a comparative perspective and that are conducive to added or disaggregated value as a competitive advantage in companies.

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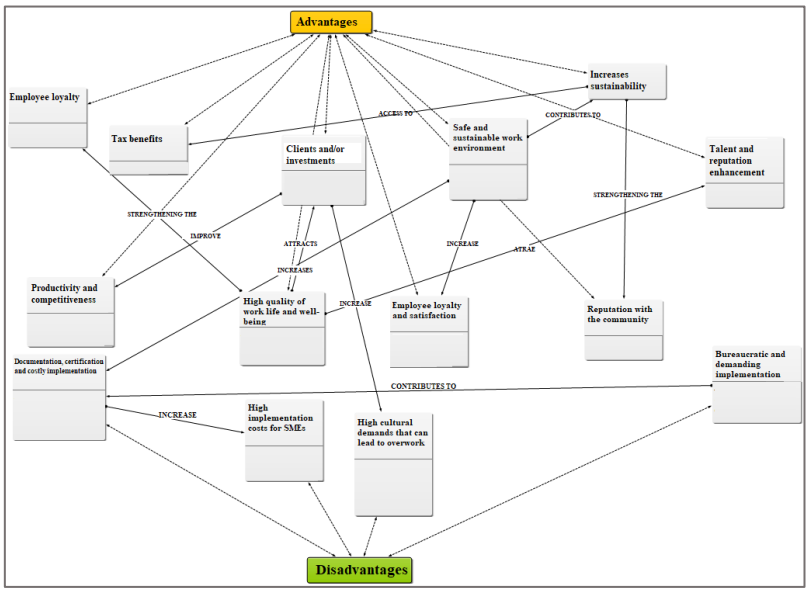
Figure 2

Similarities, advantages, and disadvantages in CSR and OSH practices in developed countries.



Note: Semantic Network (2024), generated in Atlas.ti V-7.5.18. Content decoding from European Agency for Safety and Health at Work (2023); International Labor Organization (2024); ILO (2018); Arbetsmiljö verket (2024); Gesetzliche Unfallversicherung (DGUV, 2024); Health and Safety Executive (HSE, 2024); Canadian Center for Occupational Health and Safety (CCOHS, 2024); Safe Work Australia (2023); National Agency for Occupational Health and Safety (NAOHS, 2024); Occupational Safety and Health Administration (OSHA, 2024)

The literature review found similarities between the results of the application of CSR and SST in developed countries. Figure 2 shows that in many of them, some companies in certain countries, such as Sweden and Japan, have access to tax benefits for their contribution through CSR. However, in most countries mentioned, SMEs have difficulties and financial limitations when implementing OSH and CSR requirements due to the high costs involved. Another disadvantage is the bureaucracy and the processing of permits for programs' implementation.

However, the results in these terms from most countries agree that the quality of working life and well-being have increased, which in turn has improved the reputation of companies and attracted human talent, as well as clients and investors, improving productivity. The European Agency for Safety and Health at Work (European Agency for Safety and Health at Work, 2023) states that, despite limited research exploring the influence of CSR on workers' safety behavior, it can be inferred from social exchange theory that CSR initiatives can encourage such behavior.

This theory proposes that when one entity offers assistance or benefits to another, the beneficiary is predisposed to respond in kind. As primary interested parties within an organization, employees are influenced directly and indirectly by the organization's CSR initiatives. Consequently, they are prone to experience a sense of indebtedness to their organization and ultimately manifest their gratitude through constructive actions. Namely, when employees perceive their organization as socially responsible and committed to their well-being, they are more likely to reciprocate by engaging in positive behaviors, such as adhering to safety guidelines and participating in safety-related activities (European Agency for Safety and Health at Work, 2023).

Overview of CSR and OSH in the construction sector in Latin America

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Latin America has seen an increase in the adoption of OSH and CSR policies in construction, especially in countries such as Colombia and Mexico, which have strengthened their competitiveness through sustainability and safety programs. Despite progress, challenges such as labor informality and poor compliance with OSH regulations persist, limiting the benefits of CSR. According to the IDB, the implementation of CSR practices has reduced workplace accidents by up to 15% in construction companies that adopt OSH standards (IDB, 2020). González & Martínez (2021) state that "The progress of OSH in Latin America is evident; however, the construction sector requires a greater commitment to consolidate its competitiveness."

