

Action plan for environmental education through a family physician-sports promoter partnership in La Melba, Moa municipality

Plan de acción para la educación ambiental a través del binomio médico de la familia-promotor deportivo en La Melba, Moa

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Abstract: An action plan for environmental education was designed to contribute to mitigating environmental issues in the La Melba community of Moa municipality, located within the Alejandro de Humboldt Park. Analysis-synthesis and deduction-induction research methods were used, which allowed deepening into environmental management topics, alongside surveys and information gathering. A system of actions is developed to foster an environmental culture among the community's inhabitants, while simultaneously forming responsible attitudes to protect and preserve the environment, thereby enhancing their quality of life.

Keywords: rural community, community development, local development

Resumen: Se diseñó un plan de acción para la educación ambiental que contribuya a la mitigación de la problemática ambiental en la comunidad La Melba del municipio Moa, enclavado en el parque Alejandro de Humboldt. Se utilizaron en la investigación los métodos análisis-síntesis y deducción-inducción los cuales permitieron profundizar en la temática de gestión ambiental, así como las encuestas y la recolección de información. Se elabora un sistema de acciones para crear en los habitantes de la comunidad una cultura ambientalista, a la vez que se forman actitudes responsables para proteger y preservar el medio ambiente y de esta manera elevar la calidad de vida de sus miembros.

Palabras claves: comunidad rural, desarrollo comunitario, desarrollo local

Introduction

In recent times, the planet has evolved rapidly due to swift changes. Economic, cultural, political, technological, scientific, social, and environmental transformations have been generated, especially when the word development is a term related to growth, social stability, and modernization (Noa, 2022).

Ecological impacts establish cause-and-effect relationships and vice versa; therefore, they are not isolated problems. Currently, Cuba is not exempt from environmental issues; however, it stands out among all countries for its educational policy, which includes the environmental dimension.

Local governments have the full will to protect the environment, with a vision for both present and future, focusing all attention on achieving a sustainable environment. Alongside concrete sanitation, recycling, and reforestation actions, laws and regulations are established, combining the protection of the vital environment and the struggle to preserve achieved social gains and conquests, while also attempting to achieve dynamic and flexible environmental work responding to current situations.

Environmental education is a continuous and permanent process constituting a dimension of the comprehensive education of all citizens. It is oriented towards ensuring that, during acquisition of knowledge, development of skills, capacities, and attitudes and formation of values, the relationships among human beings and between them and the rest of society and nature are harmonized. This aims to guide economic, social, and cultural processes towards sustainable development (Gaceta Oficial de La República, 2022). It is an essential element of a global and lifelong education that contributes to a new educational paradigm, implying profound cultural innovation (Muñoz & Romero, 2021). According to Arias *et al.* (2024), environmental education will enhance individuals' comprehensive culture and increase community inhabitants' quality of life.

The topic of environmental education, particularly in Central America rural areas, is emerging and seeks sustainable development in balance with globalization's changes and transformations. Rural education with an eco-pedagogical approach will serve as the bridge to harmony with the earth (Martínez Pacheco & Carballo Carrillo, 2013). Authors like Araujo *et al.*, 2021 and Valdanha and Jacobi (2022) advocate for environmental education in rural communities to enhance inhabitants' quality of life and increase the interrelationships of community members with their environment.

Castrejón (2022) and Valdanha (2024) point out educational processes help overcome the exclusion of rural communities and link the issue of rural education to environmental conservation.

Environmental education involves social dynamics from educational contexts to understand and reveal the environmental realities of communities that share and inhabit a territory (Ramírez & Pedraza, 2022). Family physicians, as part of their social mission, contributes to educational activities in the communities where they work and is an essential factor due to the role they play in their social environment.

Physical activities promote the relationship between inhabitants and their natural environment, linking physical activity with the outdoors (Gómez-Quintana et al., 2023). Learning based on leisure strategies for environmental education represents a participatory pedagogical mediation strategy that considers the socio-environmental realities of the individual's surroundings (Rodríguez-Miranda *et al.*, 2022). The work of the sports promoters can be harnessed to combine educational actions related to the Sustainable Development Goals established by the United Nations, by addressing content on health and well-being, quality education, and responsible production and consumption (Pérez-Betancourt & Betancourt-Rodríguez, 2019; Hall-López, 2021).

Environmental problems in communities are phenomena derived from urban growth that translate into environment deterioration. Due to the importance and relevance of this topic and the prevalence of various environmental problems in the La Melba community, located within the protected area of Alejandro de Humboldt National Park, Natural World Heritage Site, it is necessary to develop actions to foster environmental education among the community's inhabitants. All this indicates that a sense of need for learning and environmental education must be created among the social actors of this community within an educational setting.

