

# Environmental Education as an Instrument for the Sustainability of the Paleoagroecosystems

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**Abstract—** The development of humanity throughout history has greatly impacted the natural resources of the Earth, jeopardizing the survival of mankind that lived for a millennium in harmony with the natural ecosystems. This paper started because of the concern that has been verified from the degradation processes of paleoagroecosystems. This study intended to analyze how the environmental education contributed as an instrument for the sustainability, standing out for the socio-environmental sustainability. It is based on the dialectic method, and has a qualitative approach, with a descriptive and exploratory bias, constituting a bibliographic research. The results show the necessity of an increase of knowledge about the relevance of the environment education as a theory and practice, intending to sensitize the society to suppress the impacts on ecosystems and paleoagroecosystems.

## I. INTRODUCTION

Intending to produce food and consumer goods, the human activities, through the capitalist system, explore the earth's natural resources and jeopardize the ecosystems. Nevertheless, these activities do not consider the capacity of regeneration of these natural resources, which is limited and not as fast as the degradation of the ecosystems

These actions have caused many consequences in different areas of Society, such as agriculture, cattle raising, food security and other forms of production. This implicates in the soil erosion, salinization, desertification, soil contamination, riverbed's contamination, affecting mainly the agroecosystems (Vargas, Fontoura and

Wizniewsky, 2013) and putting the humanity life in risk. In this perspective, the environmental education presents itself as a transformative paradigm of the social praxis, offering the modification of man in such a way that it can provide a just and solidary society.

This way, the proposal of Environmental Education, that was discussed in Tbilisi's (URSS) 1977 and Thessalonica's (Greece) 1997 Conferences, among others, seeks to create a new conscience of the environment's value intending the reorientation of the knowledge's production based on the interdisciplinarity and transversality. By this way, it will be possible to provide new experiences of creative and innovative environmental education in different segments of society in its various

levels of education. These experiences are based on the concepts of a new ethics, cultural identity, and sustainability.

This study aims to analyze how the Environmental Education contributes as an instrument for the agroecosystems' sustainability. So, it presents itself as a fundamental piece for the changing of the anthropocentric paradigm, showing that it is possible to develop in line with the environmental conservation. This study theme is based on the necessity of attention of the collectivity in a participative way, with a holistic and systemic focus on agricultural production and cattle raising systems, resulting in the sustainability of the agroecosystems, in order to promote economic, social and environmental balance.

In this regard, Bianchi, Lawich and Herzog (2006, p.2) state that "There are several concepts of agroecosystems, but, in a general, the concepts are presented in a similar way", concluding that the human manipulation and the ecosystem change are substituted for the objective of agriculture and cattle raising implementation, and it introduces many changes in the structure and functioning of the natural ecosystem. On the other hand, the paleoecosystems are environments originated in the past ages, with a high level of vulnerability and atypical characteristics that are very different from the today's climatology. This kind of environment reports to an uncertain past, but it points, for sure, to a natural dynamic that is imposed on environments and societies, requiring management practices for conservation and/or preservation of these paleoenvironment (Pacheco, 2020a).

Furthermore, the environmental complexity requires new habits from the social actors when appropriating the environment. Inside this relationship between practice and knowledge about the collective practices, that provides new identities and common values, it is unleashed solidary actions into the reappropriation of the environment, building a dialogue capable to assure the socioenvironmental changes that do not endanger the ecological and social systems (Jacobi, 2003). Thus, the good news is that the public policy is aiming to construct of a political-pedagogical proposal of a sustainable education. By this way, it is possible to form people and a Society responsible for improving the quality of life and the environment where they live.

Therefore, the term sustainability shows a broad dimension beyond the economic and environmental aspect. The possibility to attend the present generation needs without compromising the future generation supplies is related to the quality of society's life, and it also can be called sustainable Society.

So, this study is based on the dialectic method, using a qualitative approach, with a descriptive and exploratory slant, structured in a bibliographic research. The findings of this research are necessary and of a great relevance for the environmental education as theory and practice. This study seeks to raise awareness on Society to resolve the impacts caused daily on ecosystems and on the paleoagroecosystems, understanding that when the environmental education is diffused in an effective way, it is able to produce a sustainable environment causing a great quality of life and social welfare (Oliveira, 2016).