In this context, the construction sector in Latin America is crucial for economic development but also presents high occupational risks, which has led governments to implement OSH laws and promote CSR (see Table 2) in infrastructure projects. These regulations have mainly had the common objective of reducing work accidents and occupational diseases and improving the corporate image of companies to generate trust in society.

Table 2

CSR and OSH regulation and practices in Latin American countries

Country	Law or Institution	Brief Description	Management Results
México	Public Works and Related Services Law, Ministry of Labor and Social Security (MLSS), Mexican Official Standard NOM-031-STPS-2011	This regulation establishes health and safety requirements for construction work. NOM-031 specifically addresses safety in construction works, promoting CSR.	Improvement in accident reduction in large projects. Companies that apply the standard have reduced incidents and improved the work environment.
Colombia	Law 1508 of 2012, General System of Occupational Risks, Ministry of Labor	Establishes standards for the protection of construction workers on public infrastructure projects. Promotes the integration of CSR and occupational safety in projects.	Companies that comply with regulations have a lower rate of workplace accidents and improve their public image.
Argentina	Occupational Risk Law (1996), Superintendence of Occupational Risks (SOR)	Occupational risk legislation covers construction, with incentives for projects that comply with CSR practices. The SOR regulates and monitors safety in public works.	Reduction of accidents in companies that comply with the law. Improvement in the image of construction companies and social acceptance of construction projects.
Chile	Law 16,744 on Workplace Accidents, Labor Directorate, Safe Company Seal	The law covers the construction of public works and includes the Safe Company Seal for companies that meet high safety and health standards.	Companies that obtain the seal report fewer accidents and gain recognition in the public and private sectors.
Brazil	Regulatory Standard NR 18, City Company Program	NR 18 regulates health and safety in construction, while the City Company Program promotes CSR. Both initiatives are integrated to improve the work environment.	Improved risk control in public works. Certified companies have recorded a reduction in incidents and a better corporate reputation.

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Perú	Law No. 29783, Occupational Health and Safety Law, Ministry of Labor and Employment Promotion	Law No. 29783 establishes specific guidelines for the construction of public works. It encourages the participation of workers in RM and CSR.	Committed companies have reported a reduction in accidents and greater workplace well-being.
Uruguay	Law 19.196, National Institute of Employment and Vocational Training (NIEVT)	The law promotes occupational health and safety in construction with specific training programs. NIEVT encourages ongoing training in CSR and safety practices.	Increased productivity and decreased incidents in public works that apply CSR measures.
Costa Rica	Labor Code, National Insurance Institute (NII, INTE Standard 38-01-01:2012	The Labor Code covers workplace safety, and the INTE 38-01-01:2012 standard promotes CSR in public works construction projects.	Reduction in work accidents in public infrastructure projects. Greater community confidence in responsible companies.
Panamá	Labor Code, Ministry of Labor and Labor Development (MLLD)	The Panamanian Labor Code and MLLD promote occupational safety in public works with training initiatives and CSR practices.	Companies that comply with regulations have a better working environment and fewer accidents on construction sites.

Note: Adapted from International Labour Organization (2024); ILO (2018); Legislative Observatory of Colombia (2016); Superintendence of Labor Risks of Argentina (2007)

Table 2 shows that in Mexico, the Law on Public Works and Related Services administered by the Ministry of Labor and Social Welfare (MLSW) alongside the Mexican Official Standard NOM-031-STPS-2011 establishes clear OSH guidelines for construction work. This regulation was designed to protect workers in public works, also promoting the implementation of CSR policies in companies. According to recent research, companies that apply this standard have reported a significant reduction in accidents and have considerably improved the work environment. As a result, customer confidence and the reputation of construction companies have increased; however, smaller construction companies (SMEs) face difficulties in meeting certification and monitoring costs, which limits their ability to participate in large-scale projects (International Labor Organization, 2024).

Similarly, in Colombia, Law 1508 (2012) and the General System of Occupational Risks under the supervision of the Ministry of Labor provide a comprehensive framework for OSH in public infrastructure projects. The law also establishes an approach to integrate CSR in construction, especially publicly funded projects (Legislative Observatory of Colombia, 2016). A study conducted by OSH experts suggests that companies that comply with this regulation not only have a lower rate of workplace accidents but also enjoy an improvement in their public image; the implementation of safe practices promotes the sustainability of the project and reduces the costs associated with workplace accidents (International Labor Organization, 2024).

