Impact of Environmental Policy on Solid Waste Management in the Provincial Municipality of Cusco in 2022

Zulemi Zamalloa Mora[1]

Abstract

The present research analyzes the incidence of environmental policy on solid waste management at the provincial municipality of Cusco-2022, where the methodological framework was carried out through a quantitative approach, as an applied research, with a descriptive correlational level, non-experimental cross-sectional design. The population consisted of 30 workers of the provincial municipality of Cusco who perform their activities in the general office of administration, the general office of planning, budget and investment and environmental management, considered as part of the sample, where the technique and instrument was the survey and the questionnaire processing data in SPSS25. According to the results, it is clear that a good environmental policy has an impact on solid waste management. The results allow concluding that the environmental policies implemented in the entity are regular because environmental legislation is unknown or not adequately applied, and there is no good environmental education. In addition, there are deficiencies in environmental practices, so it can be said that solid waste management is regular because there is no planning, organization and control of the activities to be carried out in the entity concerning solid waste management, so an excellent environmental policy affects solid waste management and the municipality will be able to manage solid waste more efficiently through environmental policies.

Keywords: *Environmental policy, solid waste management, environment, municipality, public servants, environmental legislation, planning, organization, control*

Introduction

BPUM's Joint Program Monitoring Team (2021) emphasized "productive assistance for micro businesses besides being a cash buffer so that MSMEs can survive during a pandemic, it also functions as a complement to other government assistance programs (TNP2K, 2021).

Internationally, all the activities carried out daily by man in a society always generate waste that pollutes the environment; therefore, it is necessary to have effective management of such solid waste, and these activities to be carried out must be done with due care and responsibility, taking into account that this issue is significant for everyone. For a long time, all kinds of waste have been accumulating, causing danger to the environment, but the most important was the disposable products which broke the limits of traditional and monodisciplinary management.

Recently, greater importance has been given to everything related to the care and conservation of the environment, emphasizing water, soil, air, plants, ecosystems, animal diversity, and natural landscapes. It is important to associate environmental and social responsibility with activities oriented to properly using natural resources in the environment.

In this context, it is essential to revive and strengthen the environmental policy to prioritize activities that help minimize the impact on nature and society. This type of management provides endless possibilities to clean the atmosphere by applying environmental policies. It is important to consider that managing these wastes or solid wastes comprises several complex technical activities of the administration. These activities

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[1] Universidad César Vallejo. Email: zzamalloa0@gmail.com ORCID: 0000-0002-0086-9203

include planning, coordination, verification and evaluation of the transformation that society suffers from the consumption of certain products that generate waste, as well as the policies, strategies, plans and programs to achieve the reduction, classification and recycling by giving a new use to all the accumulated garbage. Significantly, all this responsibility is on the part of the Municipalities, called key institutions, to fulfill these facts.

At the local level, the frequent problem in conserving the environment and natural resources is that no educational system is oriented to generate environmental awareness promoted by the state through its communication channels. This focused on creating environmental awareness through generating knowledge, fostering students' attitudes, strengthening the students' evaluation capacity, and motivating participation. To this end, local governments must take actions within their jurisdictions to carry out activities to promote environmental practices, making adequate use of public resources related to economic, financial and human resources. Social responsibility is an integral part of human development, so it is important for local governments to carry out strategic planning to conserve and adequately use natural resources. Local governments currently perform some actions to promote environmental practices, such as imposing fines on those who dispose of garbage at unauthorized times, conservation and maintenance of gardens and working to reduce pollution of the Huatanay River. However, these actions are insufficient and do not focus on creating mechanisms for good environmental practices oriented to culture and environmental education.

In this context, the following questions were posed: How does environmental policy affect solid waste management in the provincial municipality of Cusco-2022; how does environmental legislation affect solid waste management in the provincial municipality of Cusco-2022; how does environmental education affect solid waste management in the provincial municipality of Cusco-2022; how do environmental practices affect solid waste management in the provincial municipality of Cusco-2022; how do environmental practices affect solid waste management in the provincial municipality of Cusco-2022; and how does environmental legislation affect solid waste management in the provincial municipality of Cusco-2022. The study was carried out using a theoretical justification because it seeks to increase knowledge regarding environmental policy and solid waste management; on the other hand, a practical justification was considered because there is a need for studies that show the intensity of the link between environmental policy and solid waste management. In addition, a methodological justification was considered because the study was carried out employing a methodological framework through which the study's type, approach, design, technique and instrument were determined, where the data obtained were used in a general and confidential way considering the university's guidelines. Finally, the study considered the epistemological justification due to the priority of increasing knowledge, for which different theories related to the topic were considered.

