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Investment Projects and Results in Environmental Impact in the Twenty-Sixth of October District - Piura

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Abstract

The objective of the research is to improve the sustainability of the results of environmental impact investment projects in the City of Piura. It is developed according to the orientation of the Interpretative-Naturalistic paradigm, qualitative approach, basic type, descriptive level and Phenomenological-Hermeneutic design. The participants are a heterogeneous group, the population was established by public employees from the district of Piura. In this sense, the population was pointed out as the grouping of issues, described, restricted and comprehensible, to constitute the actors related to the sample, thus fulfilling the requirements exposed. The population consisted of 100 workers from the Municipality of 26 de Octubre and the sample consisted of 40 participants, which was chosen for the convenience of the author. After this process, the reliability of the instrument was carried out through a pilot test, the data obtained were analyzed using Cronbach's alpha statistical test, resulting in the value of 0.91 indicating that the instrument is on the scale of excellent reliability. Statistics were produced to help verify the research.

Keywords: *Sustainability, Public management, public investment, service delivery.*

1. Introduction

Sustainability is a critical concept in investment projects, referring to the ability to continue generating benefits over time (Lopes & Albuquerque, 2023). In the context of environmental impact, sustainability involves minimizing negative effects on the environment while maximizing positive outcomes for both the natural world and human society (O'Ryan et al., 2023). Sustainable investment projects prioritize long-term benefits and seek to avoid negative impacts that can undermine the viability of the project over time. This approach involves a holistic and forward-looking perspective that considers not only the immediate effects of the project but also its long-term implications for the environment and society.

The importance of sustainability in environmental impact cannot be underestimated. The Piura Region, for example, faces significant environmental challenges, including the

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deterioration of ecosystems, the depredation of plants and animals, and the decline of resources such as water (Deng et al., 2023). Sustainable investment projects can help mitigate these issues by promoting responsible resource management, reducing pollution and waste, and supporting the preservation of natural habitats. By prioritizing sustainability over environmental impact, investment projects can contribute to the long-term health and well-being of both the environment and local communities.

There are numerous examples of successful sustainable investment projects that have prioritized environmental impact. For example, Piura's Planning and Management Plan includes an environmental, economic, and social impact assessment, emphasizing sustainable development as a system (Yilmaz, 2023). Additionally, the municipality of Piura has the potential to implement projects towards a sustainable transition with the climate, with examples of successful projects (Damonte et al., 2022). These examples demonstrate the importance of prioritizing sustainability in investment projects and the potential for positive outcomes when this approach is adopted. By considering the long-term implications of investment projects on the environment and society, we can work towards a more sustainable future for all.

Environmental impact of investment projects in Piura

The Piura region of Peru is known for its diverse and fragile ecosystems, which are vulnerable to the negative impacts of investment projects (Xue et al., 2022). These impacts can include deforestation, soil erosion, water pollution, and habitat destruction, among others. The sustainability of investment projects in Piura should be assessed not only in terms of their economic benefits but also in terms of their long-term environmental impact (Bohnett et al., 2022). This requires a comprehensive understanding of the current state of the region's ecosystems and the potential impacts of proposed projects.

Unfortunately, there have been several examples of investment projects in Piura that have had negative environmental impacts. For example, the construction of a hydroelectric dam on the Huancabamba River led to the displacement of local communities and the destruction of important habitats (Vilani et al., 2021). Similarly, the expansion of agricultural activities in the region has led to deforestation and soil degradation, contributing to the deterioration of important ecosystems (Jiménez & Maldonado, 2022). These examples highlight the need for greater consideration of environmental impact in investment decisions.

To address these issues, there are currently environmental regulations in place in Piura that aim to mitigate the negative impacts of investment projects (Damonte et al., 2022). For example, the Regional Environmental Authority (ARA) is responsible for evaluating and approving environmental impact studies for proposed projects. In addition, the City Lab program has been implemented to promote sustainable urban development in Piura, with a focus on improving environmental quality (Castanho et al., 2023; Špak et al., 2023). While these regulations are a step in the right direction, there is still a need for ongoing monitoring and evaluation to ensure that investment projects in Piura are sustainable and have no negative environmental impacts.

Strategies to ensure sustainability in investment projects in Piura

One of the key strategies to ensure sustainability in investment projects in Piura is to prioritize sustainable planning and design (Baronin et al., 2023). This involves considering the potential environmental impact of the project from the outset and designing it in a way that minimizes negative effects on the ecosystem. This can include using sustainable materials, incorporating renewable energy sources, and designing buildings and infrastructure that are energy efficient and environmentally friendly. By prioritizing sustainable planning and design, investment projects can help ensure long-term benefits for the local community and the environment.

Another important strategy to ensure sustainability in investment projects is to implement sustainable practices during project execution (Ning et al., 2023). This involves taking steps to minimize the environmental impact of construction and operation, such as reducing waste and emissions, conserving natural resources, and protecting local ecosystems. By implementing sustainable practices, investment projects can help ensure that the benefits they generate are not outweighed by negative environmental impacts. This can help build support for the project among local stakeholders and ensure its long-term success.

Monitoring and evaluation of environmental impact and sustainability are also crucial to ensure the sustainability of investment projects in Piura (Tsoy & Heshmati, 2023). By regularly assessing the project's impact on the environment and local communities, project managers can identify areas where improvements can be made and take corrective action as needed. This can help ensure that the project remains sustainable in the long term and that its benefits continue to be realized. In addition, monitoring and evaluation can help build trust and transparency with local stakeholders, further supporting the success of the investment project in Piura.

Sustainability in environmental impact investment projects in Piura is decisive for the region's long-term well-being. Understanding the concept of sustainability and its importance in investment projects is the first step in achieving sustainable development. The negative environmental impact of investment projects in Piura highlights the urgent need for sustainable planning and design, implementation of sustainable practices, and monitoring and evaluation of environmental impact and sustainability. By adopting these strategies, Piura can ensure that investment projects are not only economically viable but also environmentally sustainable, benefiting both present and future generations.