In Argentina, the Labor Risk Law (1996), overseen by the Superintendence of Occupational Risks (SOR), sets strict standards for workplace safety in construction. The law also encourages the adoption of CSR practices in infrastructure projects. According to data provided by SOR, companies that have implemented this regulation have achieved a reduction in the accident rate, which has improved their reputation and the social acceptance of construction projects (Superintendence of Occupational Risks of Argentina, 2007). In addition, the law encourages investment in safety measures,

improving the competitiveness of companies in the market. However, complying with legal requirements can be costly, and the certification process is bureaucratic, which affects mainly small construction companies.

In this order of ideas, in Chile, Law 16,744 on Workplace Accidents regulates safety in public works and promotes CSR through the Safe Company Seal, a recognition granted to companies that meet high safety standards. This initiative has been effective in reducing workplace accidents and improving the competitiveness of companies in the sector. Companies that obtain the Safe Company Seal have reported a decrease in serious accidents, and this recognition has allowed them to gain greater confidence in both the public and private sectors (Chilean Labor Directorate, 2015). However, the high costs and complex processes for obtaining the seal have made it difficult for many construction companies, especially small ones, to benefit from this program.

In Brazil, there is the Regulatory Standard (NR 18) for construction safety and the City Company Program which promotes CSR in companies. NR 18 is integrated with CSR policies to improve the work environment, resulting in better risk control in public works and a better reputation for certified companies. Companies that comply with NR 18 have reported a reduction in workplace incidents, which has also contributed to lower employee turnover and improved relations with local communities affected by the projects. However, implementing the standard can be costly.

Likewise, in Peru, Law No. 29783, administered by the Ministry of Labor and Employment Promotion, establishes specific guidelines for safety in the public works construction sector. This regulation encourages the active participation of workers in risk management and the adoption of CSR policies. Companies that commit to this law have experienced a reduction in workplace accidents and greater employee well-being, which has improved the sustainability of projects and customer confidence. However, many small companies do not have the training or necessary resources to properly implement safety and CSR measures, limiting their effectiveness in construction.

In Uruguay, Law 19,196 was implemented and promoted by the National Institute of Employment and Vocational Training (NIEVT). This legislation establishes occupational health and safety standards through continuous training programs and the furthering of decent working conditions. A characteristic aspect of the legislation in Uruguay is its focus on vocational training, which has proven to be an effective tool to reduce the rate of accidents at work and promote CSR in the field of OSH. However, training program implementation in smaller companies remains challenging due to financial and logistical constraints. Studies indicate that strengthening vocational training has a positive impact on reducing incidents, with significant improvements in productivity and employee retention in companies that implement such policies (García & Ramos, 2021).

Similarly, in Costa Rica, the OSH regulatory framework is based on the Labor Code and the Standard INTE 38-01-01:2012 and supervised by the National Insurance Institute (NII). This regulation seeks to integrate CSR with OSH in construction projects, encouraging the workers' participation in risk management. According to recent research, the implementation of this standard has significantly reduced incidents on construction sites, improving both the well-being of workers and the reputation of responsible companies. In addition, NII provides health insurance for workers and OSH training programs that increase confidence in the Costa Rican construction sector (Fernández et al., 2022). However, training costs and the limited availability of resources for small businesses remain significant challenges.

In Panama, the OSH framework is based on the Labor Code and regulated by the Ministry of Labor and Labor Development (MLLD). Although Panamanian laws promote occupational safety in public and private works, economic limitations and the lack of infrastructure in rural areas make it difficult to fully implement these regulations. Companies that comply with the regulations manage to improve the work environment and reduce accident rates, reinforcing the sustainability of the projects and the image of the construction companies. In addition, the regulations seek to strengthen the