Therefore, the general objective was to analyze how environmental policy affects solid waste management in the provincial municipality of Cusco-2022; the specific objectives were: to describe how environmental legislation affects solid waste management in the provincial municipality of Cusco-2022; to describe how environmental education affects solid waste management in the provincial municipality of Cusco-2022; to describe how environmental practices affect solid waste management in the provincial municipality of Cusco-2022. Finally, the general assumption was that a good environmental policy affects solid waste management in the provincial municipality of Cusco-2022; specific assumptions were that Environmental legislation affects solid waste management in the provincial municipality of Cusco-2022; Environmental education affects solid waste management in the provincial municipality of Cusco-2022: Environmental legislation has an impact on solid waste management in the provincial municipality of Cusco-2022; Environmental education has an impact on solid waste management in the provincial municipality of Cusco-

2022; Environmental practices have an impact on solid waste management in the provincial municipality of Cusco-2022.

2. Objectives

2.1 General objective

Analyze how environmental policy affects solid waste management in the provincial municipality of Cusco-2022.

2.2 Specific objectives

- Describe how environmental legislation affects solid waste management in the provincial municipality of Cusco-2022.

- To describe how environmental education affects solid waste management in the provincial municipality of Cusco-2022.

- Describe how environmental practices affect solid waste management in the provincial municipality of Cusco-2022.

3. Methodology

3.1 Type and design of research

3.1.1 type of research

According to Carrasco (2019), the research was of the applied type since the priority is to increase the previous knowledge that one has about the study; for this, it was essential to consider different authors, whether national or international, to be able to present possible alternative solutions.

3.1.2 Research design

Hernández et al. (2014) specify that the non-experimental design encompasses the description of the reality without the need to modify or alter the study units or the results obtained and is transversal because the study was developed in a single time and moment.

Approach

Hernandez et al. (2014) specify that the study was conducted through the quantitative approach because the results were obtained in numerical function for the corroboration of the hypotheses.

Level or scope

Hernandez et al. (2014) point out that the study was conducted through the descriptive level or scope because it described and analyzed how environmental policy and solid waste management so that it can be specified how environmental policy affects solid waste management.
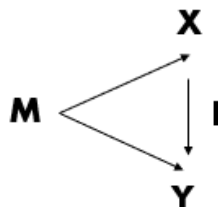
M = sample

X = environmental policy

Y = solid waste management

I = incidence

3.2 Population, sample and sampling

3.2.1 population

According to Hernández et al. (2014), workers of the Cusco provincial municipality were considered part of the population to collect information for the research development.

3.2.2 Sample

Hernández et al. (2014) report that to collect information for the development of the research, 30 workers who perform their activities in the general office of administration, the general office of planning, budget and investment and the environmental management of the provincial municipality of Cusco were considered as part of the sample.

Table 1. Offices and management of the Cusco district municipality

Offices and management of the Cusco district municipality			
General Administration Office			
Human Resources Office	1 chief	2 participants	13
Logistics office	1 chief	2 participants	
Treasury Office	1 chief	2 participants	
Accounting office	1 chief	3 participants	
General Office of Planning, Budget and Investment			
Planning Office	1 chief	2 participants	9
Budget Office	1 chief	2 participants	
Investment programming office	1 chief	2 participants	
Environmental management			
Environmental Management Sub-Management	1 chief	3 participants	8
Environmental Sanitation Sub-Management	1 chief	3 participants	
Total			30

Note: the table represents the offices and management of the district municipality of Cusco.

3.2.3 Sample

According to Hernández et al. (2014), non-probabilistic sampling was considered because it was chosen conveniently and intentionally without the need to use any statistical formula to find the research sample.

3.3 Technique and instrument

Technique

For this study, the survey technique was used, which was presented to the collaborators in order to obtain all the necessary and relevant information (Hernández et al., 2014).

Instrument

For the study, a questionnaire composed of 10 questions related to environmental policies and 10 related to solid waste management was considered as an instrument, where the answers were made according to the Likert or ordinal scale, which was presented to the 30 collaborators of each office and management of the provincial municipality of Cusco.

4. Results

4.1 General reliability test

Reliability of variable 01 - Environmental policies

Table 2. Reliability testing of environmental policies.

Cronbach's Alpha	Cronbach's alpha based on standardized items	N of elements
0.780	0.773	10

Note: the table represents the reliability test of environmental policies.

Interpretation

By means of the Crombrach's Alpha test, the instrument's reliability for the environmental policies variable was measured, giving a value of 0.780; this value is close to the unit, so it can be interpreted that the instrument is reliable.

Reliability of variable 02 - Solid waste management

Table 3. Solid waste management reliability test.

Cronbach's alpha	Cronbach's alpha based on standardized items	N of elements
0.797	0.790	10

Note: the table represents the solid waste management reliability test.

Interpretation

By means of the Crombrach's Alpha test, the instrument's reliability for the solid waste variable was measured, resulting in a value of 0.780; this value is close to unity, so it can be interpreted that the instrument is reliable.

4.2 Descriptive analysis

Result of the general objective

Table 4. Result of the general objective.