## II. THEORETICAL REFERENCE

In this topic it is presented conceptually the theoretical dialogues that guide this study, which is structured in three sections. The first section is overview about the Environmental Education in the Paleoagroecosystems Sustainability perspective. The second one is directed to the variable sustainability, describing about the structure and functionality. The third section shows the importance of the Paleoagroecosystems' preservation.

### 2.1. The Environmental Education in the Paleoagroecosystems Sustainability perspective

In the harmonic familiarity between man and nature perspective, it is highlighted the need to respect the limits normally imposed by the scarcity of resources available to humanity. This way, it is observed that the established economic development form, as well as the human consumer behavior, evidenced with greater intensity after the industrial Revolution (century XVIII) substantiated on technology and innovation, promotes not only a change in the production process, but also in the humanity consumption behavior. Before this Revolution, the production process was handmade, but after that it became to be produced on a large scale with a great diversity of products. So, the humanity became eager for novelties and stimulated by advertising and easy access to credit, understood that happiness and well-being, are directly, linked to consumption.

It is important to notice the need to seek the balance between production and consumption in order to meet the need of the present generation without compromising the future generation necessities, thus achieving a sustainable development (social, environmental, and economic), as an essential requirement for the humanity preservation on Earth (Camelo, 2015).

In this context, the agriculture, also driven by technology, implements the monoculture, through deforestation, with an intensive use of the soil, chemical fertilizers, agricultural pesticides, and an unruly use of

water, with the justification of a large-scale productivity, which is generally destined to the foreign Market. These actions end up promoting an instability between the agriculture and the natural ecosystems, modifying the way nature works, causing imbalance to the agroecosystem. (Corrêa and Maneschy, 2017).

After observing and experiencing the results from the cases reported before, the Society and the global leaderships started to organize conferences, non-governmental organizations, and social movements, aiming to reflect and find solutions for the environmental crisis installed in the world.

These social movements began in 1970, awakened by the great impacts caused in the environment because of the predatory exploitation of the natural resources and the damage done to society. Through the Stockholm Conference in 1972, it is started the discussion about the environmental issues evidencing an environmental criticism of the current development model. In this conference these issues received a public visibility on the international agenda environment.

Since de 90s, with the World Conference in Rio de Janeiro (1992), the concept of sustainable development has been sought in the most diverse forums, on the slogan of environmental activists, topics of papers, etc. In this period, because of the discussions about the environmental theme, two opposite interpretative currents arise: The first one - economic and technical-scientific - was grounded on the economical increasing and environmental preservation; the second one was grounded on an environmental criticism of the contemporary way of life. This way, it is possible to characterize the currents as the one that predicted abundance and the other that predicted catastrophe.

Thus, it is necessary to intermediate a proper reordering between social, environmental, and economic objectives. This reorganization will promote the regression of growing social inequality, the containment of environmental degradation and equity in the income distribution. So, the access to information and Environmental Education are ways to reverse socio-environmental degradation, through awareness and individual co-responsibility in the supervision and control of environmental degradation. This happens because misinformation is the preponderant factor for the individual and collective practices denial in favor of social involvement and participation.

Therefore, the Environmental Education is consolidated through huge events, as previously mentioned (Stockholm Conference 1972 and Rio Conference/92) as The Belgrade Charter 1975; Intergovernmental Conference

about Environmental Education in Tbilisi 1977, Thessaloniki Conference 1997, and others that served as a pillar for the diffusion of the Environmental Education aiming to awake the collective participation in solving the environmental issues (Jacobi, 2005).

Then, intending the agroecosystems balance, harmony in man's relationship with the environment, and to establish a connection between nature and agriculture, the Environmental Education presents itself as an instrument of intermediation (between man and nature) as a way to achieve sustainability, in order to promote the management of ecosystems respecting their natural functioning.

This way, it's verified through the magnitude and relevance of the events mentioned before, the consolidation and evidence of Environmental Education in the planetary context as a model of harmonious coexistence between man and nature. According to Guimarães, (2020), over this period, the Environmental Education was consolidated based on the following characteristics:

Therefore, it is possible to notice that, over this period, the Environmental Education has been outlined as eminently interdisciplinary, and oriented to face local problems contextualized in a global reality. It is participatory, community, creative, and values the action. It is a critical education of the reality, forming citizenship. It transforms individual and collective values and attitudes through the construction of new habits and knowledges, creating a new ethic, sensitizing and raising awareness of the integrated relationships between Human Beings/Society and Nature aiming at local and global balance, as a way of achieving the improvement of the quality of all living standards (Guimarães, 2020, p.48).