2. Material and method

The study was of quantitative approach, of a basic design, where it was applied through the collection of information, thus obtaining the probability of the hypothesis, had as its epicenter the statistical analysis that was collected through the questionnaire and the objective of the result (Hernandez, 2018). The first step in ensuring the sustainability of the results of investment projects with environmental impact is the identification of key environmental indicators (Valderrama, 2019). These indicators will serve as a benchmark to measure the effectiveness of the project's environmental impact mitigation measures. The selection of these indicators should be based on a thorough understanding of the potential environmental impacts of the project and the relevant regulatory requirements (López & Sandoval, 2018). These indicators may include, but are not limited to:

– Air Quality
– Water Quality
– Biodiversity
– Waste management
– Energy Efficiency

This is a non-experimental study, in which the variables were not deliberately manipulated. Instead, the phenomena were observed in their natural environment for further examination or study, and it was framed within a cross-sectional or cross-sectional research design, in which data were collected at a single point in time. By identifying these key indicators, clear targets for environmental sustainability can be set and appropriate monitoring and evaluation plans can be developed. To ensure the sustainability of the results of investment projects with environmental impact is the monitoring and evaluation of the environmental impact of the project (Halilbegović et al., 2023). This involves the regular collection and analysis of data on the key environmental indicators identified. The data collected should be compared to established benchmarks to determine if the project is meeting its

environmental sustainability goals. This monitoring and evaluation process should be conducted throughout the project lifecycle to identify potential issues and make necessary adjustments to the project's environmental impact mitigation measures. This process can also help identify areas where additional resources may be needed to ensure the sustainability of the project. The population and sampling was established by the public employees of the district on October 26. In this sense, the population was pointed out as the grouping of issues, described, restricted and comprehensible, to constitute the actors related to the sample, thus fulfilling the requirements exposed.

It can be said that the sustainability of results in investment projects with environmental impact is the implementation of sustainable practices and feedback mechanisms (Špak et al., 2023). This involves the integration of sustainable practices into the design and implementation of the project, as well as the establishment of feedback mechanisms to ensure continuous improvement. Sustainable practices can include using renewable energy sources, implementing waste reduction and recycling programs, and adopting sustainable procurement policies. Feedback mechanisms may include regular consultations with stakeholders, the establishment of environmental management systems, and the incorporation of sustainability reporting into project metrics (Jung & Awad, 2023). By implementing these sustainable practices and feedback mechanisms, project managers can ensure that the project's environmental impact mitigation measures are effective and sustainable in the long term.

3. Results

Sustainability is a crucial aspect of the design and evaluation of investment projects (Barcena et al., 2018). Investment projects that prioritize sustainability are more likely to generate long-term benefits and contribute to the overall well-being of the community and the environment. In the context of environmental impact investment projects in Piura, sustainability takes on particular importance, given the unique ecological and social characteristics of the region. By prioritizing sustainability in investment projects, Piura can ensure that its natural resources are protected and that the benefits of economic development are shared equitably among its population.

Piura has implemented several environmental impact investment projects, including the National Environmental Impact Assessment System (SEIA) and the National System of Natural Areas (Reyes & Leiva, 2021). These projects aim to promote sustainable development in the region while minimizing the negative impact on the environment. In addition, the National Environmental Certification Service for Sustainable Investments (Senace) conducts detailed environmental impact studies for large projects (García & Maroto, 2018). These initiatives reflect Piura's commitment to sustainability in investment projects.

As can be seen in Figure 1:

Source: Figure 1. ECLAC's Conception for a Virtuous Circle of Statistics,

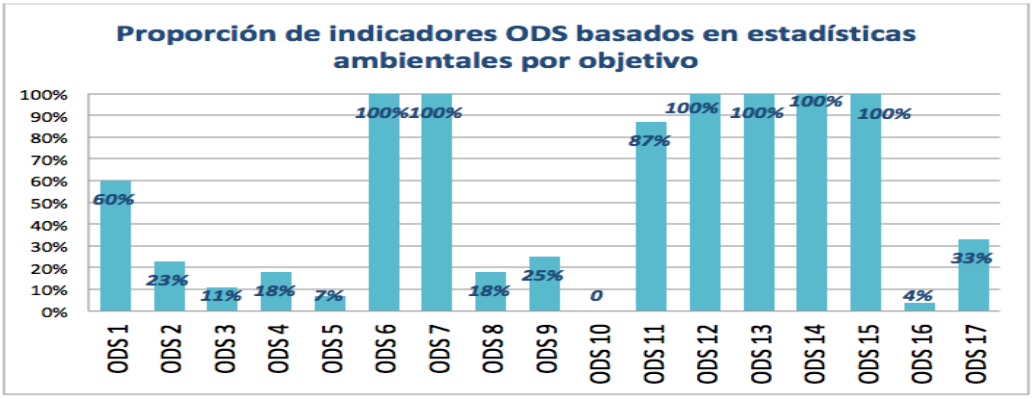
Environmental indicators and accounts.

To ensure the sustainability of environmental impact investment projects, statistical models are being developed (INEI, 2021; Reyes & Leiva, 2021). These models aim to measure the impact of investment projects on the environment and community, providing valuable data that can inform decision-making and project design. By using statistical models to assess the sustainability of investment projects, Piura can ensure that its resources are used responsibly and sustainably. These models also help identify areas for improvement and provide a framework for ongoing evaluation and monitoring of investment projects.

Statistical models used to analyze the sustainability of investment projects in Piura:

A statistical model used to analyze the sustainability of investment projects in Piura is regression analysis (INEI, 2021). This model involves analyzing the relationship between two or more variables to determine how they relate and how they impact each other. In the case of investment projects, regression analysis can be used to examine the relationship between project outcomes and various factors, such as funding, project duration, and environmental impact. By identifying the key factors that contribute to project sustainability, decision-makers can make more informed decisions about future investments and project design.

Another statistical model used to analyze the sustainability of investment projects in Piura is time series analysis (García & Maroto, 2018). This model involves analyzing trends in data over time to identify patterns and make predictions about future outcomes. In the context of investment projects, time series analysis can be used to track the sustainability of project outcomes over time and identify potential areas for improvement or intervention. By monitoring project sustainability over time, decision-makers can make more informed decisions about resource allocation and project management. As shown in Figure 2:



Source: Figure 2. Relationship between methodological frameworks

environmental statistics, indicators and accounts.