La Melba exhibits unfavorable environmental conditions, the most remarkable one is the presence of captive animals, exotic plants, inadequate management of solid and liquid waste, deterioration of the housing stock, among others. Community actions contributing to the mitigation of the identified environmental problems—from the acquisition of knowledge, skills, behaviors, attitudes, and values related to the environment—are unsystematic. This community is also exposed to risks that contribute

to infrastructure and the environment damage (Almaguer *et al.*, 2013; Garcell, Terrero & Leyva, 2017).

Therefore, the objective of this paper is to propose an action plan for environmental education that contributes to mitigating environmental problems in La Melba community of Moa municipality through the work of the family physician-sports promoter partnership.

Methods

To fulfill the proposed objective, the analysis-synthesis and deduction-induction methods were used, which allowed for an in-depth exploration of environmental management topics in order to propose new actions for achieving sustainable environmental education in rural communities. Different national and international authors were studied, who provided actions from their theoretical and practical experiences that should be undertaken to achieve sustainable environmental education.

Characterization of La Melba Community

The La Melba community is located in Holguín province, in Moa municipality, near the territorial intersection of Holguín and Guantánamo provinces. It is bounded to the North by Yamanigüey and Punta Gorda, to the South by Yateras Municipality (Guantánamo province), to the East by Naranjo del Toa (La Perrera settlement), and to the West by Calentura, Farallones de Moa, and Ojito de Agua. It covers an area of 18,590 Ha of natural forests, 90% of which belong to Moa municipality (Torres & Rodríguez, 2024).

It comprises two communities: Arroyo Bueno and La Naza. Arroyo Bueno's population is distributed to the left and right of the road, with the highest concentrations beyond the bridge, where commercial service offerings, a medical office, a co-educational school, a video room, and a cultural center are located. Two kilometers away is the La Naza community, with a higher population concentration.

La Melba settlement has a mountainous-zone rural morphology. Houses are irregularly distributed, some incorrectly located on slopes prone to landslides, others on both sides of the river, making them vulnerable to intense rains and flooding due to Jaguaní River's overflow (Garcell, Terrero and Chaviano, 2018)

The bulk of constructions are in Arroyo Bueno town, where the main social establishments of the community and the highest population concentration are found. Wooden houses with zinc and asbestos-cement tile roofs predominate; there are also traditional concrete block buildings with lightweight roofs.

This community has a total of 240 inhabitants. Among them, 133 are men and 107 are women, representing 55.4 % and 44.5 % respectively, for a ratio of 1.24 men per woman (Noa, 2022).

The working-age population (between 17 and 59 years for women and between 17 and 64 years for men) reaches 132 inhabitants (74 men and 58 women), representing 55 % of the total population. Out of the 132 working-age inhabitants, 59.8% are employed (48 men and 31 women) and 37.1 % perform unpaid work, are unemployed, or are housewives (24 men and 25 women); the rest corresponds to one Self-Employed Worker (TCP, acronym in Spanish) and students. This is a potentiality to consider to fostering employment over the base of local development.

The community is characterized by having an economic activity based primarily on services (more than 50.0 %), however, agricultural activity holds an important place in families' sustenance.

The economic activities declared by the community are: assorted crops (58 families), small livestock (65), livestock (21), coffee farming (19), sugarcane activity (5), cocoa plant farming (3), forestry (2), beekeeping (1), and self-employment (1). Beekeeping could constitute a productive alternative in the community given the existing natural conditions (Noa, 2022).

Actions to Promote Environmental Education Through the Work of the Family physician-sports Promoter Partnership in La Melba

The relationships between geographic space, public health, and INDER (acronym in Spanish for National Institute of Sports, Physical Education and Recreation) strengthen when considering their population-level analysis, their interdisciplinary nature in research, intersectoral nature in action, and their capacity to articulate government actions with those of educated and organized communities, as well as the diseases or disabilities diagnosis and treatment services with those seeking the improvement of the physical and social environment.

Health situation analyses are intrinsically spatial and demand the adoption of special units for indicators representation. The better the population of these special units is identified, the more effective the diagnoses will be, and the better health actions, such as promotion actions on basic environmental sanitation, will be planned.

Hence the importance of working on different environments and the environmental health to achieve a harmonious balance between humans and their environment. The family physician-sports promoter partnership is considered a fundamental link because it holds a great interrelation with the population and has extensive knowledge of the community's environmental situation.