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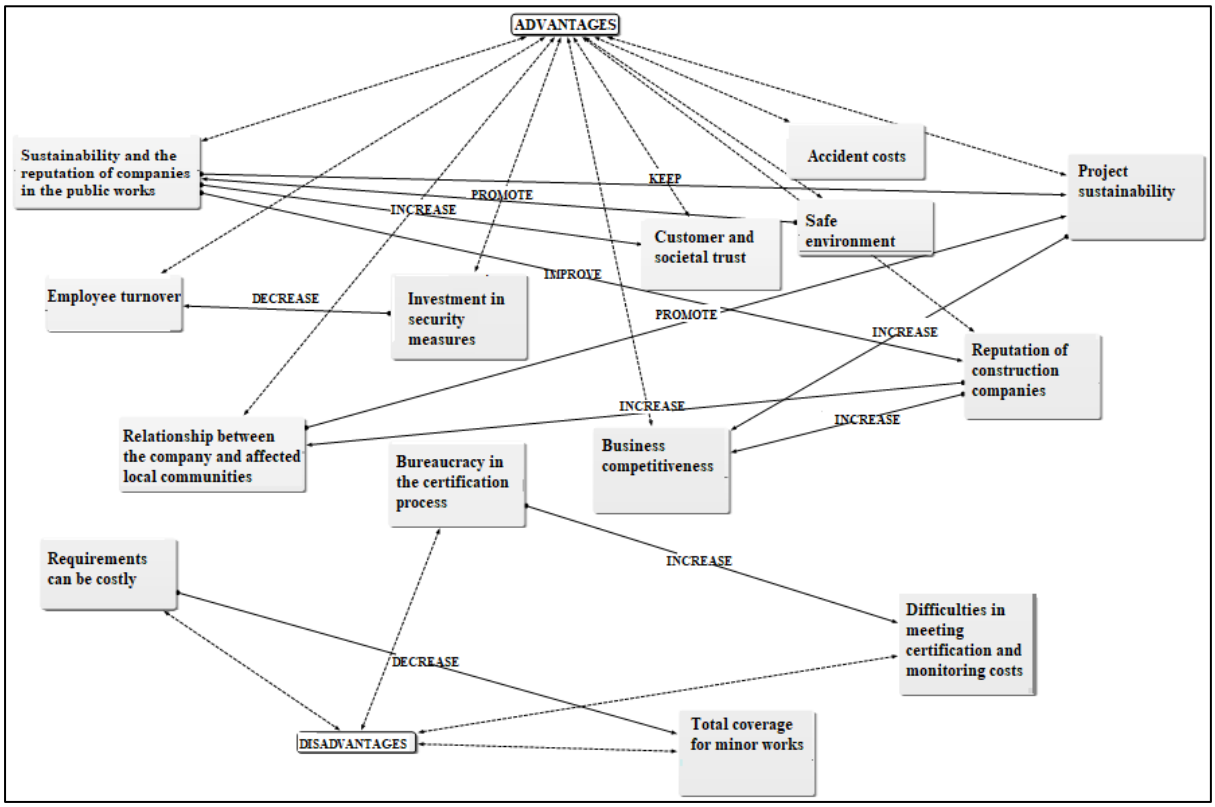
reputation of construction internationally, although the disparity between rural and urban areas limits effective OSH coverage (Ortiz & Mejía, 2020).

After obtaining the results of the review of CSR and OSH practices in Latin American countries, some common characterizations or coincidences can be seen (See Figure 3), both advantages and disadvantages, that create significant coincidences in the results of CSR and OSH practices in the region. The ILO (2023), in its regional information sheet on OSH in Latin America and the Caribbean, asserts that one of the biggest problems facing the region is precisely the low compliance with the requirement to report occupational diseases and injuries, even when there are recording and notification systems, these are often incomplete and dysfunctional.

Figure 3

Similarities, advantages, and disadvantages in CSR and OSH practices in Latin American countries.



Note: Semantic Network (2024), generated in Atlas.ti V7.5.18. Content decoding from International Labour Organization (2024); ILO (2018); Legislative Observatory of Colombia (2016); Superintendence of Labor Risks of Argentina (2007)

Figure 3 shows that the coincidences in the results of practices and the application of CSR and OSH regulations in Latin America are very similar to those in Figure 2 respecting developed countries. Among the advantages is the improvement of the company's reputation, which in turn leads to generating trust in the community and workers. Likewise, in a safe environment, employee turnover decreases and trust increases. However, for small construction companies, the implementation of the required certifications is expensive, decreasing their market value and competitiveness with larger construction companies.

Overview of CSR in the field of OSH in the construction sector in Ecuador

In Ecuador, the OSHR establishes the regulations for construction, including requirements for CSR and OSH. Compliance with these regulations is essential to access financing and public projects,

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promoting a competitive advantage. Companies that integrate CSR practices in OSH not only protect their workers but also improve their reputation and increase their business opportunities. The Quito Construction Chamber (2022) reported that companies that implement OSH and CSR policies have reduced workplace accidents by 20%, thus improving their efficiency and competitiveness (Quito Construction Chamber, 2022).