Correlation analysis is also a statistical model used to analyze the sustainability of investment projects in Piura (Reyes & Leiva, 2021). This model involves examining the relationship between two variables to determine whether they are positively or negatively correlated. In the context of investment projects, correlation analysis can be used to examine the relationship between the environmental impact and sustainability of the project. By identifying the degree to which environmental impact and project sustainability correlate, decision-makers can make more informed decisions about project design and resource allocation, with the goal of maximizing both the environmental impact and sustainability of the project.

Results and Implications of Statistical Models:

One of the key findings of the statistical models used in the evaluation of environmental impact investment projects in Piura, specifically in the district of 26 de Octubre, was the

identification of key factors that contribute to sustainability (García & Maroto, 2018). These factors included effective stakeholder engagement, adequate funding and resources, and the implementation of appropriate environmental management systems. By identifying these key factors, future investment projects can be designed and implemented with a greater focus on sustainability, leading to more positive environmental and social outcomes.

Assessing the effectiveness of investment projects in terms of environmental impact was also a crucial aspect of statistical modelling (INEI, 2021). By analyzing the results of previous projects, the models were able to identify areas of success and areas for improvement. This assessment can inform future investment decisions, ensuring that resources are directed to projects that are most likely to have a positive impact on the environment and local communities. In addition, this assessment can help ensure that investment projects are aligned with broader sustainability goals and objectives.

Based on the results of the statistical models, recommendations were developed for future investment projects and sustainability efforts in Piura (Barcena et al., 2018). These recommendations included a focus on stakeholder engagement, the implementation of effective environmental management systems, and the need for adequate funding and resources. In addition, the models highlighted the importance of considering the unique characteristics and needs of each community when designing and implementing investment projects. If these recommendations are followed, future investment projects in Piura can be more effective, sustainable, and equitable, contributing to positive environmental and social outcomes (Barcena et al., 2018; Damonte et al., 2022).

3.1 Results

The statistical models used in this study have provided valuable insights into the sustainability of environmental impact investment projects on 26 October. The results have identified key factors contributing to sustainability and assessed the effectiveness of investment projects. The recommendations provided can guide future investment projects and sustainability efforts in the October 26 district. It is clear that sustainability is crucial in investment projects, and this study serves as a reminder of the importance of considering the long-term impact of such projects on the environment. By implementing sustainable practices, we can ensure a better future for both the environment and the economy.

3.1.1 Descriptive analysis

Table
1 Variable 1- Sustainability of investment project results

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Casualty	84	43,3	43,3	43,3
	Moderate	83	42,8	42,8	86,1
	Loud	27	13,9	13,9	100,0
	Total	194	100,0	100,0	

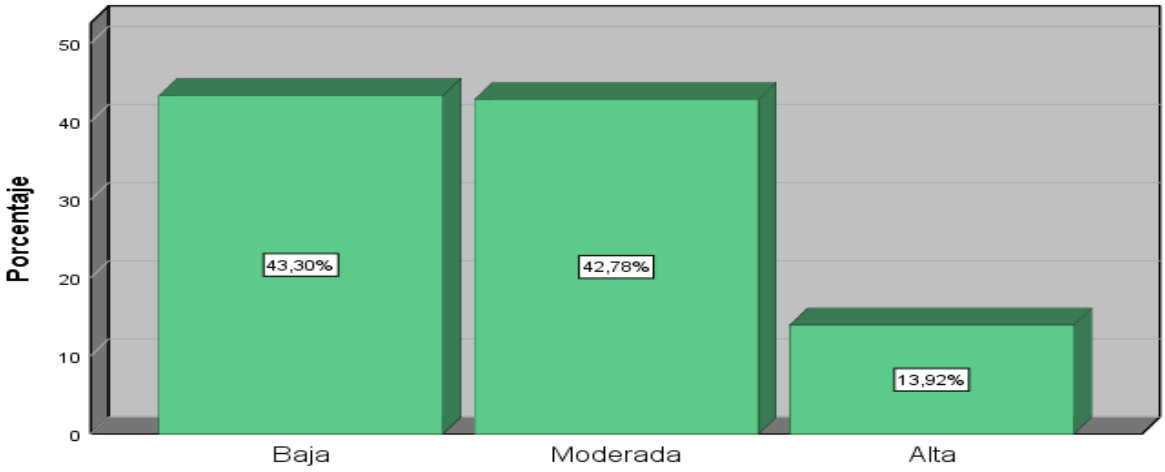


Figure 4. Variable 1- Sustainability of investment project results

According to the results of the survey carried out on the entire sample, significant trends stand out in relation to the first variable. It is observed that the level of sustainability of the results of investment projects in the region is mostly low, representing 43.3% of the responses. In addition, a moderate level is identified in 42.8% of cases, while only a low 13.9% indicates a high level of sustainability in the projects.

These results reveal a worrying trend, with the majority of respondents noting that projects lack a sustainable approach. This suggests that, to a large extent, environmental, social or economic practices and considerations are not being effectively incorporated into project planning and implementation. The pre-eminence of negative impacts over potential benefits can lead to long-term consequences that need to be addressed urgently.

Table 2 First dimension of variable 1 - Technological

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Casualty	84	43,3	43,3	43,3
	Moderate	70	36,1	36,1	79,4
	Loud	40	20,6	20,6	100,0
	Total	194	100,0	100,0	

