

Environment reforestation, care and protection of trees

Medio ambiente reforestación, cuidado y protección de los árboles

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Abstract: The result of the research project "Environmental awareness campaign: reforestation, care and protection of the trees of the Centro de Estudios Espíritu Santo de la Ciudad de Guayaquil" is presented. The protection of the environment has become an essential and mandatory need, so the objective is to implement community participation strategies to involve students of the Centro de Estudios Espíritu Santo de la Ciudad de Guayaquil in urban forestation activities, environmental awareness and care of green areas. The study adopted a qualitative and quantitative methodological approach, using specific techniques such as documentary review and bibliographic research. The sample selected for this study focused on the Centro de Estudios Espíritu Santo in the city of Guayaquil. The results show a clear discrepancy between the perceptions of the surveyed population regarding deforestation in the city of Guayaquil; while the authors made a contrast between the results obtained from different theses, scientific studies, etc. In conclusions, this study proposes new research questions or proposals for ecological projects.

Keywords: Ecological, Forestation, Protection, Environmental, Guayaquil

Resumen: Se presenta el resultado del proyecto de investigación "Campaña de sensibilización ambiental: reforestación, cuidado y protección de los árboles del Centro de Estudios Espíritu Santo de la Ciudad de Guayaquil". La protección del medio ambiente se ha vuelto una necesidad esencial y obligatoria, por lo que el objetivo es implementar estrategias de participación comunitaria para involucrar a los estudiantes del Centro de Estudios Espíritu Santo de la Ciudad de Guayaquil en actividades de forestación urbana, concienciación ambiental y cuidado de áreas verdes. El estudio adoptó un enfoque metodológico cualitativo y cuantitativo, se utilizaron técnicas específicas como la revisión documental y la investigación bibliográfica. La muestra seleccionada para este estudio se enfocó en el Centro de Estudios Espíritu Santo de la Ciudad de Guayaquil. Los resultados muestran una clara discrepancia entre las percepciones de la población encuestada respecto a la deforestación en la ciudad de Guayaquil; mientras que los autores realizaron un contraste entre los resultados obtenidos de distintas tesis, estudios científicos, etc. En

conclusiones, este estudio propone nuevas preguntas de investigación o propuestas de proyectos ecológicos.

Palabras clave: Ecológicos, Forestación, Protección, Ambiental, Guayaquil

INTRODUCTION

Today, caring for the environment has become a vital and imperative need. Not only do we depend on it for our daily survival and well-being, but we also recognize our responsibility to preserve it for future generations. The environment not only provides us with clean air, clean water and food, but also sustains biodiversity and balances the ecosystems that make life on planet Earth possible.

In this context, it is essential to consider the impact of our actions on the natural environment and take concrete steps to reduce our ecological footprint. In the city of Guayaquil, where scarce forestation is an obvious concern, the implementation of projects aimed at mitigating this problem would be of great help. These projects could include reforestation initiatives, promotion of renewable energies, proper waste management and environmental education to raise public awareness of the importance of conserving natural resources.

Ultimately, investing in projects that reduce Guayaquil's ecological footprint would not only benefit the natural environment and the health of its inhabitants, but also lay the foundation for a more sustainable and prosperous future for generations to come. It is essential to act now to protect and preserve the environment, ensuring a lasting and healthy legacy for present and future communities in Ecuador's coastal city.

The constant problem is the scarce forestation that exists in the city despite failed municipal attempts to increase the ecological footprint. The scarce afforestation in Guayaquil contributes to the loss of natural habitats and a decrease in biodiversity. This negatively affects flora and fauna species that depend on forest ecosystems for their survival, which can lead to the extinction of local species and the disruption of natural ecosystems.

The scarce forestation in Guayaquil increases the risk of flooding and soil erosion, especially during periods of heavy rainfall. Trees and green areas help absorb excess water, thus reducing the risk of flooding and soil erosion by strengthening the soil structure with their roots.

Saavedra, M., & Calderón, M. (2021), found a provision of the National Environmental Authority (Ministry of Environment and Water) must design and implement tools considered within projects to provide technical assistance and services for good forest management, disease control, pests, reforestation, among other actions.

The provision found suggests that tools should be developed and applied within projects that provide technical assistance and services aimed at improving forest management, controlling diseases and pests, as well as promoting reforestation and other actions related to the sustainable management of natural resources. This recommendation highlights the importance of coordinated and effective action by environmental authorities to address the problem of poor forestation in the city and its associated impacts. Principle of the form

The lack of trees at Centro de Estudios Espiritu Santo in the City of Guayaquil contributes to climate change by reducing the city's carbon dioxide (CO₂) absorption capacity. Trees are critical to mitigating the effects of climate change by acting as carbon sinks and helping to regulate the local climate by providing shade and water evaporation.

