Artículos de Investigación

Indicadores de Sostenibilidad Ambiental en Organizaciones con Impacto en la Población Indígena de La Guajira Colombiana

Indicators of Environmental Sustainability in Organizations with Impact on the Indigenous Population of La Guajira Colombiana

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Abstract: The objective of this work was to describe the indicators of environmental sustainability in the context of the Wayuu population. This is a descriptive and application-type research in the field, based on a non-experimental, cross-sectional design, taking as a sample 12 managers of public and private companies with an impact in the North of Colombian La Guajira. The observation method was applied as a research technique and a questionnaire was used as an instrument for data collection. It was made up of different items based on the Likert-style attitude scale, with five response alternatives. The results have shown that the environmental performance indicator reflects a moderately favorable category in companies, this reveals how managers apply only some important components on the treatment of the environment related to their productive activities. In conclusion, for the dimension, the global results are moderately favorable in the reality of the companies. Managers need to apply adjustments and add activities to their environmental practices, to show better indicators for environmental sustainability within the company's operation.

Keywords: Environmental management, Environmental indicator, Corporate social responsibility, Business sustainability, indigenous area.

Resumen: El objetivo de este trabajo fue describir los indicadores de sostenibilidad ambiental en el contexto de la población Wayuu. Se trata de una investigación de tipo descriptiva y aplicativa en el campo, basada en un diseño no experimental, de corte transversal, tomando como muestra 12 directivos de empresas públicas y privadas con incidencia en el Norte de La Guajira colombiana. Como técnica de investigación se aplicó el método de observación y como instrumento de recolección de datos se utilizó un cuestionario. Estaba compuesto por diferentes ítems basados en la escala de actitudes tipo Likert, con cinco alternativas de respuesta. Los resultados han mostrado que el indicador de desempeño ambiental refleja una categoría moderadamente favorable en las empresas, esto revela cómo los gestores aplican sólo algunos componentes importantes sobre el tratamiento del

medio ambiente relacionado con sus actividades productivas. En conclusión, para la dimensión, los resultados globales son moderadamente favorables en la realidad de las empresas. Los gestores necesitan aplicar ajustes y agregar actividades a sus prácticas ambientales, para mostrar mejores indicadores de sustentabilidad ambiental dentro de la operación de la empresa

Palabras clave: Gestión medioambiental, Indicador medioambiental, Responsabilidad social de las empresas, Sostenibilidad empresarial, área indígena.

1. Introduction

Environmental Management begins with the incorporation of the environmental variable in social, institutional and business decision processes, limited by changes in the environment (Vázquez, 2019; Nguyen et al., 2018). In line with development and its relationship with the environment, this concept has been deployed. Its main objective is to harmonize human activities and the environment, through instruments that encourage and make this task viable, in search of environmental improvements, which presupposes the modification of human behavior in relation to the environment (Uve et al., 2022; Plasencia et al., 2018).

For its part, the United Nations (UN) Commission on Sustainable Development designed criteria to group the construction of sustainability indicators based on certain thematic axes, as endorsed in the document generated at the Earth Summit held in Rio de Janeiro in 1992 and were classified into four categories: economic, social, ecological, and institutional. Therefore, environmental indicators are mechanisms that allow articulating sustainability objectives (Zhao et al., 2023). Their importance lies in the fact that, sectorally or comprehensively, they are formulated in a unique and unrepeatable context at the social, administrative, and territorial level. Indicators can be defined as variables endowed with meanings, derived from their own scientific configuration,

Thus, the efforts to achieve sustainability have been reflected in the 2030 Agenda for Sustainable Development, whose action measures of the member countries cover a series of strategies aimed at meeting 17 proposed objectives, through multidisciplinary solutions that address to the actors involved. Here the company is recognized as a fundamental part of the economy and, therefore, has a key role in the integration of sustainability. This is defined in objective 12.6, which addresses the importance of business management for the generation of reports on the matter that facilitate communication with interest groups (Miranda et al., 2022).