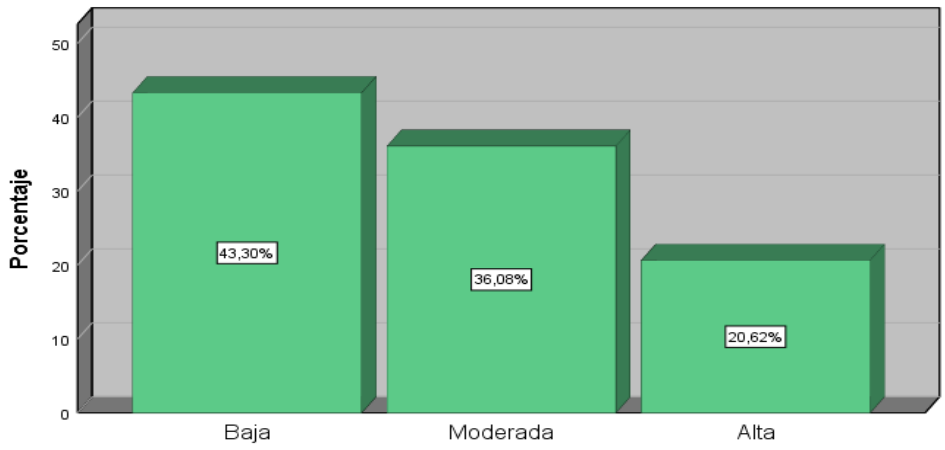


Figure 5. First dimension of variable 1 - Technological

According to the results of the survey applied to the entire sample, the evaluation of the first dimension reveals a low level in 43.3% of the responses. The moderate level is

represented by 36.1%, and only 20.6% of the respondents indicated a high level. This set of results indicates that just over half of the participants in the survey share a perception of the problem raised. This suggests that there is a lack of compliance in terms of technological capabilities and staff training in relation to the sustainability of projects. In other words, the majority of respondents agree that improvements in technology adoption and staff training must be implemented to achieve more effective sustainability in projects.

Table 3 Second dimension of variable 1 - Economic

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Casualty	140	72,2	72,2	72,2
	Loud	54	27,8	27,8	100,0
	Total	194	100,0	100,0	

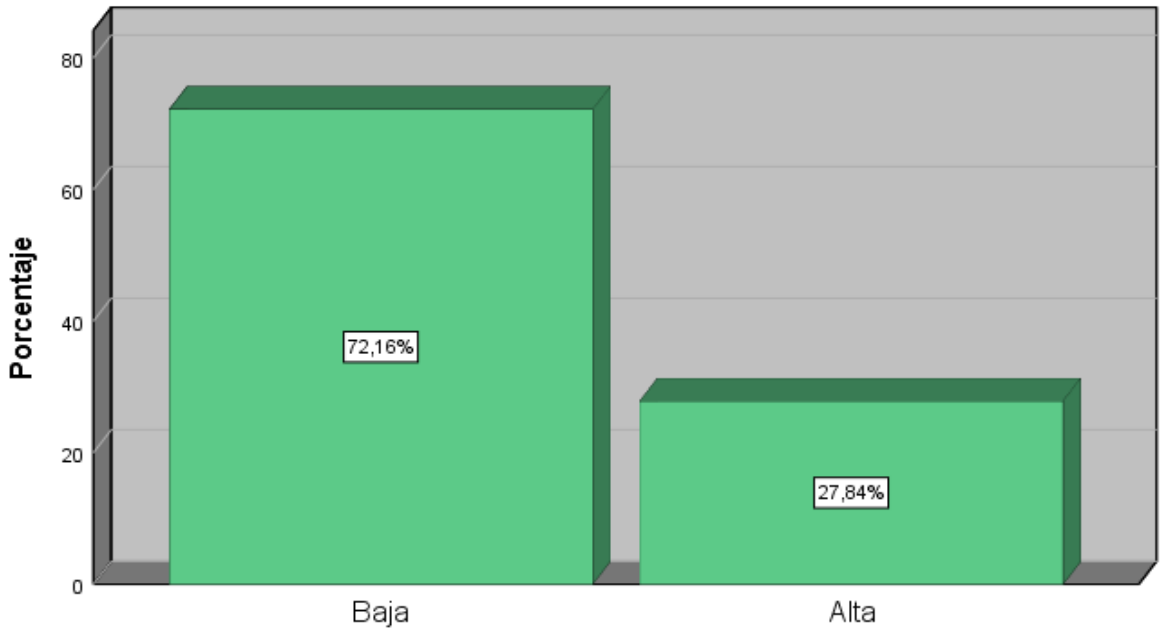


Figure 6. Second dimension of variable 1 - Economic

According to the results of the survey applied to the entire sample with regard to the economic dimension of the sustainability of the results of investment projects, it is observed that a considerable 72.2% of the respondents rate it at a low level. In contrast, only 27.8% consider it to be at a high level. These findings suggest that more than half of the survey participants agree with the issues raised in relation to the economic dimension. This implies that there is a shared concern about the lack of compliance in several important areas, such as the proper use of the budget allocated for projects, its relevance to the needs of the population and the quality of its implementation. These results point to the need to improve the economic management of investment projects to ensure an efficient use of resources and a higher quality in the results obtained.

Table 4

Third dimension of variable 1 - Financial

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Casualty	154	79,4	79,4	79,4
	Moderate	13	6,7	6,7	86,1
	Loud	27	13,9	13,9	100,0
	Total	194	100,0	100,0	