In this sense, CSR in construction companies in the country has been gaining relevance in recent years; although its implementation still faces challenges, characterized by the high danger of the activities, the formalization of OSH management has been promoted a little more, which is considered essential for the sustainability of operations and the well-being of workers. There is a legal basis for the regulation of OSH in the Labor Code (LC) and the Social Security Law (SSL), as well as the Occupational Health and Safety Regulations (OSHR), which establish that companies must implement adequate measures to protect employees from occupational risks.

These regulations are based on the Constitution of Ecuador (CRE, 2008), which, in its Article 326, Literal 5, promotes the right of workers to work in conditions that guarantee their health, integrity, safety, hygiene, and well-being, while in Article 66, Literal 15, emphasizes the responsibility of companies to adopt policies following the principles of solidarity, social and environmental responsibility.

However, although OSH is regulated through specific regulations (OSHR, 2017), as for CSR, there is no specific legislation in the country that forces companies to implement it since it has been taken as a free and voluntary model regulated by some regulations that mention the importance of its implementation (See Table 3). The most notable thing that has been done in this context is the creation of the Ecuadorian Consortium for Social Responsibility (ECSR, 2005), which has played a key role in promoting the adoption of good, responsible business practices, focusing on sustainability and occupational safety.

Likewise, the Occupational Health and Safety Regulations (OSHR, 2017) require companies to have an Occupational Health and Safety Management System (OSH-MS), in which CSR policies can be integrated, especially in the construction sector, where occupational risks are high. OSH programs' implementation not only complies with legal requirements but also reflects a commitment to social responsibility, contributing to the well-being of employees and, by extension, communities.

Table 3

Regulation of CSR in bridge and access road construction companies in Ecuador.

Institution / Law	Year	Description
Ministry of Transport and Public Works (MTPW)	1895	Regulates the construction of public infrastructure (roads, bridges, access roads), promoting sustainable and socially responsible projects.
Ecuadorian Social Security Institute (ESSI)	1928	Provides social security coverage and work accident insurance with an emphasis on construction, where risks are higher.
Ministry of Labor (Occupational Health and Safety Regulations - OSH)	1938	Oversees compliance with occupational health and safety standards in the construction sector, promoting safe and dignified work environments.

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Ministry of Environment, Water and Ecological Transition	1996	Oversees the application of environmental regulations in the construction of public infrastructure, ensuring sustainability and the protection of natural resources.
Ecuadorian Consortium for Social Responsibility (ECSR)	2005	Private, non-profit organization that manages corporate CSR and offers training on the subject.
Public Contracting Law (Organic Law of the National Public Contracting System - OLNPCS)	2008	Regulates public works contracting, ensuring contractors comply with CSR regulations, including respect for the environment and working conditions.
Ecuadorian Technical Standard INEN 2532	2013	Based on ISO 26000, this standard offers voluntary guidelines for integrating CSR in companies in the construction sector.
Labor Code (Reforms to improve decent work in construction)	2015	Regulates working conditions in the construction sector, promoting decent work and the implementation of occupational safety measures.
Organic Code of the Environment (OCE)	2017	Law that regulates the environmental impact of public works construction projects, ensuring that contractors mitigate negative effects on the ecosystem.
Organic Law on Energy Efficiency	2019	Promotes the implementation of energy efficiency practices in construction projects, requiring companies to adopt more sustainable technologies and processes.

The mechanisms described in Table 3 are part of the institutions, laws, and regulations that are part of the regulation of CSR in bridge and access road construction companies in Ecuador. Some of them have specific clauses referring to good CSR practices, but there is no specific regulatory framework that regulates them or requires organizations to implement them. They are normally associated with OSH.

However, when evaluating the results of its implementation, both OSH and CSR benefits are obtained, demonstrating the close relationship between both management elements within construction companies. Studies such as those by Domínguez (2020) show that construction companies implementing CSR policies oriented towards OHS experience greater productivity and efficiency; this is due to the reduction in absenteeism and work environment improvement.

In this regard, Paguay et al. (2023) point out that, in Ecuador, in the period between 2016 and 2021, “the construction and manufacturing economic sectors maintain the highest accident rates compared to other sectors, with an average of 17.47% and 26.15%, respectively, while the rest of the sectors are below 12%” (p. 07). However, in companies that adopt CSR and OSH programs, occupational accident rates decrease, having a direct impact on productivity and competitiveness because workers feel safer and more motivated (Hong & Roh, 2024).

However, although construction is a fundamental sector of the Ecuadorian economy, work accidents and occupational diseases in this area are not correctly recorded. According to the study by

Ordoñez (2017) on occupational risks in construction, accidents have increased proportionally to the growth of employment in this sector, which has caused significant losses for the GDP.