Scales				Environmental policy		Solid waste management	
Environmental policy	Solid waste management		Levels	fi	hi%	fi	hi%
28 - 32	25 - 30		Bad	9	30%	9	30%
33 - 37	31 - 33		Regular	14	47%	12	40%
38 - 49	34 - 43		Good	7	23%	9	30%
Total				30	100%	30	100%

Note: the table represents the results of the analysis of the general objective.
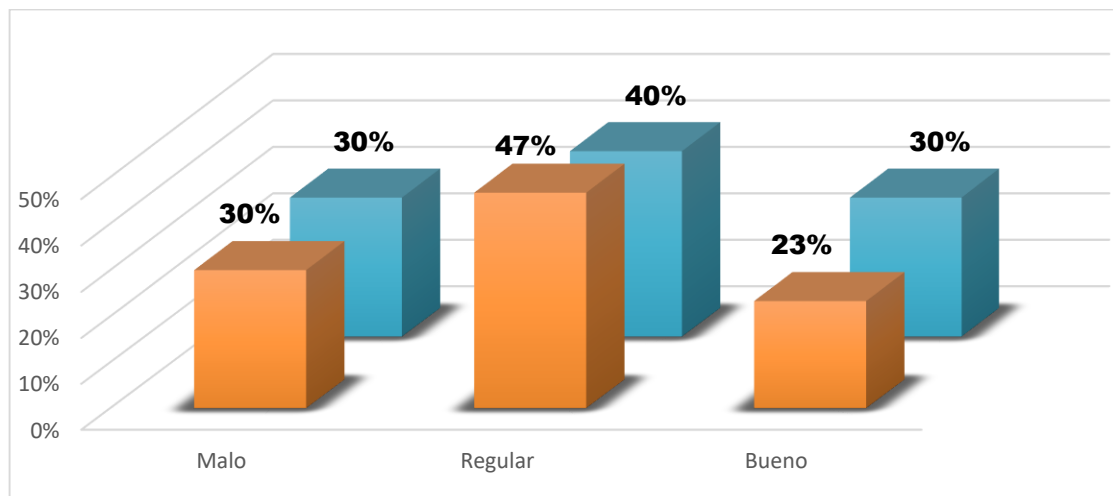
Note: the figure represents the results of the analysis of the general objective.

Figure 1. Result of the general objective.

Interpretation

For the development of the research, it was necessary to collect reliable information, so it was considered a questionnaire presented to the staff working in the provincial municipality of Cusco, where the data was taken. In general, about environmental policy, 30% said it is bad, 47% said it is regular and 23% said it is good; because of this, it can be specified that environmental policies are regular because it is unknown or environmental legislation is not adequately enforced. In addition, there is no good environmental education, and there are deficiencies in environmental practices. Concerning waste management, 30% say it is bad, 40% say it is regular, and 30% say it is good; therefore, it can be said that solid waste management is regular because there is no planning, organization and control of the activities that the entity will carry out with solid waste management. Taking into account the results and the fact that the items of the study were related to environmental policies and solid waste management, it is clear that a good environmental policy has an impact on solid waste management since, through environmental policies, the municipality will be able to manage solid waste more efficiently.

Result of specific objective 01

Table 5. Result of specific objective 01

Scales				Environmental Legislation		Solid waste management	
Environmental Legislation		Solid waste management	Levels	fi	hi%	fi	hi%
9 - 11		25 - 30	Bad	10	33%	9	30%
12 - 14		31 - 33	Regular	13	43%	12	40%

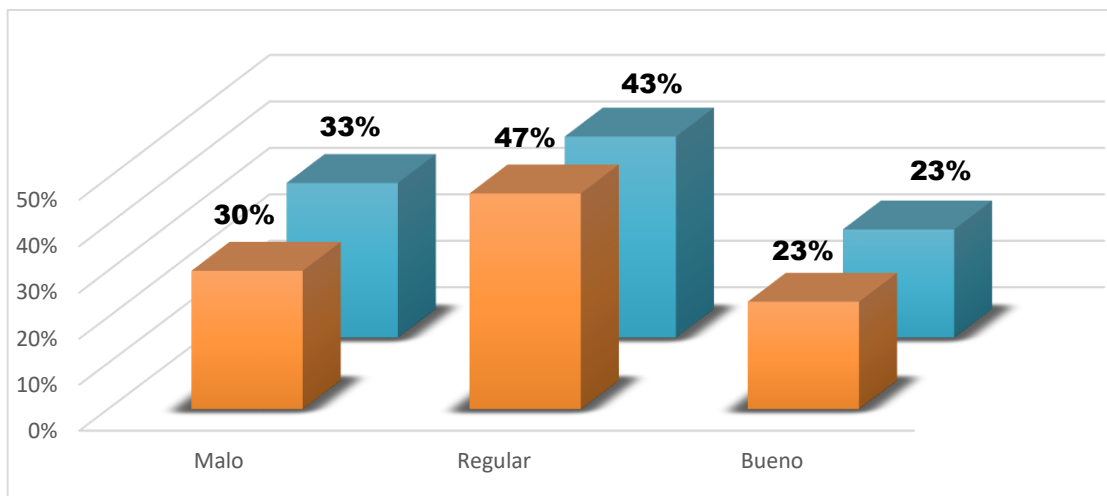| 15	-	18	34	-	43	Good	7	23%	9	30%
Total							30	100%	30	100%