Implement community participation strategies to involve the Espiritu Santo Study Center of the City of Guayaquil in urban forestation activities, environmental awareness and care of green areas, promoting shared responsibility in the conservation of the natural environment.

It is relevant to inquire about the environment, reforestation, care and protection of trees in Guayaquil due to the importance of trees and green areas in the ecological balance and quality of life of citizens. The lack of trees and the scarce forest cover in the Espiritu Santo Study Center in the City of Guayaquil not only contribute to the deterioration of the environment, but also have a negative impact on the health and well-being of the population, increasing air pollution, urban stress and the risk of diseases related to the lack of green spaces. Therefore, it is essential to implement concrete actions to reverse this situation and promote greater community participation in the conservation of the natural environment.

To address the problem of scarce forestation in the Espiritu Santo Study Center in the City of Guayaquil and the failed municipal attempts to increase the ecological footprint, it is proposed to implement strategies

of community participation of educational institutions, non-profit associations, in order to actively involve residents in activities related to urban reforestation, environmental awareness and care of green areas. These strategies will be based on the creation of educational programs, environmental awareness events, practical workshops on tree planting and maintenance techniques, as well as the promotion of cooperation between public institutions, non-governmental organizations and the community in general.

The objective of implementing community participation strategies at the Centro de Estudios Espiritu Santo de la Ciudad de Guayaquil is to promote shared responsibility in the conservation of the natural environment, increase citizens' sense of belonging to their city and foster a culture of respect and care for the environment. By actively involving the students of the Centro de Estudios Espiritu Santo de la Ciudad de Guayaquil in urban reforestation activities, environmental awareness and care of green areas, we seek to create a positive change in the attitude and behavior of the population towards the protection of natural resources and the promotion of sustainable urban development in Guayaquil. This will not only benefit the environment and the health of the inhabitants, but will also contribute to improving the image and quality of life of the city as a whole.

Authors such as Lezama, J., & Graizbord, B. (2019), mention that the environment refers to the possibility of thinking nature in its relationship with the human, as a product of its intervention, the ultimate result of the impact of man's action on his natural environment. But it is at the same time a return movement, an action of nature on social life, a natural limit, a restriction, a source of life and a provider of goods.

The authors emphasize that the environment is not static, but involves a constant movement of interaction between nature and society. This interaction involves not only the transformation of the natural environment by humans, but also the capacity of nature to influence human activities and the configuration of social life. In this sense, the environment acts as a natural limit and constraint to human actions, while providing the vital resources necessary for human survival and well-being.

The study by Romero, J. et al., (2020), highlights the importance of environmental preservation on the part of the States of the world in accordance with the economic growth at a general level; Colombia

being the country that is specifically mentioned in the approach to the complex subject of the environment and the field of economic development.

It is essential to recognize that environmental preservation is not only a moral and ethical imperative, but also a necessity to ensure sustainable and equitable economic growth worldwide. The fact that Colombia is specifically mentioned in this analysis highlights the leading role that some countries can play in integrating policies and strategies that harmonize economic development with the protection of the natural environment. This suggests that, through a holistic and coordinated approach, it is possible to promote a development model that does not compromise natural resources and that guarantees the long-term conservation of ecosystems vital for human well-being and biodiversity. In this sense, the study underscores the importance of the world's States adopting concrete and effective measures to address environmental challenges, recognizing the interdependence between the environment and the economy in order to build a sustainable and prosperous future for present and future generations.

According to Zambrano, J. D., & Zambrano, J. P. (2021), reforestation is the operation of populating or repopulating with varieties of arboreal or shrubby plants, through planting, managed regeneration or cultivation, on any type of property, and also defines a forest plantation as a forest mass resulting from reforestation.

Reforestation, as described above, represents a fundamental action to repopulate degraded or deforested areas with plant species, thus contributing to the recovery of biodiversity and ecosystem functionality. Likewise, the distinction between reforestation and forest planting highlights the need for an integrated approach to natural resource management, where proper planning and management play a key role in the creation of healthy and sustainable forest stands. In this context, reforestation is presented as a valuable tool in the fight against climate change, soil and water conservation, and wildlife protection, being essential for building a more balanced future for the planet and future generations.