Now, according to Romero et al. (2020), indicators are a decision-making instrument, since they present observable characteristics and are often associated with statistical data, which allows the analysis and monitoring of actions. The present study is focused on indicators of Environmental Sustainability in Organizations with Impact on the Indigenous Population. For this work, we initially define environmental performance indicators, which are characterized by providing specific information on the results of the environmental behavior

of an organization; they are those that They provide information about the environmental performance of the company's operations or production: from the inputs used (materials, energy and services) to the resulting outputs (products, services, waste and emissions),

Regarding environmental quality indicators, in the words of Aguirre et al. (2019), describe the environmental quality of the environment of the institution or company, it is a management tool that synthetically presents the environmental situation in which the city is located, and can be used as an instrument for decision-making in the application of public politics. Among those measured are: water, noise, energy, air, climate change, biodiversity, waste, sustainable mobility.

On the other hand, in terms of indigenous population, the Colombian Caribbean has 22 territorial entities, 17 ethnic groups and 209,719 inhabitants, which represent 29.4% of the region's population. The majority group in the region is the Wayuu, with 68.6% of the region, followed by the Zenú, with 16.1% and the Arhuacos, with 6.8%. These fully identified indigenous peoples speak 64 Amerindian languages and a diversity of dialects that are grouped into 13 linguistic families. In data established by Aarón et al. (2018), the Wayuu indigenous community lives in the arid La Guajira peninsula in northern Colombia and northwest Venezuela on the Caribbean, 180 m above sea level (Ortiz et al., 2015). The National Administrative Department of Statistics (DANE) reported in 2005 that 270,413 people are recognized as belonging to the Wayuu community, a figure that positions this indigenous community as the one with the largest population in the country. 49% of this population are men (132,180) and 51% are women (138,233).

Finally, the environmental management indicators demonstrate the organizational actions implemented to avoid environmental impact (Rivero et al., 2018). The environmental management indicator proposed in this research is an expression that allows integrating the level of performance of the company in relation to three aspects that are considered vital to determine the response of organizations or entities to their environmental responsibilities similar to that used by Severiche et al. (2023), they are:

- The degree of development or execution and compliance of the environmental management plan that is part of either projects or activities in execution
- The state of environmental legality of the company's activities, in terms of obtaining the permits and authorizations required for the development of the projects.
- The level of control of the environmental impacts derived from its activities).

2. Methodology

work with a non-experimental, transectional or transversal and field design as the operational strategy that allows it to be developed, framed in the positivist paradigm, quantitative methodology and the empirical-deductive methodical sequence, type of descriptive research. In the study, an intentional sample of 12

subjects is selected based on non-probabilistic, causal, or incidental sampling, placing them in public and private companies with economic activity in the context of the Wayuu communities located in the department of La Guajira. The selection criteria follow those established by Rosado et al. (2022a). with the presence of the company in the territories of Wayuu communities, as well as the company must currently be developing economic activity,

The technique used in this research is observation through a survey, the data and information collection instrument that is applied in this research is the closed-response questionnaire in which each question or item presents a fixed number or alternative response based on a Likert-type frequency or periodicity scale where the subject selects one of the multiple response alternatives, like this: Always, Almost Always, Sometimes, Almost never and Never, with a weighting of 5, 4, 3, 2 and 1(Rosado et al. 2022b).

In this sense, the averages given are located according to the greatest trend in the answers given by the respondents, with the purpose of categorizing the results based on the scale applicable in each case to the indicators, dimensions and selected variables. see Table 1. In reference to the calculation of the dispersion of the data calculated from the responses of the respondents, the following scale will be used for the standard deviation.

Table 1.
Scale interpretation of the standard deviation

Range	Interval	Category
5	3.21 - 4.00	Very High Dispersion
4	2.41 - 3.20	High Dispersion
3	1.61 -	Moderate

self made

Likewise, to analyze the data, the Excel statistical program is used, estimating the statistics and criteria necessary for the study and essential reasoning that allows responding to the objectives formulated in this study at the beginning of the research.

3. Results and discussion

In Table 2, you can see how the results for the environmental performance indicator show how 47.33% of managers sometimes use measurement parameters of the company's productive activity related to the environment, establishing measurements of the environmental impact that they have. the materials they use in their products or services, in addition to calculating the environmental impact of the maintenance, operation and distribution activities of their products or services. 41.46% responded that they almost always do it and 11% almost never do it.

In the case of the arithmetic mean, the calculation gave a result of 3.3, which reflects a category of moderately favorable in the environmental performance

indicator presented by managers in their companies, with a value of 0.68 for the standard deviation showing that the responses obtained had very low dispersion, that is, they are highly reliable.