It's important to highlight that many other events before, after and concomitant with these were held and had/have great importance for the development of the environmental education. In the perspective of this intermediation between man and the environment, in the search for respect for the natural laws, the proper management of natural resources, and the preservation of natural ecosystems, the Environmental Education is an excellent instrument for the sustainability of agroecosystems.

## **2.2 Sustainability: structure and functionality of Paleoagroecosystems**

In the contemporary world, the concern with the environmental sustainability is increasingly present in the

daily life of humanity on our planet. This way, it is important to reflect about this context, questioning: what are we doing today to assure the conservation and the sustainability of the ecosystems aiming at using it for present and future generations?

We live in an extremely consumerist society where economic issues always comes before the environmentalist, the individual above the collectivity, the wealth of few people to the detriment of the poverty of most population, and from the perspective of easy profit, even if it destroys the nature, instead of distributing the income proportionally. Allied to a collective practice of preserving natural resources that still exists. From this observation, and from many others, it is noticed that the Earth will not withstand for a long time economic growth based on the current pattern of extraction and consumption of natural resources (Goodland, 1997).

Thus, dialogue about sustainability becomes increasingly important in our daily lives. In Benetti's (2006) understanding, sustainability is something that cannot be obtained instantly, it is a process of change, constant improvement and structural transformation that must have the participation of the whole population, and the consideration of its different dimensions. For Conway (1987), sustainability is defined as the ability of an agroecosystem to maintain its productivity when subjected to a major disturbance. The disturbance can be caused by intense pressure, capable of generating cumulative effects, such as salinity, toxicity, erosion, decline in market demand, drought and floods, examples of such disturbances.

In this perspective, there is a real need for conservation of the agroecosystem, ensuring its productivity as long as there is balance within this environment. So, the use of science and new technologies imposed a new management of natural resources, replacing local knowledge and, thus, nature began to be dominated by man. The man aiming at profit and the conquest of markets, began to replace the management of natural resources and ecological bases through production with biological processes (Vargas, Fontoura and Wizniewsky, 2013). It should be noticed that this study is also justified by the relationship between sustainability and the agroecosystems. Hart (1980) confirms by stating that the agroecosystem is an ecosystem with the presence of at least one agricultural population, so it can be understood as a work unit in the case of agricultural systems, differing fundamentally from natural ecosystems because it is regulated by human intervention in the search for a certain purpose.

From this perspective, the agroecosystems, in a generic way, can be divided into three types: 1. Those with a crop

subsystem; 2. Those consisting of an animal subsystem; 3. Those with a subsystem with plant and animal species. There are also other types of agroecosystems: aquatic, forestry, or agroforestry, silvopastoral and agroforestry (Hart, 1980).

Following this line of reasoning, Gliessman (2001) recognizes an agroecosystem as a place of agricultural production - an agricultural property, for example - understood as an ecosystem. The concept of agroecosystem provides a structure which we can analyze the whole food production systems, including their complex sets of inputs, production and connection between the parts that compose them. Therefore, it is realized the relevance of the agroecosystems, as well as their preservation for human survival on earth.

Conway (1987) reiterates that agroecosystems are ecological systems modified by humans to produce food, fiber, or other agricultural product. They often have a complex dynamic structure, but their complexity arises, first, from the interaction between socioeconomic and ecological processes. It is a complex economic-ecological and social system. It is worth emphasizing that in addition to the biological and survival characteristic, the social concept is also evident, when interdependent individuals, who relate to each other, live within a collective productive structure. Thus, Marten (1988) states that an agroecosystem is a complex of air, water, soil, plants, animals, microorganisms and everything else that is in the area modified by humans for agricultural production purposes.

Therefore, such concepts aim to a macro-environmental integration with the main structuring elements of an agroecosystem. Considering the structure and functionality of the agroecosystems, it is worth explaining some characteristics inherent to the perspective of environmental preservation, without losing sight of their importance within the market context.

According to Marten (1988), the structure of an agroecosystem is how it is organized, that is, a consequence of the agricultural technology system and also the set formed between the environment and the social in which the technology is applied. The structure includes all the elements of the agroecosystem and how they are functionally connected to each other. Thus, depending on the diversity of existing concepts, the structure of an agroecosystem can also be characterized by the presence of several species of animals, which, from the use of traditional and/or modern techniques, a certain production is obtained

So, it is important to state that for the maintenance and balance of the agroecosystem, it is necessary to properly



manage and raise awareness in the use of the natural resources [finite], since they are increasingly scarce, thus contributing to the maintenance of natural supplies.

