

Legal Frameworks for Environmental Education in Brazil

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Abstract— For centuries, the planet has been going through a process of degradation that compromises the future of the generations and ecosystems that make up nature. In this context, environmental education is pointed out by researchers from all over the world as the only possible solution for the awareness of subjects and social transformation. From this outcome, it arises the proposal to include environmental education in formal spaces. This article carries out a systematic analysis of the bibliographies that deal with the introduction of environmental education in educational policies in Brazil, in addition to investigating the main guidelines of environmental education in Brazil. It is a descriptive article on the trajectory of environmental education in Brazil and the world. Brazil has a legal framework and guidance for the effectiveness of environmental education in the various spaces of formal and informal training of the most advanced in the world, necessary to make its regulation, monitoring, and enforcement.

Keywords— *Environmental Legislation, School Education, Public Policies and Education.*

I. INTRODUCTION

The various transformations in ecosystems have caused damage to human health, as well as the threatening the future of current and future generations, a fact that motivated political and civil society actions to promote the care and preservation of the environment.

Environmental Education is known in the academic world as a possible instrument to reduce environmental damage to ecosystems since, as an educational tool, it seeks to raise awareness and guide individuals throughout their actions, raising awareness of their responsibility about the environment and living beings.

Environmental Education can and should take place in formal and informal spaces, depending on the necessities and social contexts. For Travassos (2011), the modern concepts of Environmental Education bring with them a new knowledge practice, taking into account traditional knowledge and social practices, school curricula, and policies directed to formal education.

Among the proposed environmental policies, the National Curriculum Parameters – PCNs (1998) have been constructed to highlight the importance of the approach of Environmental Education in a transversal and

interdisciplinary manner, pursuing transformation and awareness of the subjects (BRAZIL, 1998; 2002a and 2002b).

Being a widely debated theme, object of study and of interest in the present time, it guides debate and investigation to alert society about the environmental problems, as well as possible consequences for current and future generations.

Accordingly, this paper aims to schematize the legal frameworks that introduced Environmental Education in the policy of Brazilian schools, synthesizing the legislation that guides Environmental Education in the educational system in Brazil.

To achieve this goal, the research uses documents published under the technique of historiographical analysis that uses writings, memories, facts, and historical landmarks of humanity (ARRUDA, 2014; REIS, 2011), having as main focus the study of the trajectory of Environmental Education in Brazil.

Therefore, this material is organized into five topics: the first one making a brief introduction to the theme. It focuses on the emergence of discussions on the environment portraying the paths taken to its effectiveness at school, in addition to the legal frameworks for

Environmental Education, presenting the reader with the relevant legislation, and finally, the national policy of environmental education, showing the primary rules governing Environmental Education in various educational contexts.

II. EMERGENCE OF ENVIRONMENTAL SENSE AND ACTIONS

At the beginning of civilization, it was a common practice to extract from nature the resources necessary for the survival of humankind. From the mastery of cultivation techniques and domestication of various animal species, this increased its dominance over nature (PÁDUA, 2002).

However, the first questions about the environment arose in the 16th century, during the period of great navigations. Preceding studies show that the period of expansion and colonization of new lands has been an unfavorable period for the environment, since large areas of closed forests have deforested for the development of villages, in addition to the exploitation of timber and animals as well (PÁDUA, 2002; FRANCO, 2003; CHIAVENATO, 2005; PERLIN, 1992).

The Industrial Revolution in the 18th century generated a division between society and nature (POTT; ESTRELA, 2017). The consumerist conception that raised because of the capitalist production line resulted the first cogitations about man's action on nature.

In 1952, the city of London, cradle of the industrial revolution, was affected by smog, atmospheric pollution of industrial origin that killed thousands of people. Genebaldo Freire Dias comments that this tragedy was the starting point for a series of debates on the environmental quality that culminated in the 1956 Clean Air Act. In the United States, the discussion catalyzed the emergence of environmentalism starting in 1960, which was followed by the reform in the science education, being introduced an environmental issue, albeit in a "reductionist" way (KEROUAK, 1998).