Figure 2. Result of specific objective 01

Interpretation

For the research development, it was necessary to collect reliable information so it was considered a questionnaire presented to the staff working in the provincial municipality of Cusco. In the general data taken about environmental legislation, 33% said it was bad, 43% said it was regular, and 23% said it was good; therefore, it can be said that environmental legislation is regular because it is unknown or because the rules are not properly applied. Regarding waste management, 30% say it is bad, 40% say it is regular, and 30% say it is good, so it can be said that solid waste management is regular because there is no planning, organization and control of the activities to be carried out by the entity with solid waste management. Taking into account the results and the fact that the items of the study were related to environmental policies and solid waste management, it is clear that environmental legislation has an impact on solid waste management since, through guidelines, norms and sanctions, the municipality will be able to manage solid waste more efficiently.

Result of specific objective 02

Table 6. Result of specific objective 02

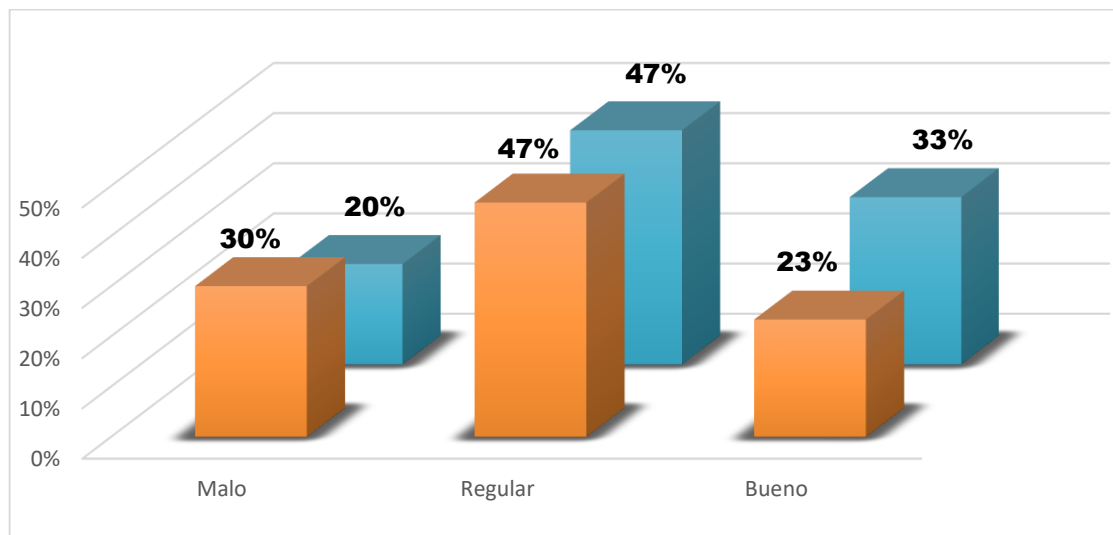| Scales						Levels	Environmental education		Solid waste management	
Environmental education			Solid waste management				fi	hi%	fi	hi%
6	-	8	25	-	30	Bad	6	20%	9	30%
9	-	11	31	-	33	Regular	14	47%	12	40%
12	-	13	34	-	43	Good	10	33%	9	30%
Total							30	100%	30	100%

Figure 3. Result of specific objective 02

Interpretation

For the development of the research, it was necessary to collect reliable information, so a questionnaire was considered and presented to the staff working in the provincial municipality of Cusco, where the data was taken in general about environmental education. In this instrument, 20% said it was bad, 47% said it was regular, and 33% said it was good. In this regard, it can be said that environmental education is average because there is a lack of awareness of environmental policies, a lack of sensitization regarding environmental care and a lack of information dissemination. On the other hand, for waste management, 30% say it is bad, 40% say it is regular, and 30% say it is good; therefore, it can be said that solid waste management is regular because there is no planning, organization and control of the activities to be carried out by the entity concerning solid waste management. Taking into account the results and the fact that the items of the study were related to environmental policies and solid waste management, it is clear that environmental education has an impact on solid waste management since, through awareness, sensitization and dissemination of information, the municipality will be able to manage solid waste more efficiently.

Result of specific objective 03

Table 7. Result of specific objective 03.