Table 2.
Indicators of environmental sustainability

Variable		Environmental sustainability												
Dimension	Indicator	Always		Almost always		Sometimes		Hardly ever		Never		Average		
		FA	FR%	FA	FR%	FA	FR%	FA	FR%	FA	FR%	ITEM	IND	DEV
Indicators of environmental sustainability	Environmental Performance	0	0%	6	fifty%	5	42%	1	8%	0	0%	3.42	3.3	0.68
		0	0%	4	33%	7	58%	1	8%	0	0%	3.25		
		0	0%	5	42%	5	42%	2	17%	0	0%	3.25		
	Environmental Quality	0	0%	0	0%	6	fifty%	6	fifty%	0	0%	2.50	3.0	0.74
		0	0%	2	17%	3	25%	7	58%	0	0%	2.58		
		4	33%	3	25%	5	42%	0	0%	0	0%	3.92		
	Environmental Management	0	0%	5	42%	4	33%	3	25%	0	0%	3.17	3.2	0.75
		0	0%	2	17%	9	75%	1	8%	0	0%	3.08		
		1	8%	5	42%	4	33%	2	17%	0	0%	3.42		
	TOTAL	5	5%	32	30%	48	44%	23	twenty-one%	0	0%	100%	3.2	0.72
		Med. Arith.	3.2	Moderately favorable				Dev. Its T.	0.72	Low Dispersion - high reliability				

self made

The results obtained are partially consistent with the approaches of Caiado, et al. (2018) who define these indicators as indicators of productive activity, which provide information about the environmental performance of the company's operations or production: from the inputs used (materials, energy and services) to the resulting outputs (products). , services, waste and emissions), going through the process of purchasing inputs, the design, installation, operation and maintenance of the equipment and physical facilities of the company, or the distribution of the outputs resulting from the production process.

With respect to the second indicator of environmental quality, the results reflect how 39% sometimes seek to know the situation that occurs with environmental factors such as water, noise, among others; monitoring the environment to know the environmental situation surrounding the company and manage information on waste, biodiversity and sustainable mobility around its physical location. 36% almost never do it, 14% almost always do it, 11% always do it and no one ever took the option. Meanwhile, the average of the indicator was 3.0, which according to the categorization scale places it at the moderately acceptable level with a standard deviation of 0.74, which reveals a low dispersion in the managers' responses and represents high reliability in the responses obtained.

These findings are partially consistent with Abbas (2020) and Mata et al. (2016) when they express that the Environmental Quality Index (ICA) is a management tool that synthetically presents the environmental situation in which the city finds itself, and can be used as an instrument for decision-making in the application of public policies. Among those measured are: water, noise, energy, air, climate change, biodiversity, waste, sustainable mobility.

The third indicator within the dimension is Environmental management, whose results reveal how 47% of the managers surveyed sometimes verify the

environmental management plan of the plans and/or projects that are executed in the company, they comply with the regulations. environmental legal based on obtaining permits and authorizations for the projects they execute and finally apply a system of supervision and control over the environmental impacts that derive from the company's productive activities. 33.66% almost always do it, 16.66% almost never and finally 2.66% always do it.

Regarding the calculated values of the arithmetic mean, it is shown that the average achieved was 3.2, which indicates a moderately favorable category, where the dispersion levels were at 0.72, which means low dispersion and very high reliability in the set of selected responses. by the managers. It should be noted that these data are moderately similar to the approaches made by Khalil & Muneenam (2021), Narimissa et al. (2020), Medne & Lapina (2019) and Jackson et al. (2016) the environmental management indicator measures the level of performance of the company in relation to three aspects, they are: i) the degree of development or execution and compliance of the environmental management plan that is part of either projects or activities. in action, ii) the state of environmental legality of the company's activities, in terms of obtaining the permits and authorizations required for the development of the projects; iii) the level of control of the environmental impacts derived from its activities.

4. Conclusions

The results have shown that the environmental performance indicator reflects a moderately favorable category in companies, this reveals how managers apply only some important components on the treatment of the environment related to their productive activities. Meanwhile, the other indicators referring to environmental quality and environmental management appear moderately acceptable and require strengthening to enhance sustainability within the different organizations surveyed. In conclusion, for the dimension, the global results are moderately favorable in the reality of the companies. Managers need to make adjustments and also add activities to their environmental practices

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