This, however, was not the only environmental catastrophe of the decade. The Japanese city of Minamata experienced in 1953 the effects of pollution by mercury caused by industrial dumping in the worst possible way, and thousands of people suffered from small neurological problems until the birth of babies with genetic mutations, such as anencephaly. This illness known as Minamata disease has only been confirmed in the '60s when it was repeated in Niigata (KEROUAK, 1998).

The fatal cases of mercury poisoning in Minamata and Niigata, between 1953 and 1965, were recorded in the subsequent years and provoked the reduction of aquatic flora and fauna in the American Great

Lakes, with the death of birds caused by the unforeseen side effects of Dichloro-diphenyl-trichloroethane, commonly known as DDT. Along with other pesticides and the large-scale contamination of the sea caused by the wreckage of the tanker "Torrey Canyon", spilling an estimated large amount of crude oil off the south-west coast of the United Kingdom in 1967 (PÁDUA, TABANEZ, 1997).

This set of environmental events was responsible for the awakening of a global society; however, the final straw to the degradation of the ecosystem was the occurrence of the World Wars, particularly the World War I (1914/1918), which caused devastating effects. These effects resulted of the emission of heavy metals and harmful substances being present in landmines or chemical agents spread in the environment through attacks on railways, dams and bridges, resulting in soil, water and air contamination. This caused the decimation of many species with perceptible impact on global biodiversity (CAPRILES, 2003).

However, the development and worsening of environmental problems were evidenced and gained strength after the World War II, with the emergence on the world scene of the confrontation of two major superpowers, viz. the United States of America and the Soviet Union, which imposed their models on underdeveloped countries (ALTVATER, 1995; CAPRILES, 2003; GORE, 2006; HOGAN, 2007; LEONARD, 2011; FREITAS, 2014). Yet, the economic stagnation of the third world has increased the disparity between these countries (SOUZA, 1999; MONTMELLER-FILHO, 2000; MARTÍNEZ-ALIER, 2007), raising a concern about the environment. From these aspects, it arose a new look on education, defined as Environmental Education, proposing an approach that could reach all social levels.

This way, the first discussions on Environmental Education emerged from the construction of social strategies that promoted debates on the problems of ecosystems on the planet due to human actions (UNESCO, 1994).

The term Environmental Education in English was coined during the 1965 Education Conference at the University of Keele in England, although the expression about environmental studies were accessible in the vocabulary of teacher in Great Britain (BOTELHO, 1998).

The establishment of a Society for Environment and Education in Leicester, Great Britain, in 1968 was recommended, and consequently Environmental Education was defined as an education program that should aim to train citizens under whose knowledge of the biophysical

environment and associated problems could alert and enable them to be solved (NEVES, 2006, s/w).

The incipient Environmental Education had the purpose of affecting the society of that time on its duty in the conservation and preservation of the planet's natural resources. Therefore, some upheavals related to environmental issues began to emerge in the '70s, mainly in response to the demands of democratic organizations of peoples in search of their rights to freedom, work, education, health, leisure and participation in defining their own future. It occurred during a time when a series of manifestations have taken place in the world, such as the feminine liberation, the May 1968 student events in France, and the toughening of the political conditions in Latin America, with the advent of authoritarian governments (PÁDUA; TABANEZ, 1997, p. 225-263).

Consequently, several studies (BOTELHO, 1998; NEVEZ, 2006; DIAS, 1991; KEROUAK, 1998; PÁDUA and TABANEZ, 1997; FRANCO, 2003; PERLIN, 1992; POTT and ESTRELA, 2017; MENDONÇA, 2004; LEFF, 1999) date the emergence of militant environmental causes in the educational perspective in the '70s. Thenceforth, the concept tended to evolve and improve, creating several theoretical, epistemological lines of approach of the term Environment and Environmental Education.