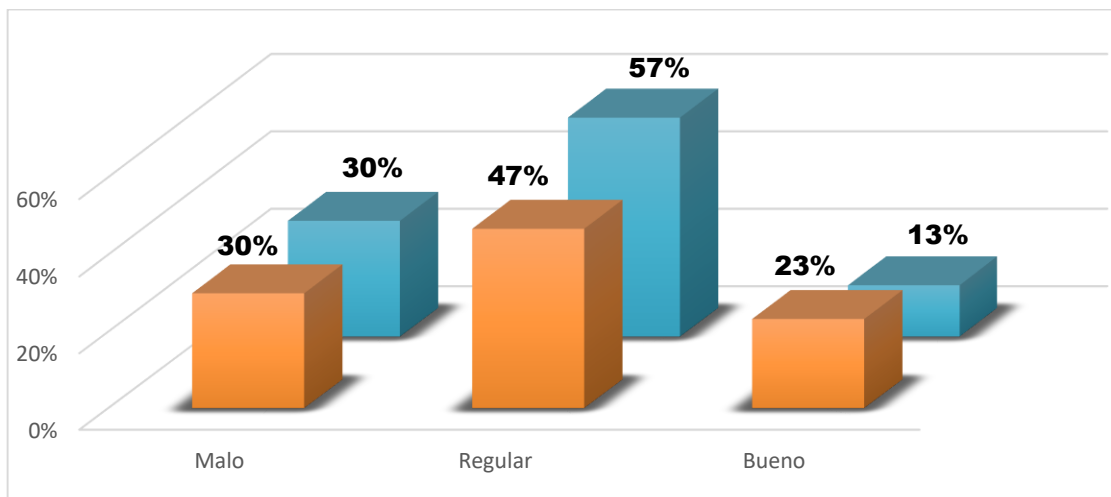| Scales					Environmental practices		Solid waste management	
Environmental practices		Solid waste management		Levels	fi	hi%	fi	hi%
7	- 8	25	- 30	Bad	9	30%	9	30%
9	- 10	31	- 33	Regular	17	57%	12	40%
11	- 13	34	- 43	Good	4	13%	9	30%
Total					30	100%	30	100%

Figure 4. Result of specific objective 03

Interpretation

For the development of the research, it was necessary to collect reliable information, so it was considered to apply a questionnaire to the staff working in the provincial municipality of Cusco, where the data were generally related to environmental practices. The results show that 30% said it was bad, 57% said it was regular, and 13% said it was good. For this reason, it can be specified that environmental practices are regular because it is unknown or there is no proper practice of the 4 Rs. On the other hand, concerning waste management, 30% say it is bad, 40% say it is regular, and 30% say it is good; therefore, it can be said that solid waste management is regular because there is no planning. Organization and control of the activities to be carried out by the company in relation to solid waste management are not in place. Taking into account the results and the fact that the items of the study were related to environmental policies and solid waste management, it is clear that environmental practices have an impact on solid waste management, so the correct application of the 4Rs will allow the municipality to manage solid waste more efficiently.

4.3 Inferential analysis

Normality test

H0: The data have a normal distribution

H1: Data are not normally distributed

Table 8. Normality test

	Shapiro-Wilk		
	Statistical	gl	Sig.
Environmental policies	0.811	30	0.000
Solid waste management	0.808	30	0.000
Environmental legislation	0.787	30	0.000

Environmental education	0.783	30	0.000
Environmental practices	0.798	30	0.000
Planning	0.808	30	0.000
Organization	0.806	30	0.000
Control	0.785	30	0.000

Interpretation

By means of the normality test, the data distribution can be defined, for which the number of collaborators in the sample was considered, whereas the Shapiro-Wilk test was used when the sig. value was less than 0.05, and the data did not have a normal distribution.

Hypothesis testing

General hypothesis

General cross table

Table 9. Environmental policy and solid waste management cross table

			Environmental policy			Total
			Bad	Good	Regular	
Solid waste management	Bad	Recount	7	2	0	9
		Expected Recount	2.7	3.6	2.7	9.0
	Good	Recount	2	10	2	14
		Expected Recount	4.2	5.6	4.2	14.0
	Regular	Recount	0	0	7	7
		Expected Recount	2.1	2.8	2.1	7.0
Total		Recuento	Recount	12	9	30
		Recuento esperado	Expected Recount	12.0	9.0	30.0

General correlation

Table 10. Correlation of environmental policy and solid waste management

			Environmental policy	Solid waste management
Tau_b of Kendall	Environmental policy	Correlation coefficient	1.000	,791**
		Sig. (bilateral)		0.000
		N	30	30
	Solid waste management	Correlation coefficient	,791**	1.000
		Sig. (bilateral)	0.000	
		N	30	30

Interpretation

By means of the cross table, it can be seen that the expected Recount is equivalent to the 30 employees who

answered the questionnaire, and according to Kendall's Tau_b test, it could be seen that the level of influence was 0.791. That is to say that it is high positive, besides the value of the sig. is less than 0.05, so the alternative hypothesis is accepted, and the null hypothesis is rejected.