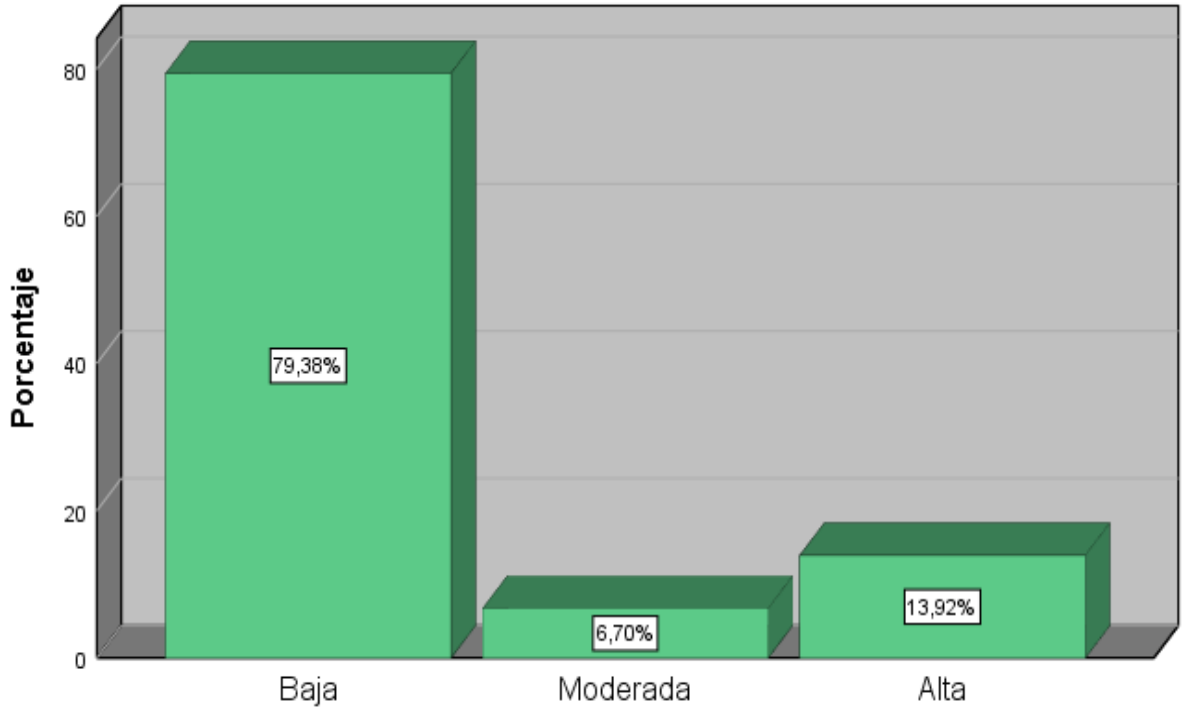


Figure 7. Third dimension of variable 1 - Financial

According to the results obtained in the survey of the entire sample, the evaluation of the third dimension shows that a remarkable 79.4% of the respondents rate it at a low level. On the other hand, the moderate level is attributed by 6.7% of the participants, while only 13.9% of the respondents indicate a high level. These results reflect the general perception of the respondents in relation to the third dimension. In line with this perception, it is suggested that the economic revenues generated by investment projects are not being fully utilized, that the local government is not channeling resources of goods and services for the benefit of the population, and that human resource monitoring is not being carried out efficiently.

Table 5Variable 2 - Environmental impact

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Casualty	59	30,4	30,4	30,4
	Moderate	81	41,8	41,8	72,2
	Loud	54	27,8	27,8	100,0
	Total	194	100,0	100,0	

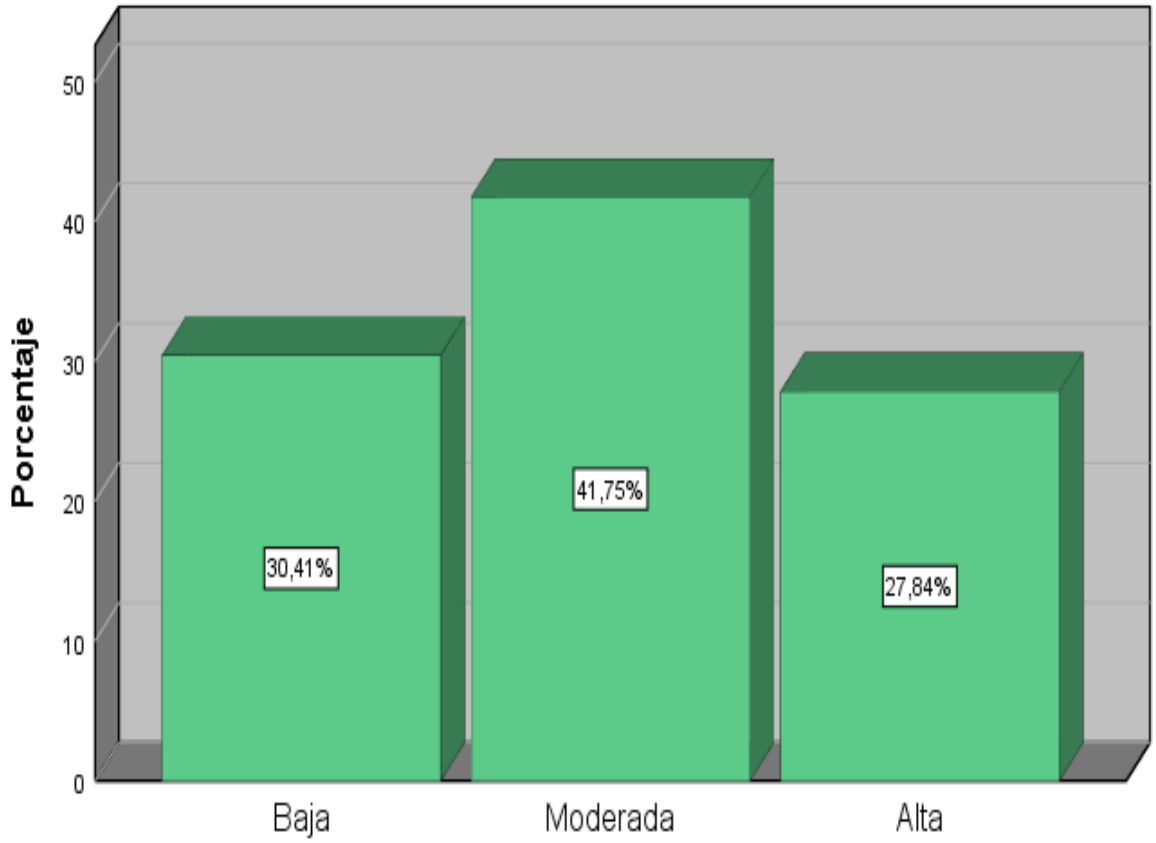


Figure 8. Variable 2 - Environmental impact

According to the results of the survey applied to the entire sample, with regard to the second variable, it was observed that 30.4% of the respondents perceive a low level of environmental impact in the region. Likewise, 41.8% identify a moderate level, while only 27.8% indicate a high level. These results indicate that the majority of respondents share the view that the activity or project in question has minimal environmental impact. This implies that the activity is considered to cause little or no harm to natural resources, biodiversity, and the surrounding ecosystem.