Currently, Environmental Education has been developed and understood in two manners (REIGOTA, 1994; 2004). Through scientific bias whose understanding is universal and explicit the consensus about a certain knowledge for the scientific community, and alternatively through the social representations that addresses the way the scientific concepts are perceived and internalized by individuals in their daily lives, being reproduced and practiced. The Environmental Education begins to investigate the good and bad events involving the population and other living beings, problems that led to disturbances in public health and consequent death of people and animals. This is because the way natural resources are being used compromises life on the planet. However, it is noticed the emergence of an apprehension and need of building together with the society some tools and strategies to protect the life of species, a proposal presented by the Environmental Education (MENDONÇA, 2004; LEFF, 1999).

According to Dias (1991), wealth countries have started to debate the environmental issues and scrutinize thinkable solutions. After realizing the lack of resources and the repercussion that this theme was achieving in the international media and was causing global concern, the Governments have decided to protest against the phenomenon. However, until that moment there has not

been any policy directed to the conservation and preservation of natural resources to negotiate with the civil society in an attempt to move governments and the world population on the necessity of a more sustainable consumption (DIAS, 1991).

Consequently, the civil organizations afflicted by the environmental issues in the aftermath of the absence of public policies regulating the use of natural resources became attentive to governments whose sole concern was obtaining wealth from natural environment (MARTÍNEZ-ALIER, 2007). They promoted many manifestations and events with the purpose of discussing the environmental crisis to solve or even minimize the impacts generated by human action.

In 1968, scientists created the so called Club of Rome, targeting the research and proposal of solutions to the problems arising from the increasing consumption of natural resources and population growth, factors that were triggering several inequalities to ecosystem and non-renewable resources (DIAS, 1991). With the report "The Limits to Growth", the Club of Rome made public the impacts that development without planning had caused with the withdrawal of natural resources of the environment, triggering many disparities in the ecosystems (DIAS, 1991).

This paper helped to foster debates at the global level on the need to point out a possible limit of economic and social growth for each country, which has not pleased some leaders, especially the economic powers. This led the United Nations Conference to sponsor the Stockholm Human Environment in 1972, which established a global vision and common principles that would serve as an inspiration and guidance to humankind concerning the preservation and improvement of Human Environment (LOUREIRO, 2006). It was highlighted that in the Stockholm Conference Environmental Education is considered as a field of pedagogical action acquiring international relevance and validity.

The Stockholm Conference commenced on June 5, 1972, with the participation of 113 countries. From then on, this date celebrates the World Environment Day. As an unfolding of the Stockholm Conference, the Stockholm Declaration is sanctioned and considered as a model of proposal for the United Nations to overemphasize and environment-oriented program (LAGO, 2006; MEDINA, 1994). The approved final document stated that man has the fundamental right to freedom, equality and the proper condition of life, in an environment that permits living with dignity, well-being and a solemn obligation to protect and improve the environment for future generations

(Stockholm Declaration on the Human Environment, 1972).

Since then, the discussions regarding the nature of environmental education have been accelerated and the agreements led to the Principles of Environmental Education, established at the seminar held in Tammi (Finnish National Commission for UNESCO, 1974).

This seminar considered that Environmental Education consents the achievement of objectives of environmental protection and it is not a branch of science or subject of separate studies, but of a permanent integral education (PADUA; TABANEZ, 1997).

During the General Assembly of the United Nations (1972), the proposal for the creation of the United States Environment Program (UNEP) was debated with the aim of fostering and coordinating environmental protection actions within the United Nations system, under regional and international levels and government entities, creating a voluntary Environment Fund managed by the program. This platform would give global emphasis to environmental issues through environmental movements, working together with the human rights protection, relating population growth, migrations, gun control, and mass destruction. From this conference, it has emerged a new perspective interconnected to environmental glitches, introducing a change that would result in the insertion of environmental education as a pedagogical proposal (DIAS, 1994).

According to the author (1991), the Stockholm Conference played a key role in implementing Environmental Education programs in the global context and presenting references to nations of the world to reduce to reduce negative impacts on the environment.

Two years after the Stockholm Conference, it was inaugurated the Intergovernmental Conference on Environmental Education in Tbilisi, in the former Soviet Socialist Republic of Georgia, in 2005, which is to this day the culmination of the International Environmental Education Program. In this conference, it was defined relevant objectives and strategies at the national and international levels related to the execution of formal Environmental Education, through the publication of the document titled "La Educación Ambiental", which presented many essential remarks for the development of Environmental Education up the present days.