The Ecuadorian Social Security Institute (ESSI, 2018) also reported that, although 3.3% of workplace accidents in 2018 occurred in construction, the sector still does not record a significant number of incidents. This shows that, to achieve effectiveness in the application of CSR, it is essential to improve OSH conditions within the sector, as well as to further analyze the factors that generate this problem.

Among the advances in CSR in the country's organizations, a significant increase in social and business awareness has been observed. Studies such as those by González et al. (2019) indicate that the adoption of CSR has gradually improved in the construction sector in Ecuador, especially among large companies working on public infrastructure projects. However, it is noted that small and medium-sized enterprises (SMEs) still face difficulties in implementing these practices due to financial limitations and low culture of prevention in occupational safety. González et al. (2019) conclude that "companies that integrate CSR into their management system not only achieve greater acceptance by the community but also experience a significant reduction in workplace accidents."

Central Sierra Region of Ecuador

The Sierra Centro presents particular challenges in building bridges and access roads due to its mountainous terrain and climatic conditions. This makes OSH especially critical to protect workers and ensure the durability of projects. Companies in this region that adopt CSR practices in OSH not only comply with regulatory requirements but also manage to improve their image in local communities and gain easier access to government contracts.

According to NISC data, construction companies in the Sierra Centro that integrate OSH and CSR report 25% fewer accidents than those that do not implement these practices (NISC, 2023). Mendoza (2023) "The application of OSH policies in the Sierra Centro is essential to mitigate risks and protect both workers and local communities." This confirms that promoting a culture of OSH and CSR is essential for the growth of the construction sector in Ecuador and its alignment with global sustainability and responsibility practices.

Conclusions

Analyzing CSR practices and their role as a competitive advantage in OSH in the bridge and access road construction sector has involved an extensive review of sources, including international and national agencies dedicated to promoting OSH and CSR, such as the European Agency for Safety and Health at Work (2023), the Ministry of Labor of Ecuador, the International Labour Organization and the ILO, among others. The results showed how developed countries implement robust policies to promote CSR in their industries, such as Sweden and Germany, which have managed to significantly reduce workplace accidents thanks to their regulations and commitment to workplace well-being.

In these countries, companies that integrate OSH and CSR practices not only experience lower accident rates but also improve their image and competitiveness. Japan, through the Ministry of Health, Labour and Welfare (MHLW), promotes wellness programs that have reduced absenteeism. However, it faces challenges related to work culture, which often generates long working hours, negatively affecting the effectiveness of its policies. These results highlight the importance of monitoring, supervision, and evaluation to improve CSR and OSH practices.

In Latin America, countries such as Colombia and Mexico have made progress in adopting OSH and CSR policies, which has especially benefited the construction sector. These regulations, in line with ILO recommendations, have been shown to reduce workplace accidents by up to 15% in companies that implement them, according to the IDB (2020). The regulations seek to reduce occupational risks, improve employee well-being, and promote CSR as an essential component of competitiveness.

However, challenges such as labor informality and high compliance costs prevent many SMEs from fully adopting these practices.

The analysis also highlighted the specific challenges SMEs face in implementing CSR due to high costs and bureaucratic demands in Europe and other developed countries. This problem, also present in Latin America and Ecuador, limits competitiveness and makes OSH and CSR certification less accessible for SMEs. Although these practices constitute a competitive advantage for construction companies, improving workplace safety and attracting talent, they require a significant initial investment. The findings highlight that, while larger companies can adopt these practices more easily, SMEs need financial and regulatory support to reach OSH and CSR standards.

Specific studies in Latin American countries reflect the effectiveness of these regulations in the construction sector. For example, in Mexico, the Official Mexican Standard NOM-031-STPS-2011 requires companies to comply with safety standards, achieving a significant accident reduction in and a safer work environment. In Chile, the "Safe Company Seal" acts as an incentive for companies that achieve advanced safety standards. Similarly, in Brazil, NR 18 and the City Company Program support workplace safety policies, improving the relationship with communities and employee stability.

The implementation of CSR and OSH in the construction sector is increasingly relevant, especially in Latin America, where the construction sector is crucial for economic growth but is also one of the riskiest. OSH and CSR regulations have proven their value in improving working conditions, reducing accidents, and increasing competitiveness; however, the high cost and bureaucratic complexities limit the participation of SMEs; therefore, it is essential that governments and institutions support smaller companies to facilitate compliance with these standards, thus contributing to a safer, fairer and more competitive construction industry in the region.