Table 6 First dimension of variable 2 - Integrated approach

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Casualty	72	37,1	37,1	37,1
	Moderate	32	16,5	16,5	53,6
	Loud	90	46,4	46,4	100,0
	Total	194	100,0	100,0	

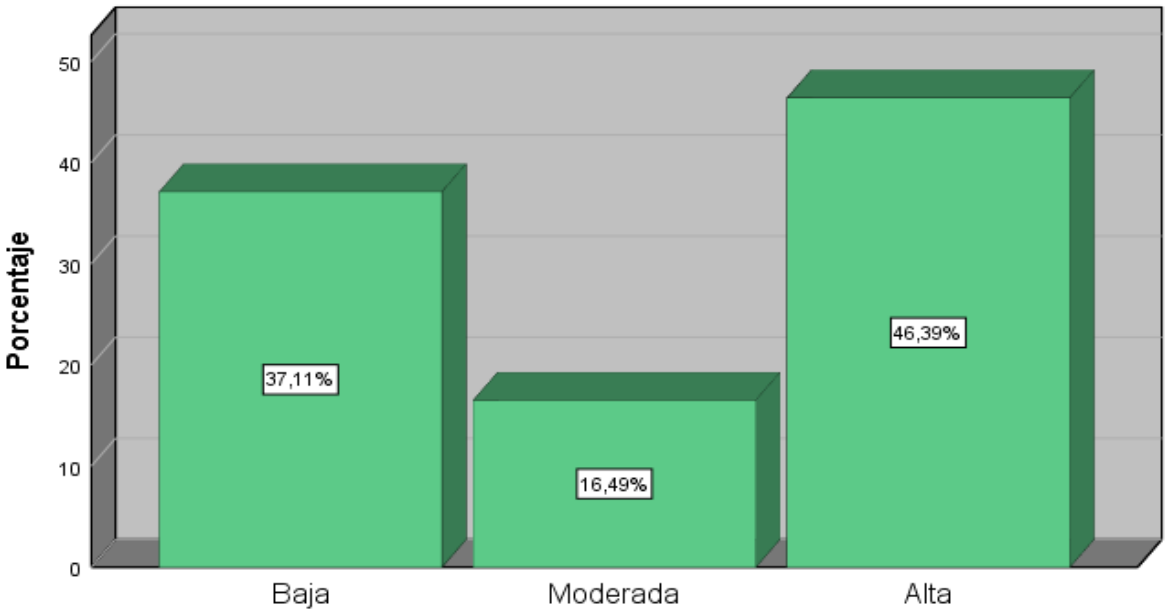


Figure 9. First dimension of variable 2 - Integrated approach

Based on the results of the survey carried out on the entire sample and focusing on the first dimension of the second variable, it is noteworthy that 37.1% of respondents perceive a low level. In addition, 16.5% identify a moderate level, while a significant 46.4% indicate a high level. These findings indicate that, from the perspective of respondents, the majority believe that local government should conduct an analysis of financial, technical and human capacity gaps to drive social development. They also suggest that the local government is expected to include environmental components exclusively in the programs and projects to be carried out. In addition, it is recognized that local government is promoting both sectoral and cross-sectoral balance in economic growth. These insights provide valuable insight into the community's expectations and views regarding government management and local development priorities.

Table 7 Second dimension of variable 2 - Environmental thresholds

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Casualty	127	65,5	65,5	65,5
	Moderate	40	20,6	20,6	86,1
	Loud	27	13,9	13,9	100,0
	Total	194	100,0	100,0	

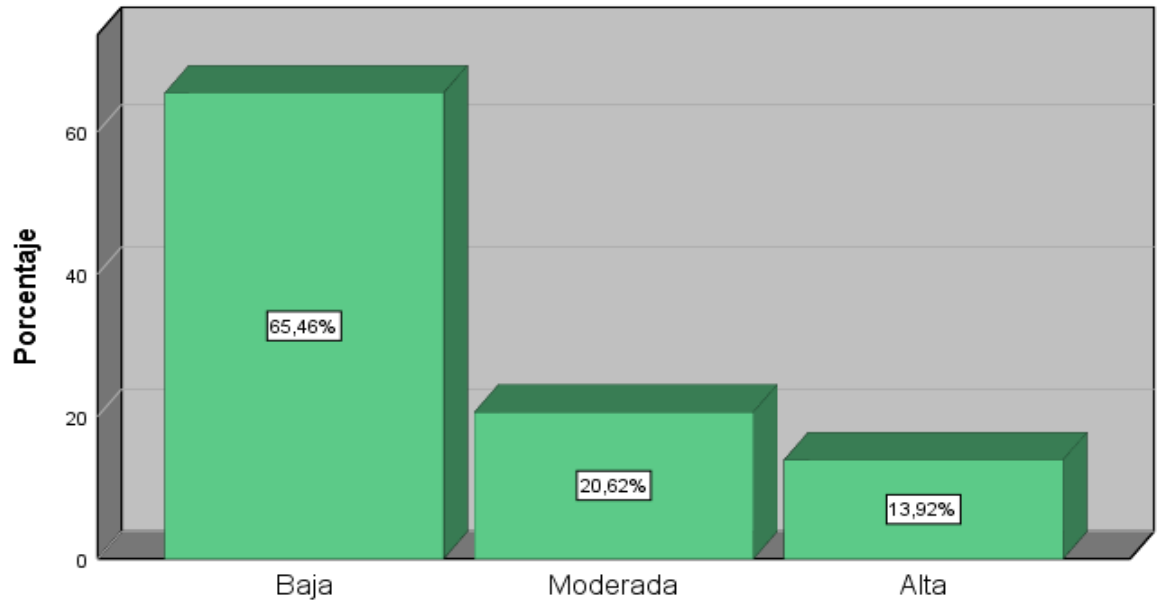


Figure 10. Second dimension of variable 2 - Environmental thresholds

Based on the results of the survey carried out to the entire sample and focusing on the second dimension of the second variable, it stands out that a considerable 65.5% of the respondents perceive a low level. In addition, 20.6% identify a moderate level, while only a notable 13.9% indicate a high level. These findings suggest that, from the respondents' perspective, the government is paying attention to evaluation models related to urban mobility. In addition, they indicate the perception that it is necessary to evaluate motorized routes to improve traffic management and mobility in the area. Finally, it is highlighted that there is a perception that the local government is not implementing traffic restriction measures. These observations provide essential information about the community's expectations and opinions regarding the planning and management of urban mobility in the region.