Hereafter, it was postulated that Environmental Education is a crucial element for a global education oriented to solve problems through the active participation of students, whether in formal or non-formal education, for the welfare of the Human community (PADUA TABANEZ, 1997). Understanding the Environmental

Education as an essential issue in all education segments, it fetches subsidies for countries to develop the learning of Environmental Education in formal education since the first series of elementary school.

III. PRINCIPLES AND LEGAL FRAMEWORK OF ENVIRONMENTAL EDUCATION

According to Reigota (2009), one of the founding legal framework of Environmental Education in Brazil occurred during the 1972 Stockholm Conference, when the development of educational actions for citizens was established as a priority and a tool to improve would-be solutions to environmental issues. It is considered what is conventionally called an Environmental Education, being referred to by the Intergovernmental Conference in Tbilisi in 1977, which advocates the Environmental Education to be an instrument with reach-to-reach people of all ages and social classes, both in formal and non-formal education.

To achieve this goal, the media have fundamental importance in the Environmental Education processes and the responsibility to put resources in the service of this educational mission. Add specialists in environmental issues and those whose actions and decisions can be perceptible in the environment and should acquire, in the course of their training, knowledge and attitudes necessary to fully understand the meaning of Their responsibilities (INTERGOVERNMENTAL CONFERENCE ON ENVIRONMENTAL EDUCATION, 1977), understanding that environmental education has three basic principles, including the acquisition of new knowledge and values, new standards of conduct and the Interdependence.

In Brazil, the initial milestone of Environmental Education is led by the actions of Brazilian researchers that were influenced by the first international conferences. Among those, stands out Joao Vasconcellos Sobrinho who was known in 1972, when he set out a crusade to restore the Pau-Brazil (redwood) as an environmental heritage.

In 1951, in the city of Santa Teresa, Espirito Santo, the Brazilian ecologist Augusto Ruschi set up a six-month course for teachers, whose name condensed its content, i.e. "Process and conservation of nature and its resources", taught at the Museum of Biology Mello Leitao (DOSTOYEVSKY, 1998).

Dostoyevsky (1998) points out that, long before talking about Environmental Education in Brazil, this subject was taught under some initiatives in various parts of the country; these pioneering experiences were mainly related to Ecology (DOSTOYEVSKY, 1998, p. 35).

By the middle of the '70s, contradicting international trends in environmental protection and ecosystems, the Brazilian Government financially

supported the constructions of big projects, such as Angra dos Reis Nuclear Power Plant, Tucuruí Hydroelectric Plant, Trans-Amazonian, and Carajás Project. These constructions suffered a wave of criticism from international organizations once it was contrary to the proposal of environmental preservation. In response, the Brazilian Government argued that the defense of the environment would be a kind of conspiracy of developed nations to prevent the growth of the country (DOSTOYEVSKY, 1998; QUONTAS, 2000).

In 1977, during the Tbilisi International Conference (1977), considered the landmark of environmental education, Brazil had no official representativeness. However, shortly before this event, a group of specialists was summoned to produce the first official document of the Brazilian Government on environmental issues. Under the responsibility of the Special Secretariat of the Environment and the Ministry of the Interior, the document “Environmental education” introduced principles and objectives for the various social sectors (DIAS, 1994), proposing as a specific objective of the process of Environmental education, create a more harmonious, positive and permanent interaction between man and the medium created by him, on the one hand, and what he did not, on the other. For this, it should be considered the ecological environment in its entirety, involving political, economic, technological, social, legislative, cultural, and aesthetic aspects in formal education. To complete, it was informed that the traditional fragmentation of the knowledge taught through school disciplines considered as watertight compartments could not be maintained (DOSTOYEVSKY, 1998, p. 39).

From these conceptual changes, Environmental issues strengthened in Brazil culminating in the decade of ‘80s with the implementation of the National Environment Policy (NEP) established by Law No. 6938/1981, considered a great achievement. (REIGOTA, 2009, p. 85). This policy aims (article 2) “the preservation, improvement and recovery of the environmental quality, in order to ensure socio-economic development, the interests of national security and the protection of human rights.” (LAW NO. 6938/1981).