Sierra, R., & Marina, F. (2020), emphasize the care and preservation of the environment, including animals, water sources and trees. Recognizing the interdependence between all these essential elements

for ecological balance is a crucial step towards a more holistic approach to environmental conservation. The health and prosperity of ecosystems are intrinsically dependent on the protection of each of these components, and it is our responsibility as a society to ensure their preservation for the present and future well-being of our planet and all life forms that inhabit it.

Bogota, a city aware of its environmental impact and with an active population in terms of citizen participation, has implemented several ecological projects over the years. An example of this is the study by Riveros, M. (2018), which examines a project aimed at counteracting high temperatures in the city. On the other hand, according to Venegas, M. (2023), various causes contribute to deforestation, including aspects of modernization, uncontrolled fires and land use change, especially agricultural expansion. These findings highlight the importance of a comprehensive and continuous environmental management to address environmental problems and build a more balanced and healthy future for Bogotá and its residents.

MATERIALS AND METHODS

The study adopted a methodological approach that combined both qualitative and quantitative elements, employing a non-experimental descriptive comparative design. This strategy allowed the researchers to obtain a complete and detailed understanding of the situation studied (Sayago, S., 2014). To carry out the analysis, specific techniques such as documentary review and bibliographic research were used. These tools provided a solid basis for the collection and examination of relevant data, thus facilitating the evaluation and interpretation of the results obtained.

The sample selected for this study focused on the students of the Centro de Estudios Espíritu Santo in the city of Guayaquil. This choice of sample is crucial since this specific area can offer significant information about the problem studied and the possible solutions that could be implemented. By targeting this community, the researchers were able to obtain local and direct perspectives that enriched the analysis and understanding of the study problem (Martinez. et al. 2023). In addition, by focusing on a specific geographic location, comparison and identification of patterns and trends within the population studied is facilitated.

The methodological approach used in this study allowed the researchers to combine multiple research techniques to obtain a comprehensive view of the analyzed problem. The choice of the sample, centered on the Centro de Estudios Espiritu Santo in the City of Guayaquil, provided a solid basis for data collection and situation assessment. This rigorous, community-centered approach helped generate meaningful insights that could inform decision-making and the implementation of concrete actions to address the identified challenges (Sanchez, F., 2019).

RESULT

95% of the people surveyed for the study by Jaramillo, T. (2021), do not agree with the existence of deforestation in the city; on the other hand, 5%, representing one person, mentioned that perhaps they would agree. 95% of the citizens know the consequences that would occur in the city due to the lack of green spaces, that is to say, people know that the lack of green spaces would cause a greater agglomeration of people who would not be able to live healthily, nor would there be places where they could recreate as a family. Only 5%, which represents one person, is unaware of the consequences.

The results obtained from Jaramillo's (2021) study show a clear discrepancy between the perceptions of the surveyed population regarding deforestation. While 95% of respondents disagree with the existence of deforestation, the remaining 5% express a more ambiguous or possibly favorable opinion. This divergence of opinions highlights the need for greater environmental awareness and education in the community to adequately understand and address the challenges related to the loss of green spaces and urban deforestation.

The implementation of community participation strategies proposed in the article can complement these results by fostering a broader understanding and active participation of Guayaquil residents in the conservation of the natural environment. By involving the community in urban forestation activities, environmental awareness and care of green areas, a culture of shared responsibility in the protection and preservation of the urban environment can be promoted. This would not only contribute to addressing the problems identified in the survey, but would also strengthen the collective commitment towards a more sustainable and green future for the city.

The scientific article by Pereira, Y. (2019) on Reforestation as an Environmental Strategy for the Conservation of rivers and streams, mentions that the project was able to raise awareness among the villagers and their participation in the reforestation of the watershed. Likewise, the community was oriented to the care and conservation of the planted forest species, as well as the existing ones.

The research shows how the project succeeded in raising awareness among local people about the importance of environmental conservation and their active participation in the reforestation of the watershed. It also highlights the focus on orienting the community on the care and conservation of both the new and existing forest species planted. These findings underscore the importance of involving local communities in environmental restoration initiatives, not only to improve the health of river ecosystems, but also to promote greater environmental awareness and a sense of shared responsibility for the protection of nature.

In the study on the "Reforestation plan with practices that improve the conservation of natural resources in the areas of the water sources of the El Mozo moor", the study mentions that it is important that the community organizations for water management have statutes and internal regulations that regulate the appropriate use and exploitation of the resources of their moor. Among its conclusions, it mentions that it is important that community organizations for water management have internal statutes and regulations that regulate the appropriate use and exploitation of their moorland resources (Delgado, J., & Calle, S., 2012).