Table 6 Third dimension of variable 2 - Environmental performance

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Casualty	59	30,4	30,4	30,4
	Moderate	77	39,7	39,7	70,1
	Loud	58	29,9	29,9	100,0
	Total	194	100,0	100,0	

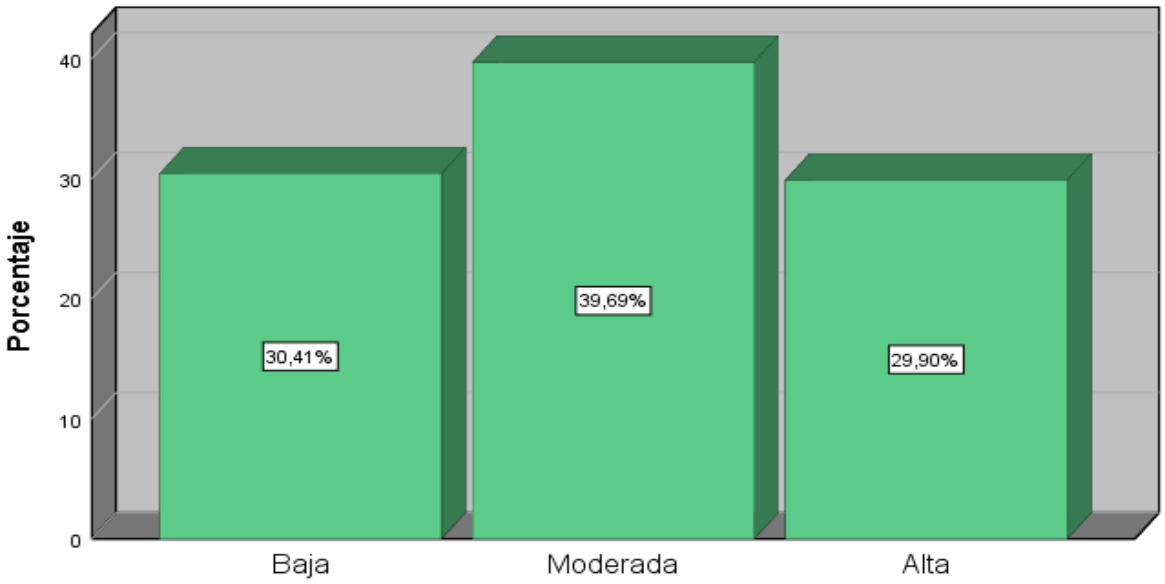


Figure 11. Third dimension of variable 2 - Environmental performance

Based on the results of the survey carried out on the entire sample and focusing on the third dimension of the second variable, it is evident that 30.4% of the respondents perceive a low level. Likewise, 39.7% identify a moderate level, while a notorious 29.9% indicate a high level. These data reveal that respondents are expressing their perception that there are no people in local government with adequate qualifications in environmental assessment. They also suggest that there is an expectation that the local government will provide training to staff so that they can better understand aspects related to environmental information. In addition, it points to the perception that the local government lacks preventive measures to address unexpected environmental events. These findings shed light on areas for improvement needed in government management and responsiveness to environmental challenges.

4. Discussion

The Environmental Impact Assessment (EIA) is a crucial step in determining the sustainability of environmental impact investment projects (Damonte et al., 2022). The EIA process involves assessing the potential environmental impacts of a proposed project and identifying measures to mitigate or avoid these impacts. The assessment considers several factors, including air and water quality, biodiversity, and land use. Through this process, the potential environmental impact of the project can be identified and strategies can be developed to minimize any negative effects (Vilani et al., 2021).

Sustainability is a critical factor in environmental impact investment projects, as it ensures that the positive effects of the project are long-lasting and do not harm the environment in the long term (Ruiz-Lozano et al., 2021). The importance of sustainability in investment projects cannot be underestimated, as it contributes to the well-being of current and future generations. Sustainability ensures that the benefits of the project are long-lasting and that the environment is protected from harm.

Piura, a region of Peru, has seen an increase in environmental impact investment projects in recent years (Castro et al., 2020). These projects include the improvement and rehabilitation of the creation of the second causeway of the Piura River (Magomedova et al., 2020). However, it is critical to ensure that these projects are sustainable and do not cause long-term damage to the environment (Tsimonis et al., 2019). The National Environmental Certification Service (SENACE) has been responsible for evaluating and approving large-scale projects in the region (Ortuño et al., 2019). By ensuring that these

projects meet sustainability standards, the region can reap the benefits of economic development while also protecting its natural resources (Castanho et al., 2023; Tian et al., 2023).

Factors that contribute to the sustainability of investment projects in Piura

Community involvement and participation are crucial factors that contribute to the sustainability of investment projects in Piura (Ferreira et al., 2023). When local communities are involved in the planning and implementation of environmental impact projects, they are more likely to take ownership of the project and ensure its long-term success. This engagement can take many forms, including community meetings, public consultations, and stakeholder engagement. By engaging local communities, project managers can gain valuable insights into the local context, identify potential challenges, and develop customized solutions that are more likely to be effective and sustainable (Bai et al., 2023). In addition, community engagement can also help build trust and foster positive relationships between project managers and local communities, creating a foundation for future collaborations and partnerships.

Another factor that contributes to the sustainability of investment projects in Piura is the use of renewable resources (Ning et al., 2023). Renewable resources, such as solar, wind, and hydropower, are energy sources that can be replenished over time. By using these resources, project managers can reduce their reliance on non-renewable resources, such as fossil fuels, which are finite and contribute to environmental degradation (Baronin et al., 2023). In addition, the use of renewable resources can help reduce greenhouse gas emissions and mitigate climate change, contributing to a more sustainable future. By incorporating renewable resources into their projects, project managers can ensure that their investments have a positive impact on the environment and are more likely to be sustainable in the long term.