Starting with the NEP, a more comprehensive and precise concept of the environment was introduced defining it as “the set of conditions, laws, influences and interactions of physical, chemical and biological order, which allows, shelters and administrates life in its various forms” (UBIRACY, 2001, S/N). It defines among its purposes the preservation, the improvement and the recovering, where protecting means the strategies to maintain the natural state of natural resources, hindering

the intervention of human beings. It tends to improve the environmental quality gradually to become excellent through social meditation, and regain emphasis on the proper management of animal and plant species and ecological resources (ABREU, 1997; QUINTAS, 1999).

Advancing in the theme, eight years later, the Federal Constitution of 1988 sanctions the constitutional right of all Brazilian citizens to Environmental Education. The Constitution, in its article 225, subsection VI, grants the state the obligation to “promote environment education in all school levels and public awareness of the need to preserve the environment”. After that, all Federative States determine the inclusion of the Environmental Education among school themes (THOMÉ, 2012; ANTUNES, 2013). In 1992, after discussions and decisions at the United Nations Conference on Environment and Development, the Ministry of Education and Culture (MEC), in a simultaneous celebration, publishes the Brazilian Charter for Environmental Education that recommended to graduate schools the structured introduction of Environmental Education in the curricula. This has established an essential milestone for the implementation of Environmental Education at higher educational level (BELCHIOR, 2011).

The Directives and Basis for National Education – DBNE (Law no. 9394/1996) mentions Environmental Education, demanding in elementary school the natural and social-ecological understanding of the political system, technology, arts and values on which it is based the society, and the curriculum of elementary and high school must necessarily encompass knowledge about the physical and natural world, in addition to the social and political reality of Brazil (BRASIL, 1996).

The DBNE law defined, amongst other determinations of higher education, the stimulus on the knowledge of the current world with exclusivity of national and regional themes. However, the insertion of Environmental Education for the promotion of a fairer society and a policy tool, as tutored by the 1972 Stockholm Conference, did not happen in a practical way (MANZOCHI; TRAJBER, 1996).

The knowledge of the physical and natural world, as well as the social and political reality, has always been a subject addressed in schools in any modality of teaching, and most of the educational institutions meet the requirement present in the legislation because all offer some curricular component that discusses the natural and physical world. However, the socio-environmental glitches present in the current society indicate that this is not enough to generate a socio-environmental consciousness capable of transforming attitudes, conceiving skills,

developing the sense of participation, among others goals on Environmental Education (TRENNEPOHL, 2009).

Environmental Education is an interdisciplinary process that can promote critical and global understandings through a systematic vision. It is a clarifying methodology for the values of alterity, equity, participation with the promotion of citizenship and environmental awareness, as Medina (2001) reinforces, developing attitudes that allow them to adopt a conscious and participatory position in use of natural resources, aiming at improving quality of life and eliminating extreme poverty and rampant consumerism.

IV. NATIONAL POLICY ON ENVIRONMENTAL EDUCATION-PNEA

The need for emergency changes in human attitudes led the Environmental Education to be included in the axis of interdisciplinarity as recognized by Law no. 9795, of April 27, 1999, which established the national policy of Environmental Education, as declared in its article eight: Environmental education, respecting the autonomy of school and academic dynamics, should be developed as an integrated and interdisciplinary, continuous and permanent educational practice in all phases, stages, levels and modalities, and should not, as a rule, be implemented as a specific discipline or curricular component (BRASIL, 2012, p. 70).

Thus, it is understood that Environmental Education is a general commitment, and the care for the environment should be approached in all grades and modality of teaching. According to Santos (2000), public policies should ensure the promotion and inclusion of environmental education at all levels of schooling as reported: The reflection on social practices, in a context marked by the permanent degradation of the environment and its ecosystem, involves a necessary articulation with the production of meanings about environmental education. The ecological dimension is increasingly configured as a question that consists of a set of actors from the educational universe, enhancing the engagement of the various knowledge systems, the training of professionals, and the university community in an Interdisciplinary Perspective (JACOBI, 2003, p. 190).