In Ecuador, the OSH regulations contained in the OSHR specifically regulate occupational safety measures and establish certain requirements for construction. The integration of OSH and CSR policies has had a positive impact on companies that implement them, allowing them to reduce accidents and improve efficiency; however, there is still no regulatory framework that requires all companies to implement CSR. In the Central Sierra region of Ecuador, it is especially relevant due to the characteristics of the terrain and climatic conditions; companies that adopt these practices not only comply with legal standards but also strengthen their reputation and gain easier access to public contracts. Even so, one of the main obstacles remains the uneven oversight in smaller construction projects, which often do not have the necessary resources to implement OSH and CSR measures effectively.

List of References

[1] Agence Nationale pour l'Amélioration des Conditions de Travail. (2024). https://www.anact.fr/
[2] Alonso, C. (9/27/2023). Global Suite Solutions. https://www.globalsuitesolutions.com/es/que-es-iso-26000/
[3] Andrade, C. (2021). Corporate social responsibility: a brief theoretical review for the Ecuadorian case. SAPIENTIAE: Journal of Social, Human and Engineering Sciences, 7(1), 106-117. https://www.redalyc.org/journal/5727/572767999008/html/
[4] Arbetsmiljö verket. (2024). https://www.av.se/
[5] Inter-American Development Bank (IDB). (2020). Impact of CSR on construction in Latin America. https://www.iadb.org).
[6] Canadian Center for Occupational Health and Safety. (2024). https://www.ccohs.ca/
[7] Canadian Center for Occupational Health and Safety. (2024). Health and Safety Policy - Development and Implementation. https://www.ccohs.ca/oshanswers/hsprograms/osh_policy.html

Research Article

[8] Cobos, L. (2021). Financing instruments for Decentralized Autonomous Governments with multilateral development organizations in Ecuador. Simón Bolívar Andean University. https://acortar.link/lBCPZw

[9] Creswell, J., & Poth, C. (2018). Qualitative Inquiry and Research Design Choosing among Five Approaches. (4. Edition, Ed.) SAGE Publications. https://www.scirp.org/reference/ReferencesPapers?ReferenceID=2155979

[10] Chilean Labor Directorate. (2015). Corporate Social Responsibility. Scope and potential in labor matters. https://www.dt.gob.cl/portal/1629/articles-88984_recurso.pdf

[11] Guidelines of the Organization for Economic Co-operation and Development. (11 October 2023). OECD Guidelines for Multinational Enterprises on Responsible Business Conduct. https://www.oecd.org/en/publications/oecd-guidelines-for-multinational-enterprises-on-responsible-business-conduct_7abea681-en.html

[12] Domínguez, A. (2020). Construction companies and corporate social responsibility: is it possible? (Redalyc, Ed.) Trascender, Accounting and Management Journal, 5(15), 66-78. https://www.redalyc.org/journal/6679/667971056004/html/

[13] Spain, S. (2019). Safety at work as a social responsibility policy. A study at CNEL EP Esmeraldas Business Unit for the technical department staff. Universidad Andina Simón Bolívar. https://acortar.link/b3tsEJ

[14] European Agency for Safety and Health and Work. (2019). OSH System at National level - Swenden. https://oshwiki.osha.europa.eu/en/themes/osh-system-national-level-sweden

[15] European Agency for Safety and Health at Work. (2023). Occupational safety and health in Europe: state and trends 2023. https://osha.europa.eu/sites/default/files/OSH_in_Europe_state_trends_report_2023_en.pdf

[16] European Agency for Safety and Health at Work. (2024). France. https://osha.europa.eu/en/about-eu-osha/national-focal-points/france

[17] Feria, H., Matilla, M., & Mantecón, S. (2020). The interview and the survey: Methods or techniques of empirical research? (Dialnet, Ed.) Didasc@lia Journal. https://dialnet.unirioja.es/descarga/articulo/7692391.pdf

[18] Fontes, R. (2017). Occupational Safety and Health in Latin America and the Caribbean: Analysis, Issues and Policy Recommendations. Operations Department 3, Inter-American Development Bank. https://acortar.link/SCNmUg