The structure of an agroecosystem is how it is organized, that is, it is a consequence of both the agricultural technology system and the set formed between the environment and the social in which technology is applied (Marten, 1988). Given the above, considering the coverage and complexity of the agroecosystems, it is increasingly clear that man should rationally use technologies that minimize negative impacts, which can reduce the productive potential in this kind of environment.

D'Agostini (1999) apud Cunha (2006), defines the structure as the physical or spatial dimension where the agroecosystem is physically and spatially demarcated and the relations between the different populations present operate, including man, as well as between these populations and the environment in which they are located. Thus, it is evidenced the importance of the geographical and spatial context in the agroecosystem, pointing to the path of conservation of this environment. In this care process the man is the central figure, without forgetting the sustainability variable creating a perspective of productivity and continuity for current and future generations.

The agroecosystems and the environmental education are directly related within the paradigm of conservation and production, from how it is structured to the form of agricultural production, through care for the environment and life in its entirety. This means that its understanding is beyond the consolidation of a single form of production, using advanced or rudimentary technology, from the technological point of view and the resources used.

Based on this, the Environmental Education has its transforming aspect, starting from these assumptions and making the counterpoint to the conservationist's point of view, that results from the dominant paradigm. Nevertheless, it has a common point with the perspective of sustainability in agroecosystems as shown in this study. This is because the traditional perspective, by understanding education in its individual dimension, contributes to the depoliticization of educational practice, using behavioral pedagogies and with little problematization of the reality (Loureiro, 2006).

Therefore, what brings this perspective closer to agricultural practices and interests related to the Green Revolution and groups that want to maintain a model of conventional and exploratory agriculture of natural resources (Silva and Machado, 2015), is the interest to privilege profits over quality and equality of life and

production systems. This privilege comes from the current, unequal, and selfish capitalism system. It becomes more evident every day that it is not the large latifundia that provide the food of societies, even though 75% of the concentration of land for large-scale production is exported, but the 25% of land used by family farming. Because of these realities that it is so urgent to discuss about the relevance of a change of habit, posture, methods, and practices in the production process in the agroecosystems and/or paleoagroecosystems.

### **2.3 Paleoagroecosystems: Importance, preservation, and conservation**

The Law nº 12.651/2012 known as the "new" Forest Code enables ecological restoration with agroforestry systems, as a way for recomposing Permanent Preservation Areas (PPA)<sup>1</sup> and Legal Reserve (LR)<sup>2</sup>, which is defined from the size of the property, of up to four fiscal modules. According to Embrapa, it is possible to use the crop-livestock-forestry integration (CLFI) system as a viable production alternative for the recovery of altered or degraded areas (Balbino, Barcellos, and Stone, 2011).

The scenery of soil degradation has induced the scientific community to seek sustainable production systems, to harmonize the increase in plant and animal productivity, with the preservation of natural resources. The main objective of the CLFI is to change the land use system, based on the integration of the components of the production system, aiming to reach increasingly high levels of product quality, environmental quality and competitiveness.

The CLFI presents itself as a strategy to maximize desirable effects on the environment, combining increased productivity with the conservation of natural resources in the process of intensifying the use of areas already deforested in Brazil. (Balbino, Barcellos, and Stone, 2011).

Furthermore, the CLFI is a sustainable production strategy, which integrates agricultural, livestock and forestry activities, carried out in the same area. In intercropping, in succession or rotated. It seeks synergistic effects between the components of the agroecosystem, including environmental adequacy, the valorization of man

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<sup>1</sup> Area protected or not, covered by native vegetation, with na environmental function of preserving water resources, landscape, geological stability and biodiversity, facilitate the fauna and flora's gene flow, protect the soil, and assure the well being of the humans' population (Art. 3º, II, Law nº 12.651/2012).

<sup>2</sup> Area located within a rural property or possession, delimited in accordance with the art. 12, with the function of ensuring the economic use in a sustainable way of the rural property natural resources, assist in the conservation and rehabilitation of ecological processes, and promote the conservation of biodiversity, as well as the shelter and protection of wildlife and native flora. (Art. 3º, III, Law nº 12.651/2012).

and economic viability (Balbino, Barcellos, and Stone, 2011).