However, Act no. 9795/1999 defines legally Environmental Education as “the process whereby the individual and the collectivity construct social values, knowledge, skills, attitudes, and competencies focused on the conservation of the environment, as well as frequent use of the people, essential to the sound quality of life and its sustainability” (Article 1).

In addition, it instituted the national environment

Policy (article 6) defining its fundamental objectives, for example, the development of an integrated understanding of the environment in its multiple and complex relationships. This also involves ecological, psychological, legal, political, social, economic, scientific, cultural, and ethical aspects, as well as encouraging individual and collective participation, permanent and responsible, in preserving the balance of the environment. This includes the defense of environmental quality as the unified value of the exercise of citizenship (Article 5).

The new legislation (Law no. 9394, of December 20, 1996) recognizes Environmental Education as an essential and permanent component of national education, distinguishing together with its formal character, non-formal character, i.e., non-official environmental education that was already being practiced by educators, people from various areas of activities and even entities, forcing the government to encourage it in all its spheres (Art. 3 and 13).

This way, we conclude that the national policy on Environmental Education was created and implemented to reinforce Environmental Education and join efforts to promote learning. To achieve this right as an interdisciplinary method, the inclusion of the theme in the National Curricular Parameters (PCNs) emerges, which ensures the transversal, indispensable, and indissociable nature of the Brazilian Educational Policy (FURTADO, 2009, P. 346).

With the publication of the National Curriculum guidelines for Environmental Education and the National Curriculum guidelines for primary school, the Brazilian State recognizes the relevance and the compulsory requirements of Environmental Education in all its stages and modalities (BRAZIL, 2012, p. 70). This characterizes advancement and achievement to work the conservation and preservation of natural resources, thus ratifying Environmental Education as a permanent component of the Brazilian education system. It brings in its scope the principles of theoretical knowledge about the environment, the correlation between the natural, economic, and cultural background, in addition to the diversification of ideas, pedagogical conceptions, and the connection between ethics, education, work, and social practices.

Between 2001 and 2010, the National Education Plan (PNE), after being debated by the social sectors involved in education on the advancement of the environmental issue in the educational universe, was sanctioned and became Law no. 10172/2001, whose objectives and goals for a period of ten years includes in elementary and middle education an environmental education, transversal and developed through integrated,

continuous and permanent educational practice was advocated by Law no. 9795/1999.

V. FINAL CONSIDERATIONS

The introduction and awareness or environmental consciousness were motivated by a set of global facts and events, which stimulated several social, political, and economic groups and environmentalists for ecological issues that bothered future generations.

The path journeyed until the insertion of Environmental Education as an educational policy reached the formal and informal systems, based on the construction of resolutions in the Brazilian legal and educational system, focusing on the relationship between environment, education, and society.

In this context, analyzing the inclusion of Environmental Education in the educational policy of Brazil, it is perceived that social and political advances that seek to improve and protect the environment for present and future generations.

The legal frameworks for environmental education in Brazil gained momentum with the PNMA/1981 that proposed ordering ecological quality in the country, confirming the constitutional right of all citizens to Environmental Education, advocated by the Federal Constitution of 1988, which granted the State the obligation to promote Environmental Education to all teaching modalities.

Environmental Education should be a continuous process, extending beyond school facilities and considering the environment in its multiple dimensions. Among the key measures adopted by the Brazilian Government, aiming at the quality of teaching and addressing cross-disciplinary and interdisciplinary themes, the National Curricular Parameters (PCNs), a set of documents prepared by Ministry of Education with the cooperation of several specialists and institutions and entities of educational studies and research, which integrates the different disciplines through the approach of related topics and the transversality saturating all areas of knowledge present in Environmental Education seeking to fulfill the role of educating for citizenship and environmental awareness.

The creation of the Act no. 9795/1999 establishing the national policy of environmental education was the maximum point of the proposals for the construction of a sustainable society, using a democratic system to raise awareness of each citizen, inviting him to become an environmental educator in the social context in which it is inserted.

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