Specific hypothesis 01

Specific cross table 01

Table 11. Environmental legislation and solid waste management cross table.

			Environmental Legislation			Total
			Bad	Good	Regular	
Solid waste management	Bad	Recount	6	3	0	9
		Expected Recount	3.0	3.9	2.1	9.0
	Good	Recount	4	7	3	14
		Expected Recount	4.7	6.1	3.3	14.0
	Regular	Recount	0	3	4	7
		Expected Recount	2.3	3.0	1.6	7.0
Total		Recount	10	13	7	30
		Expected Recount	10.0	13.0	7.0	30.0

Specific correlation 01

Table 12. Correlation of environmental legislation and solid waste management

			Environmental Legislation	Solid waste management
Tau_b of Kendall	Environmental Legislation	Correlation coefficient	1.000	,747**
		Sig. (bilateral)		0.001
		N	30	30
	Solid waste management	Correlation coefficient	,747**	1.000
		Sig. (bilateral)	0.001	
		N	30	30

Interpretation

By means of the cross table, it can be seen that the expected Recount is equivalent to the 30 employees who answered the questionnaire, and according to Kendall's Tau_b test, it could be seen that the level of influence was 0.747 that is to say that it is high positive, besides the value of the sig. is less than 0.05, so the alternative hypothesis is accepted, and the null hypothesis is rejected.

Specific hypothesis 02

Specific cross table 02

Table 13. Environmental education and solid waste management cross-table

	Environmental education		Total

			Bad	Good	Regular	
Solid waste management	Bad	Recount	3	5	1	9
		Expected Recount	1.8	4.2	3.0	9.0
	Good	Recount	3	7	4	14
		Expected Recount	2.8	6.5	4.7	14.0
	Regular	Recount	0	2	5	7
		Expected Recount	1.4	3.3	2.3	7.0
Total		Recount	6	14	10	30
		Expected Recount	6.0	14.0	10.0	30.0

Specific correlation 02

Table 14. Correlation of environmental education and solid waste management.

			Environmental education	Solid waste management
Tau_b of Kendall	Environmental education	Correlation coefficient	1.000	,767**
		Sig. (bilateral)		0.002
		N	30	30
	Solid waste management	Correlation coefficient	,767**	1.000
		Sig. (bilateral)	0.002	
		N	30	30

Interpretation

By means of the cross table, it can be seen that the expected Recount is equivalent to the 30 employees who answered the questionnaire, and according to Kendall's Tau_b test, it could be seen that the level of influence was 0.767 that is to say that it is high positive, besides the value of the sig. is less than 0.05, so the alternative hypothesis is accepted, and the null hypothesis is rejected.

Specific hypothesis 03

Specific cross table 03

Table 15. Environmental practices and solid waste management cross table.

			Environmental practices			Total
			Bad	Good	Regular	
Solid waste management	Bad	Recount	5	4	0	9
		Expected Recount	2.7	5.1	1.2	9.0
	Good	Recount	3	10	1	14
		Expected Recount	4.2	7.9	1.9	14.0
	Regular	Recount	1	3	3	7
		Expected Recount	2.1	4.0	0.9	7.0
Total		Recount	9	17	4	30
		Expected Recount	9.0	17.0	4.0	30.0

Specific correlation 03

Table 16. Correlation of environmental practices and solid waste management

			Prácticas ambientales	Gestión de residuos sólidos
Tau_b de Kendall	Prácticas ambientales	Coeficiente de correlación	1.000	,700**
		Sig. (bilateral)		0.003
		N	30	30
	Gestión de residuos sólidos	Coeficiente de correlación	,700**	1.000
		Sig. (bilateral)	0.003	
		N	30	30

Interpretation

By means of the cross table, it can be seen that the expected Recount is equivalent to the 30 employees who answered the questionnaire, and according to Kendall's Tau_b test, it could be seen that the level of influence was 0.700 that is to say that it is high positive, besides the value of the sig. is less than 0.05, so the alternative hypothesis is accepted, and the null hypothesis is rejected.

5. Discussion

After analyzing the results, the discussion centers on the results obtained in a synthesized way, as well as taking into account the previous national and international studies presented in the theoretical framework to show whether they corroborate the results obtained or reject them. First, the instruments applied are reliable because Crombrach's Alpha reliability test presented values of 0.780 and 0.797 for each variable, indicating that the instrument is reliable.

Regarding the general objective, the data for the descriptive analysis were taken in a general way, where the respondents answered that 30% said that the environmental policy is bad, 47% said that it is regular, and 23% said that it is good, so it can be said that the environmental policies are regular since environmental legislation is unknown or not adequately enforced, and there is no good environmental education.