According to Gliessman (2000), the agriculture can become sustainable because one of the Agroecology's aspect is that it restores the productive capacity of agroecosystems. It is a concept, a way to see how the systems work, how do we determine whether there is sustainability and how we connect ecological knowledge with economic and social knowledge. So that all the elements of the agroecosystem - soil, water, forests, animals, and also humans - parts of the systems come together. Another fundamental aspect is that the Agroecology gives a way to see how the human being is a integrated aspect to the system.

So, it is possible to state that the agroecology is able to preserve the systems that somehow has been destroyed by human actions. It can happen through a new way of managing natural resources, from the participation of interested parties, thus constructing a new sustainable model.

According to Altieri (2009), the agroecosystem is productive and health if these rich and balanced growth conditions prevail; also, if plants remain resilient in order to tolerate stresses and adversities. Still according to Altieri, the development of a self-sufficient, diversified and economically viable agroecosystems will arise from new integrated agriculture systems, with technologies within farmers' reach and adapted to the environment.

Pacheco (2017; 2020a 2020b) brings a discussion about the paleoecosystems, or paleoenvironmental systems. This system was originated in the past ages, when the edaphoclimatic conditions were totally different from the current one. One of the paleoecosystems worked by the author is the paleodunes, which are numerous dune fields located at the riverside of the São Francisco river and built by it, in a not so distant past, but due to the rework of the winds and human actions, have suffered irreversible impacts.

At the same time, in these paleoenvironmental areas, several agroecosystems are interposed, named by Pacheco (2020b) as 'paleoagroecosystems', that is, paleoenvironmental system, natural [dune formations] in addition of numerous areas of agricultural crops [conventional and agroecological]. Extensive and intensive livestock activities (bovine farming, goats, sheep, horses, etc.), artisanal fishing, (in)sustainable tourism, construction of irregular and unlicensed housing by environmental agencies, illegal exploitation and removal of native timber and sand, among others.

About this reality, the mentioned author has categorized such areas according to the level of impactation

suffered by paleoenvironments and based on the Ecodynamics of Tricart (1977) has designed in her research models of Environmental Conservation Plans (ECP)<sup>3</sup> these paleoagroecosystems, aiming essentially to preserve some areas and conserve others. It also aims to restore the highly impacted areas, restoring the natural configuration from proper soil management and agrobiodiversity.

### III. METHODOLOGY

#### 3.1 Study design and population

This study is a bibliographic research with a qualitative approach. With regard to the objectives, a descriptive research was developed. It has an exploratory character, since it sought to develop a broader view of the object studied, providing greater explanation, and understanding about the subject (Gil, 2019). The population that was considered for this study was composed by scientific papers, taken from the following databases: SciELO<sup>4</sup>, SPELL<sup>5</sup>, Web of Science and Google Scholar o, as well as journals and books.

#### 3.2 Procedures for data collection

The search for papers was made in the following databases: SciELO, SPELL, Web of Science e Google Scholar, using the key words "Environmental Education", "Agroecosystem", "Sustainability" and "Paleoecosystems". The inclusion criteria for the research of papers were to use only scientific papers, published worldwide in all years on the topic addressed, and 8,052 articles were found.

From this approach, the research limited to the years 2016 to 2020, reducing the contingent to 3,410 articles, abbreviating to 2,716 through the refinement of papers analyzed by peers. However, when the keywords were combined, 441 papers were selected, reducing to 361 through the refinement of "peer analyzed papers", which by reading the titles or abstracts it was possible to choose 40 to elaborate the present study. The others were disregarded for being part of the exclusion criterion and not meeting the purpose of the study. Thus, the difficulty in finding scientific papers in the researched databases that addressed the theme "Paleoagroecosystems". Then, it was idealized to find through this study a research gap to be filled on the subject of this study, from the preparation of publications on the respective theme.

<sup>3</sup> For each categorized area, a ECP model was designed (PACHECO, 2020).

<sup>4</sup> Scientific Electronic Library Online.