This conclusion reflects a comprehensive approach to natural resource conservation, recognizing the need for adequate and sustainable management of these fragile and vital ecosystems. By providing these organizations with bylaws and internal regulations, greater community responsibility and commitment to the protection and proper use of the páramo's water resources is promoted. This not only contributes to the preservation of these unique ecosystems, but also strengthens the resilience of local communities and their capacity to face environmental challenges in the future.

Martinez, M. (2017), mentions that the lack of public participation within the planning exercise and project execution. Certainly, it shows that there is a total ignorance on the part of urban residents towards

policies and management tools, as well as the tangible results of the research.

Regarding the care of trees, it was identified that students are not clear about the role that trees play in the environment; regarding the process of recycling elements in the school context, there is no clarity about the container in which waste elements generated in the school should be deposited. Zambrano, M., et al., (2020).

In the bibliographic analysis of the different results, some of the authors highlighted the need to establish internal regulations and norms within the community organizations in charge of water management in the páramos as crucial to guarantee the long-term conservation of these vital ecosystems. Their conclusions highlight the importance of adequate and sustainable management of natural resources, recognizing the fundamental role played by local communities in the protection and responsible use of water resources.

The research shows the transformative power of reforestation as an environmental strategy for the conservation of rivers and streams. The results highlight the importance of involving local communities in environmental restoration, promoting greater environmental awareness and a sense of shared responsibility towards the protection of nature. This demonstrates how local actions can have a significant impact on the health of river ecosystems and the quality of life of surrounding communities.

Other authors reveal a marked discrepancy between the opinions of the surveyed population. While 95% of respondents reject the idea that deforestation exists, the remaining 5% are more ambiguous or possibly in favor. This divergence of opinions underscores the importance of promoting greater environmental awareness and education within the community to understand and adequately address the challenges associated with the loss of green areas and urban deforestation.

It is prudent to propose research questions that help in the creation of projects related to the Environment Reforestation, Care and Protection of the Trees of the Centro de Estudios Espíritu Santo de la Ciudad de Guayaquil; the questions could be: What are the ecological, social and economic benefits of increasing the tree cover of the Centro de Estudios Espíritu Santo de la Ciudad de Guayaquil; What is the level of

awareness and participation of the local community in the conservation and care of the trees in the Centro de Estudios Espiritu Santo de la Ciudad de Guayaquil? What is the level of awareness and participation of the local community in the conservation and care of trees in the Centro de Estudios Espiritu Santo de la Ciudad de Guayaquil; what is the perception of the residents and users of the Centro de Estudios Espiritu Santo de la Ciudad de Guayaquil; about the importance of reforestation and tree care in this urban space; and finally, what is the potential impact of reforestation and tree care in the Centro de Estudios Espiritu Santo de la Ciudad de Guayaquil? And finally, what is the potential impact of reforestation projects in the Centro de Estudios Espiritu Santo de la Ciudad de Guayaquil; in terms of improving the urban landscape, quality of life of residents and attracting green tourism?

CONCLUSIONS

According to the results presented by the previous authors, it can be concluded that the implementation of community participation strategies is fundamental to address environmental challenges and promote the conservation of the natural environment. The studies highlight the importance of raising public awareness of the need to protect and preserve natural resources, as well as the active participation of the community in reforestation initiatives, care of green areas, and sustainable management of water resources.

In this sense, the proposed strategy of involving the students of the Centro de Estudios Espiritu Santo of the City of Guayaquil in urban forestation activities, environmental awareness and care of green areas fulfills the objective of promoting shared responsibility in the conservation of the natural environment. By empowering the local community and promoting their active participation in the management and protection of the environment, significant results can be achieved in the preservation of natural resources and the construction of a more sustainable and healthy environment for all.

These results can significantly help to address the problem of scarce forestation in the Centro de Estudios Espiritu Santo in the city of Guayaquil, and the failed municipal attempts to increase the ecological footprint. By involving students in urban forestation activities, environmental awareness and care of green areas, a sense of ownership and responsibility towards the natural environment can be created. This can lead to greater community collaboration and engagement in

promoting sustainable environmental management practices and effective implementation of reforestation and conservation projects. Furthermore, by working together with citizens, municipal authorities can benefit from innovative ideas and creative solutions to address these challenges, which could lead to a positive change in the forestation situation and the ecological footprint of the Centro de Estudios Espiritu Santo de la Ciudad de Guayaquil.

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