In addition, there are deficiencies in environmental practices, and regarding waste management, 30% said it is bad, 40% said that it is regular, and 30% said that it is good, so it can be said that environmental policies are regular because there is no planning, organization and control of activities. In addition, there are deficiencies in environmental practices and for waste management, 30% say it is bad, 40% say it is regular, and 30% say it is good. It can be said that solid waste management is regular because there is no planning, organization and control of the activities that the entity will carry out about solid waste management. The inferential analysis was also carried out considering Kendall's Tau_b test, where it could be seen that the level of influence was 0.791, that is, that it is high positive, in addition to the value of the sig. is less than 0.05, so the alternative hypothesis is accepted, and the null hypothesis is rejected.

The results are supported by Morote (2020), who determined that due to the inadequate and incorrect use of norms and policies by several public institutions, environmental pollution has increased considerably, affecting the integrity of humanity. For this, entities must keep in mind that it is necessary to have budgetary availability focused on pollution reduction through a table of needs and adequate resource control. On the other hand, Torres et al. (2017) emphasize that the state has a quite notorious weakness concerning environmental care and compliance with regulations. On the other hand, it is also perceived that the citizens

are not aware, which leads to the state's consideration of the three main phases: planning, execution and control to reduce all solid waste found in the investigated locality.

Likewise, Yauli (2016), in his study on environmental education and modern alternative energy source and their impact on socio-educational factors, concluded that the program allows for establishing a connection between the environmental issues perceived by the community with the content proposed in the development of each session. Regarding the environmental awareness component, the group has greatly improved its knowledge since it has been of low and medium level from the beginning; however, after applying the image, the gain is high.

In this way, the education and development program is important because it is necessary to be aware of environmental value; in terms of attitude towards the environment, the group of partners has a high position because before the program application. This group has a low average level, but after completing the process, this level increases; that is to say that the attitude towards the environment is very favorable after applying the didactic proposal for the environmental values expressed by the subjects. There were significant differences between the ratings before the program's application, given that their average and the process, in general, are all high."

Regarding the first specific objective, the data for the descriptive analysis were taken in general, where the respondents answered that 33% said that environmental legislation is bad, 43% said that it is regular, and 23% said that it is good, so it can be said that environmental legislation is regular because it is not known or the rules are not correctly applied. Regarding waste management, 30% say it is bad, 40% say it is regular, and 30% say it is good. As a result, it can be said that solid waste management is regular because there is no planning, organization and control of the activities to be carried out by the entity with solid waste management.

Based on the results and on the fact that the items of the study were related to environmental policies and solid waste management, it was stated that environmental legislation has an impact on solid waste management since, through the guidelines, norms and sanctions, the municipality will be able to manage solid waste more efficiently, and the inferential analysis was also carried out taking into consideration the Kendall's Tau_b test of 0747, which means that it is high positive, in addition to the fact that the value of the sig. is less than 0.05, so the alternative hypothesis is accepted, and the null hypothesis is rejected.

Estenssoro and Vasquez (2018) sustain that the state prioritizes exploiting its resources to increase its economy. This situation leads to major environmental problems, for which the state should implement defense mechanisms with the aim that both economic growth and the environment do not decline, so also Gonzales (2018) concludes that environmental policy seeks to develop environmental education and culture. Vargas (2016), in his study on the environmental education process, focused on basic education, concludes that the element that negatively affects the use of waste is the absence of information on the rules, and this occurs because there is no good environmental education, so it is necessary to implement mechanisms to help reduce environmental pollution.

Regarding the second specific objective, the data for the descriptive analysis were taken in general, where the respondents answered that environmental education is bad, 20% indicated that it is bad, 47% indicated that it is regular, and 33% indicated that it is good; therefore, it can be said that environmental education is regular, since there is no knowledge or awareness of environmental policies, and there is no awareness of environmental care, and there is no good dissemination of information. On the other hand, concerning waste management, 30% say it is bad, 40% say it is regular, and 30% say it is good; therefore, it can be said that solid waste management is regular because there is no planning, organization and control of the

activities to be carried out by the entity about solid waste.

Considering the results and the fact that the items of the study were related to environmental policies and solid waste management, it was stated that environmental education has an impact on solid waste management. The inferential analysis was also carried out considering Kendall's Tau_b test, which showed that the level of influence was 0.767. Its value is less than 0.05, so the alternative hypothesis is accepted, and the null hypothesis is rejected.

The results are corroborated by Vélez et al. (2019), who, in their study, conclude that the area investigated would have several environmental and economic benefits if recycling and commercialization were carried out with the proposed solid waste management. On the other hand, Cornejo (2016) concludes that local governments have not developed management or, from a sustainable development perspective, are not the most appropriate about solid waste for the population, ignoring the villagers about the existence of planned and established policies. The accumulation of garbage on the road by users is a focus of contagion that presents a great impact indicating that users are at risk regarding health and the environment, urging users to ignore local government ordinances, with garbage being the main problem. Such sanctions need to be more drastic since the magnitude of the impact is small.