The family physician-sports promoter partnership plays a fundamental role in this regard due to the importance of their work with people affected by non-communicable diseases, based on practical methods and technologies that are scientifically grounded and socially acceptable, made accessible to all individuals and families in the community through their full participation. This partnership, that knows its population well, can assess the nature of its problems more quickly and accurately by having a greater degree of interaction with the population and, consequently, a broad knowledge of the biological and social dimension of the individual, the family, and the community.

1st Stage: Preparatory

The system of community actions is organized in a way that a first group aims to prepare community members on environmental topics. Fundamental concepts and the relationships between them are introduced, along with the implications these have for the harmonious development of life in the community.

Objective: To raise awareness among community members about environmental problems and their implications for the community. This stage will last two months.

Actions:

1. To inform the population on the importance of contributing to campaigns related to saving water, electricity, fuel, and other resources in general, as well as vaccination campaigns, blood donations, control and attention to risk groups, among others. Both respond to improving the community's quality of life.

2. To promote the introduction of the environmental dimension into the programming of the community's mass media, oriented towards developing values and changing behaviors that favor the transition towards sustainable development.

2nd Stage: Integration

A second group of actions has community members as the protagonists. Once they have understood the environmental risk and feel committed to protecting the environment, they participate in actions to care for and protect the environment and elevate the community's quality of life.

Objective: To integrate community members into actions aimed at caring for the environment to protect their health and enhance their quality of life. This stage will last five months.

Actions:

1. To organize events and workshops to exchange experiences and search for alternative solutions between professionals and community members regarding the environmental problems affecting the community.
2. To promote an ecological-educational campaign to prevent environmental problems and thus promote human development, educate for personal growth, health, coexistence, and community participation, through talks, videos, forums, and exhibitions presented by students from educational institutions.
3. To disseminate the negative consequences of smoking, alcoholism, and other drugs, aiming primarily at children, adolescents, young people, and families from an early age.
4. To foster an environment that discourages the initiation of addictions, through informative meetings starting from the pregnancy stage, emphasizing children and young people.
5. To conduct talks, conversations, and debates related to environmental problems, their causes, and the effects they can have on the environment, as well as how one can contribute to mitigating their effects.
6. To give young people a leading role in activities they enjoy and contribute to their value formation.

3rd Stage: Training of Volunteer Promoters

The final group of actions is aimed at the recruitment of volunteer promoters and then towards preparing volunteer promoters in other districts of the people's council.

Objective: To train community members to become volunteer promoters who will work on environmental education. This stage will last three months.

Actions:

1. To organize workshops to prepare multiplier agents to promote the achievement of environmental health.
2. To promote the systematization of community training courses, prioritizing those linked to fragile ecosystems, or areas vulnerable to natural disasters and socio-economic activities.

Evaluation: Finally, an analysis of the results of the activity system application will be conducted with all community agents. The two observation guides initially used will be applied, along with surveys to the family physician-sports promoter partnership, educators, and community members.

Conclusions

The study conducted on the theoretical foundations supporting environmental education demonstrated the need to carry out a permanent education process in response to the lack of environmental awareness in the community.

In La Melba community of Moa municipality, a group of environmental problems were identified, resulting from causes related to the inhabitants' lifestyles, as well as deficient institutional elements to address them.

A system of actions was designed to favor the environmental education of the community with the direct intervention of the family physician-sports promoter partnership.