[19] Gesetzliche Unfallversicherung. (2024). https://www.dguv.de/

[20] González, A., Capa, L., Luciani, L., & Zambrano, A. (2019). Environmental management in the competitiveness of MSMEs in the El Oro Province, Ecuador. Espacios Magazine. https://www.revistaespacios.com/a19v40n04/a19v40n04p17.pdf

[21] Health and Safety Executive. (2024). https://www.hse.gov.uk/

[22] Health and Safety Executive. (2024). HSE: International Leader in Health and Safety. Spa. https://www.hsl.gov.uk/hse-international-leader-in-health-and-safety/hse-international-leader-in-health-and-safety-eng

[23] Henríquez, P., & Lacaze, L. (April 27, 2021). BIM: How digitalized is the construction industry in the region? Inter-American Development Bank: https://blogs.iadb.org/innovacion/es/

[24] Hernández, R., & Mendoza, P. (2018). Research Methodology. The quantitative, qualitative and mixed routes. Mexico: McGraw Hill Education.

[25] Hernandez, S., Fernandez, C., & Baptista, L. (2014). Research Methodology. Mexico: Mc Graw Hill.

[26] Hong, Y., & Roh, T. (2024). The Effect of Corporate Social Responsibility on Workplace Safety: The Significance of Employees' Moral Identity. Behavioral Sciences, 14(6), 429. https://acortar.link/NFy99F

[27] International Labor Organization. (2022). National profile of labor legislation; Japan. https://www.ilo.org/es/media/24066/download

[28] International Labour Organization. (2024). INTEROSH - Database of agencies, institutions and organizations with expertise in OSH.

Research Article

https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:13101:0::NO::P13101_COMMENT_ID:2086629

[29] Lacaze, L. (2020). BIM Survey. Latin America and the Caribbean 2020. BIM Forum Latam. Inter-American Development Bank. https://acortar.link/4iiygS

[30] Máttar, J., & Cuervo, L. (2017). Planning for development in Latin America and the Caribbean. Approach, experiences and perspectives. https://acortar.link/yfxJu2

[31] Mendoza, R. (2023). SST in the Sierra Centro Region of Ecuador*. National Institute of Statistics and Censuses (INEC).

[32] Legislative Observatory of Colombia. (2016). Public-Private Partnerships Law 1508 of 2012. https://acortar.link/S3IOJl

[33] Occupational Safety and Health Administration. (2024). https://www.osha.gov/

[34] International Labour Organization (ILO). (2018). Occupational health and safety standards*. Retrieved from [ILO website] (https://www.ilo.org).

[35] International Labour Organization. (1998). Declaration on Fundamental Principles and Rights at Work and its Follow-up. https://www.ilo.org/en/ilo-declaration-on-fundamental-principles-and-rights-at-work-and-its-follow-up

[36] International Labour Organization. (2023). Fundamental Conventions on Occupational Health and Safety. https://acortar.link/q70WNt

[37] International Labour Organization. (2023). Overview of Occupational Safety and Health in Latin America and the Caribbean. Regional Fact Sheet. https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@americas/@ro-lima/documents/publication/wcms_882230.pdf

[38] International Labour Organization. (2024). Health and safety at work in Latin America and the Caribbean. https://acortar.link/AdgS23

[39] Paguay, M., Febres, J., & Valarezo, E. (2023). Occupational Accidents in Ecuador: An Approach from the Construction and Manufacturing Industries. MDPI, 15(16), 12661. https://www.mdpi.com/2071-1050/15/16/12661

[40] Paredes, A. (2020). Corporate social responsibility in the Ecuadorian context*. Journal of Economy and Society, 20(3), 21-35.

[41] Rivermate. (2019). Germany. Occupational Health and Safety Standards. https://www.rivermate.com/es/guias/alemania/salud-y-seguridad

[42] Rodríguez, M. (2019). ISO 45001 and 26000: Competitiveness standards in construction*. Journal of Engineering, 15(2), 34-45.

[43] Safe Work Australia. (2024). https://www.safeworkaustralia.gov.au/

[44] Superintendence of Labor Risks of Argentina. (2007). Occupational Health and Safety Management Systems. https://www.argentina.gob.ar/normativa/nacional/127249/texto

[45] Villacis, W., & Caiche, R. (2021). Social responsibility as a tool for competitive advantage for small and medium-sized enterprises. 593 Publisher, 6(5), 65-72. http://doi.org/10.33386/593dp.2021.5.608

[46] Yin, R. (2018). Case study research. Design and Methods. http://panel.inkuba.com/sites/2/archivos/YIN%20ROBERT%20.pdf