Concerning the third specific objective, the data for the descriptive analysis were taken in general, where the respondents answered that 30% of the environmental practices are bad, 57% are regular, and 13% are good. On the other hand, concerning waste management, 30% say it is bad, 40% say it is regular, and 30% say it is good, so it can be said that solid waste management is regular because there is no planning, organization and control of the activities to be carried out by the entity concerning solid waste management.

Taking into account the results and the fact that the items of the study were related to environmental policies and solid waste management, it was shown that environmental practices have an impact on solid waste management since, through the correct application of the 4Rs, the municipality will be able to manage solid waste more efficiently. The inferential analysis was also carried out considering Kendall's Tau_b test, which showed that the level of influence was 0.700. That is, it is high positive, in addition to the value of the sig. is less than 0.05, so the alternative hypothesis is accepted, and the null hypothesis is rejected.

The results are corroborated by Correa (2020) in his study on environmental public policy and social actors concludes that the existence of a private sector, a public sector or a community must have awareness and a connection with the fact of wanting to help the environment to design comprehensive management strategies for solid waste. In addition, the need for education and developing a solid environmental culture is recognized. Chaves et al. (2019) conclude that all activities that positively affect the environment and nature will effectively influence the sustainable management of resources, proper and effective care of soils and a decrease in the effects of climate change and reduce climate variation.

6. Conclusions

In order to reach the conclusions of the research, each of the objectives set out in previous chapters was considered:

1. Regarding the general objective, the respondents answered 30% that the environmental policy is bad, 47% that it is regular and 23% that it is good, and regarding waste management, 30% said it is bad, 40% said it is regular and 30% said it is good, and also through the Kendall's Tau_b test where it was evident that the level of influence was 0.791, that is to say, that it is high positive, in addition to the fact that the value of the sig. is less than 0.05, so the alternative or research hypothesis is accepted, concluding that the environmental policies implemented in the entity are regular because the environmental legislation is not

known or adequately applied. Likewise, there is no good environmental education, and there are deficiencies in environmental practices. For this reason, it can be stated that solid waste management is regular because there is no planning, organization and control of the activities to be carried out about solid waste management so a good environmental policy would have an impact on solid waste management through environmental policies for more efficient solid waste management.

2. Regarding the first specific objective, the respondents answered that 33% said that environmental legislation is bad, 43% said it is regular, and 23% said it is good, and regarding waste management, 30% said it is bad, 40% said it is regular and 30% said it is good, also using the Kendall's Tau_b test where it could be seen that the level of influence was 0.747, that is, it is high positive, in addition to the fact that the value of the sig. is less than 0.05, so the alternative or research hypothesis is accepted. Consequently, it is concluded that the environmental legislation is regular; this is because it is unknown or the guidelines are not applied adequately, as well as the guidelines are not applied adequately. The environmental legislation impacts solid waste management since the municipality will be able to manage solid waste more efficiently through the guidelines, norms and sanctions.

3. Regarding the second specific objective, 20% of the respondents answered that environmental education is bad, 47% that it is regular and 33% that it is good, and regarding waste management, 30% that it is bad, 40% that it is regular and 30% that it is good, also utilizing Kendall's Tau_b test where it could be seen that the level of influence was 0.767, that is to say, that it is high positive, in addition to the fact that the value of the sig. is less than 0.05, so the alternative or research hypothesis is accepted. Therefore, it is concluded that environmental education is regular because it is unknown or not carried out adequately in raising awareness regarding environmental education. On the other hand, it can be said that solid waste management is regular because there is no planning, organization and control of the activities to be carried out by the entity about solid waste management, so environmental education has an impact on solid waste management, since through awareness, sensitization and dissemination of information the municipality can perform more efficiently the management of solid waste.

4. For the third specific objective, the respondents answered that 30% indicated that environmental practices are bad, 57% indicated that they are regular, and 13% indicated that they are good, and concerning waste management, 30% indicated that they are bad, 40% indicated that they are regular and 30% indicated that they are good, also employing the Kendall's Tau_b test where it could be seen that the level of influence was 0.700 which means that it is high positive, besides that the value of the sig. is less than 0. 05, so the alternative or research hypothesis is accepted. The conclusion is that environmental practices are regular because the 4Rs are not known or adequately practiced. Therefore, it can be stated that solid waste management is regular because there is no planning, organization and control of the activities to be carried out by the entity about solid waste management, so environmental practices affect solid waste management and the correct application of the 4Rs the municipality will permit to carry out solid waste management more efficiently.

7. Recommendations

1. It is recommended that for adequate solid waste management, it is important to consider some essential aspects related to the planning, organization and control of the actions carried out by the municipalities to reduce environmental pollution.

2. It is recommended that the entities implement regulations and norms to improve environmental policies so that solid waste management can be carried out properly.

3. It is also very important to conserve and care for the environment, which is why municipalities should implement actions using the public resources they have or acquire to improve solid waste management so that the country's and society's growth and sustainable development will be better.

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