<sup>5</sup> Scientific Periodicals Electronic Library

#### IV. RESULTS AND DISCUSSIONS

Through the selected papers, as described in the methodology topic, it was possible to observe the relevance of the theme and show at the same time, some gaps that require new researches and constructions. It was noticeable the need to approach Environmental Education as an instrument capable of raising awareness in society, through the educational process (formal, non-formal or informal), and to change the habits, postures, and also to cause change in the methods and practices to minimize the destruction on the paleoecosystems, aiming for the construction of a more balanced paleoagroecosystem in order to restore harmony between society and nature, for its own good.

This way, the chosen papers, which talk about the Environmental Education, state that this education happens firmly when the results of events held over time, showing and demonstrating real facts about the need to rethink and re-educate the relationship between man and nature since this has been a catastrophic relationship for both. Still talking about the Environmental education strengthening, it happens because of its first characteristics, transversal and interdisciplinary, therefore, it becomes a guiding instrument of contextualized and experienced reality in a liberating and innovative way.

Then, the Environmental Education continues to perform and develop its functionalities in individual and collective actions, awakening society to reestablish harmony from a part of the whole by interacting and intertwining divergent and convergent areas of coexistence. Consequently, from the perspective of sustainability in paleoagroecosystems, it is a great instrument for the preservation and conservation of the environment.

Within these discussions, there is the evidence that the Environmental Education plays its role with great relevance, with regard to education. About this, Freire (1983) and Delors et al, (2003) defend education as liberating, transformative, participatory, and creative. Guimarães (2020), complements this statement with all the characteristics mentioned, adding awareness, which leads man to visualize the socio-environmental balanced, having the environmental dimension in the education for a better quality of life.

Thus, the researched Environmental Education is fundamental and extremely important for the agroecosystems, whether it is already built or to be built as long as there is harmony between man and nature. Therefore, recognizing the need for this integration is urgent and necessary to visualize sustainability for a sustainable development.

The texts that talk about sustainability warn of the concern for the survival of the human species, as well as the conservation of natural resources, where the model of capitalist consumerist society is doomed to failure. Then, a human collective consciousness is urgent in relation to the whole environment; a conservation alternative that could be the agroecosystems, ensuring productivity and balance, not being possible to disconnect it from the Environmental Education. From the perspective of environmental conservation to benefit this and future generations on our planet.

In addition, the authors who discuss ecosystems and agroecosystems point the need for sustainable rural production seeking synergistic effects between the components, adapting the environment, economy and valuing people. Considering that the advances would result in better water utilization, because under the same water regime and water volumes there is an increase in agricultural production and an increase in the accumulation of organic matter, in the amount of biomass and in the effects on gas emissions. Besides, regarding environmental conservation and recovery, there are effects related to physical and chemical degradation based on the new Forest Code (2012), increasing the resilience and availability of pastures.

Finally, when discussing paleoagroecosystems, it is possible to notice that there is still a gap in the discussions, considering it to be a new term resulting from the junction of agroecosystems and paleoecosystems. These gaps come from the few studies about these themes and point to the possibility of developing unprecedented research on such issues, since, despite the limited literature, it is already possible to see some productions about 'agroecosystems', its dynamic of functioning, and its need for recognition as a system that brings together the natural and the humanized. With regard to paleoecosystems, the literature is even rarer, but some authors have already emerged with publications at national and international level, characterizing, categorizing and pointing out suggestions for mitigating impacts in these environments from various instruments, with the Environment Education being one of them.

#### V. CONCLUSION

This study brings the discussion about the necessity to know more about the relevancy of the Environmental Education as an instrument to solve conflicts, adjust postures, convert untenable habits, and, above all, provide knowledge to the people who live next to the Paleoecosystems or paleoagroecosystems with the

exploitation of agricultural and livestock activity, in order to promote integration between man and nature.

It is essential to keep in mind that the systems, whether called ecosystems, agroecosystems, paleoecosystems or paleoagroecosystems, require sustainable management and efficient practices for their conservation and/or preservation, depending on the level at which it is categorized. Therefore, it is essential that the people who live in these territories are aware of the genesis and evolution of these systems, that they know about the importance of preserving them and, above all, understand that it is from this natural environment that these societies withdraw their own livelihoods.

Besides, this study does not have the intention to end on itself, since the subject is very instigating, and may provide new studies about its theme with other holistic, systemic, and epistemic looks. Therefore, the results show greater knowledge about the relevance of the Environmental Education as a policy and as a practice, seeking to raise society's awareness to resolve the impacts caused daily on the ecosystems, agroecosystems and paleoagroecosystems.

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