Compliance with environmental regulations and standards is another critical factor that contributes to the sustainability of investment projects in Piura (Tsoy & Heshmati, 2023). Environmental regulations and standards are designed to protect the environment and ensure that projects are implemented responsibly and sustainably. By following these regulations and standards, project managers can minimize their impact on the environment, reduce the risk of environmental damage, and ensure that their projects are compatible with the local ecosystem (Halilbegović et al., 2023). In addition, adherence to environmental regulations and standards can help build trust and credibility among local communities, stakeholders, and regulatory bodies, creating a positive reputation for the project and increasing its chances of success. By prioritizing environmental responsibility and following best practices, project managers can ensure that their investments are sustainable and have a positive impact on the environment and local communities(Zhang et al., 2023) .

Challenges to the sustainability of investment projects in Piura

One of the biggest challenges to the sustainability of investment projects in Piura is the limited resources and funding available for environmental impact initiatives (Jung & Awad, 2023). Many projects aimed at mitigating environmental damage require significant financial investments, which may not always be feasible for local governments or private investors. As a result, the implementation and maintenance of these projects can be compromised, leading to a lack of long-term sustainability. In addition, limited resources can result in short-term benefits being prioritized over long-term sustainability, further exacerbating the problem.

Political and social instability is another major challenge to the sustainability of investment projects in Piura (Wang et al., 2023). Political instability can lead to a lack of continuity in environmental policies and initiatives, making it difficult to achieve long-term sustainability goals. Social instability, on the other hand, can result in resistance to change and lack of support for environmental initiatives. In addition, social unrest can lead to

damage or destruction of environmental infrastructure, further hampering sustainability efforts.

The lack of awareness and education about environmental sustainability is also a major challenge to the sustainability of investment projects in Piura (Sang et al., 2023). Without a clear understanding of the importance of environmental sustainability and the impact of human activities on the environment, individuals and organizations may not prioritize sustainability initiatives. This lack of awareness can also lead to a lack of support for environmental policies and initiatives, making it difficult to achieve long-term sustainability goals. In addition, a weak view of environmental issues, which generates a sectorized consideration of issues such as pollution, health, and natural resources, can also hinder the sustainability of investment projects in Piura (Pinhoia et al., 2023).

The sustainability of environmental impact investment projects is crucial for the long-term well-being of both the environment and the community. In Piura, factors such as community participation and the use of renewable resources have contributed to the sustainability of investment projects. However, challenges such as limited resources and funding, political and social instability, and lack of awareness and education about environmental sustainability pose a threat to the sustainability of these projects. Therefore, it is important that stakeholders prioritize sustainability and work together to address these challenges to ensure the long-term success of environmental impact investment projects in Piura.

5. Conclusions

Piura is a region of Peru that faces various environmental challenges, including air pollution, deforestation, and water scarcity (Arhuire & Carreon, 2020). In recent years, there have been several environmental impact investment projects in Piura aimed at addressing these issues. However, it is essential to assess the sustainability of these projects to ensure their long-term effectiveness (Harat & Jaguś, 2020). Sustainability is a critical aspect of project design and evaluation, but it is often overlooked (Panta & Peña, 2020). By considering the sustainability of these projects, we can ensure that they have a positive impact on the environment and community in the long term.

Environmental impact investment projects in Piura aim to improve the environmental conditions of the region and promote sustainable development. These projects cover a variety of areas, such as air quality, water management and waste management (Saldarriaga, 2020). The results of these projects are crucial in determining their effectiveness and sustainability (Castro et al., 2020). For example, the results of the air quality monitoring indicate that the main problem in the Piura air basin is the (Magomedova et al., 2020). By evaluating the results of these projects, we can identify areas that require further attention and develop strategies to address them.

Evaluating the results of environmental impact investment projects is essential to ensure their sustainability. The impact of these projects on the environment, the local community and the economy needs to be considered (Tsimonis et al., 2019). By doing so, we can ensure that projects are aligned with the region's sustainable development goals (Ortuño et al., 2019). The evaluation process should also consider the impact of the projects on the region's natural resources and biodiversity (Ryder, 2019). By following a framework of action that considers the impact of the plan and its programs and projects, we can ensure that projects are sustainable and have a positive impact on the region (Saavedra, 2019).

Environmental impact investment projects in Piura have shown positive results and impacts on the environment (Rincon, 2022). The projects have contributed to the conservation and restoration of ecosystems, the preservation of biodiversity and the reduction of pollution levels. These projects have also promoted the sustainable use of natural resources, such as water, and improved the quality of life of local communities. The success of these projects

highlights the importance of sustainability in project design and evaluation (Manuel & Calero, 2022). By prioritizing sustainability, these projects have been able to achieve their environmental goals while also promoting social and economic development in the region.

Despite the positive impact of environmental impact investment projects, there are still challenges and areas for improvement (Damonte et al., 2022). The decline of ecosystems and resources in the Piura region is an important issue that needs to be addressed. The weak overview of environmental problems has led to a sector-based consideration of the problems, which has made it difficult to implement comprehensive solutions. To address these challenges, it is essential to consolidate the efforts of different actors, including governments, civil society and the private sector (Bohnett et al., 2022; Jiménez and Maldonado, 2022). In addition, sustainability considerations need to be incorporated into all stages of project design and implementation to ensure long-term success and impact.

To ensure the sustainability of environmental impact investment projects in Piura, it is essential to focus on future directions for sustainable investing (Ruiz-Lozano et al., 2021; Vilani et al., 2021; Xue et al., 2022). This includes identifying viable adaptation options to address the impacts of climate change and the vulnerability of physical and social aspects (Shim & Kim, 2023). It also involves promoting the sustainable use of natural resources and the adoption of sustainable production and consumption patterns (Lopes & Albuquerque, 2023). By prioritizing sustainability in all aspects of project design and implementation, it is possible to achieve long-term environmental, social, and economic benefits for the Piura region and its communities (Ferreira et al., 2023).

The evaluation of environmental impact investment projects in Piura, especially in the district of 26 de Octubre, has shown positive results and impact on the environment. These projects have contributed to the sustainability of the region by promoting renewable energy, reducing greenhouse gas emissions, and improving waste management practices. However, there are still challenges and areas for improvement, such as the need for greater community engagement and better monitoring and evaluation of project results. Going forward, sustainable investment in Piura should focus on addressing these challenges and building on previous project successes to promote long-term environmental sustainability in the region.

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