Bibliographic References

- Almaguer, Y., Galán, D., Rodríguez, M. Á., Moradas, M. R., & Aguilar, A.M. (1 al 5 de abril de 2013). *Delimitación de zonas vulnerables frente a deslizamientos en el camino de acceso a la comunidad La Melba, Moa, Cuba*. V Convención Cubana de Ciencias de la Tierra, GEOCIENCIAS '2013, Cuba. https://www.researchgate.net/publication/355716789_BIBLIOTECA_DIGITAL_POR_TABLE_CUBANA_DE_GEOCIENCIAS
- Araujo, M. C., Carrara, R. L., Muchut, F. E., Zamara Pighin, M., Tomadín, M. D. y Zanuttini, M. F. (2021). Proyectos de educación ambiental en la educación rural. Experiencias destinadas al trabajo fuera del aula, al reconocimiento del ambiente próximo, su biodiversidad y conservación. *Revista Educación y Ciudad*, 40, 65–79. <https://doi.org/10.36737/01230425.n40.2021.2457>
- Arias Hernández, M., Rodríguez Fernández, C. A., Labrada Gallardo, I. & Labañino Salinas, K. (2024). "Aire salud y vida" proyecto comunitario para promover cultura científica ambientalista desde el proceso extensionista. *Maestro y Sociedad*, 21(3), 1544-1554. <https://maestroysociedad.uo.edu.cu/index.php/MyS/article/download/6544/7492>
- Castrejón, C. J. (2022). Educación rural en América Latina. *ProPulsión*, 4(1), 35–49. <https://ojs.revpropulsion.cl/index.php/revpropulsion/article/view/75>
- Gaceta Oficial de la República de Cuba. (2022). Ley 150. Ley del Sistema de los Recursos Naturales y Medio Ambiente. <https://cuba.vlex.com/vid/ley-no-150-2022-942951692>
- Garcell, O., Terrero, E. & Leyva, M. (2017). La gestión local de la reducción de riesgos de desastres: caso de estudio La Melba. *INDES: Revista de Innovación Social y Desarrollo*, 2(1), 109-122. <http://revista.ismm.edu.cu/index.php/indes/article/download/1387/790/0>
- Garcell, O., Terrero, E. & Chaviano, A. (2018). Caracterización socioeconómica y poblacional del consejo popular de La Melba del municipio de Moa. Holguín. Cuba.

Revista Caribeña de Ciencias Sociales, 1-8. <https://www.eumed.net/rev/caribe/2018/07/consejo-popular-cuba.html>

Gómez-Quintana, I., Hidalgo-Castro, Y., Díaz-Cabrera, J.C., Pozo-Contrera, A.J. & Ramos-Pérez, E. (2023). Desarrollo de la educación ambiental en estudiantes universitarios desde la asignatura Educación Física. *Revista PODIUM*, 18 (1). <https://podium.upr.edu.cu/index.php/podium/article/view/1262>

Hall-López, J. A. (2021). Experiencia didáctica en Educación Física para la mejora de actitudes hacia el cuidado del medio ambiente utilizando como recurso papel y cartón reciclado. *Espiral. Cuadernos del Profesorado*, 14(29), 113-123. <https://dialnet.unirioja.es/servlet/articulo?codigo=8058540>

Muñoz, M. R. & Romero, M. I. (2021). Participación comunitaria y educación ambiental: reflexiones sobre las relaciones sociedad-naturaleza. *Revista Gestión del Conocimiento y el Desarrollo Local*, 8(1), 90-105. <https://revistas.unah.edu.cu/index.php/RGCDL/article/view/1429>

Noa Ortiz, D. (2022). *Indicadores energéticos en comunidades rurales aisladas con perspectiva sostenible*. (Master's Thesis, University of Moa, Cuba). <http://ninive.ismm.edu.cu/handle/123456789/3922>

Pérez-Betancourt, A. & Betancourt-Rodríguez, M. Z. (2019). El enfoque de género desde la formación docente y su relación con la ciencia, la tecnología y la sociedad. *Revista Boletín Redipe*, 8(3), 200-208. <https://revista.redipe.org/index.php/1/article/view/713>

Ramírez, J. F. & Pedraza, Y. (2022). Representaciones sociales de educación ambiental desde un contexto rural. *Praxis & Saber*, 13(34), 1-20. <https://doi.org/10.19053/22160159.v13.n34.2022.13936>

Rodríguez-Miranda, R., Palomo-Cordero, L., Padilla-Mora, M., Corrales-Vargas, A. & Wendel de Joode, B. (2022). Aprendizaje a través de estrategias lúdicas: una herramienta para la Educación Ambiental. *Revista de Ciencias Ambientales*, 56(1), 209-228. <https://doi.org/10.15359/rca.56-1.10>

Torres Batista, Y. & Rodríguez Cabrera, M. (2024). Valoración económica de los bienes y servicios ecosistémicos en el Sector La Melba Moa-Holguín. *Revista: Universidad y Sociedad*, 16(1), 188-196. http://scielo.sld.cu/scielo.php?pid=S2218-36202024000100188&script=sci_arttext

Valdanha, D. & Jacobi, P. R. (2022). Social learning as a response to disasters: a case study in the Brazilian Amazon. *Environmental Education Research*, 28(1), 109-127. <https://www.tandfonline.com/doi/abs/10.1080/13504622.2021.2007222>

Valdanha, D. (2024). Educación rural y conservación ambiental: caminos educativos a las áreas protegidas. *Revista Iberoamericana de Educación Rural RIBER*, 2(3), 105-117. <https://riber.ibero.mx/index.php/riber/article/view/31>