

# NON-FORMAL ENVIRONMENTAL EDUCATION SPACE IN MANAUS: A CASE STUDY OF THE “OCA DO CONHECIMENTO AMBIENTAL CIGS”<sup>1</sup>

## *ESPAÇO DE EDUCAÇÃO AMBIENTAL NÃO FORMAL EM MANAUS: ESTUDO DE CASO “OCA DO CONHECIMENTO AMBIENTAL CIGS”*

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### Abstract

This study analyzes the project “Oca do Conhecimento Ambiental”, a non-formal Environmental Education (EE) activity that emphasizes the protection and preservation of the Amazonian wild fauna and flora, whose space for pedagogical practices works at the Jungle Warfare Instruction Center, in the municipality of Manaus, in the state of Amazonas. The project was conceived by the Judiciary branch of Amazonas State as a substitute of sentences for environmental crimes, with management shared by the Brazilian Army and the Municipal Secretary of Education. The research aimed

### Resumo

*Este estudo analisa o projeto “Oca do Conhecimento Ambiental”, atividade de Educação Ambiental (EA) não formal, que enfatiza a proteção e a preservação da fauna e flora silvestres da região amazônica, cujo espaço de práticas pedagógicas funciona no Centro de Instrução de Guerra na Selva (CIGS), em Manaus, Amazonas. Trata-se de projeto idealizado pelo Judiciário amazonense como um substitutivo de penas por crimes ambientais, com gestão compartilhada pelo Exército Brasileiro e a Secretaria Municipal de Educação (SEMED). A pesquisa teve como objetivo investigar se o projeto se amolda aos princípios,*



investigated if the project complies to the principles, objectives, and guidelines of Law 9.795/1999, which deals with EE and instituted the National Environmental Education Policy in Brazil, in addition to investigating its social relevance for the local Community. For the development of the research the case study modality was used, which conciliated data collect by bibliographic, historical, and documentary with the information from on-site visits. It was concluded that, although there are still improvements to be implemented, the project is in harmony with the National Environmental Education Policy and provides a positive social and educational contribution to the population of different age groups and social classes, in favor of environmental citizenship and a balanced environment.

**Keywords:** environmental citizenship; Law 9.795/1999; environment; National Environmental Education Policy.

## Introduction

Environmental education (EE) is the result of movements conducts by some nations from the 1960s onwards, which began with the defense of the environment in the face of the environmental crisis in the world. These movements promoted efforts that resulted in the Stockholm Conference (1972) and later in the Tbilisi Declaration (1977), which became a milestone for EE, establishing its scope for all age groups, in levels of education and in the context of formal and non-formal education.

In Brazil, the institutionalization of EE began with the creation of the Federal Secretary of the Environment (SEMA) in 1973, the first national environmental body, followed by initiatives such as Law 6,938/1981, which instituted the National Environmental Policy (PNMA). The 1988 Federal Constitution included EE in all levels of education and in the community, as training for the defense of the environment, as well as Law 9,795/1999, which provides for the National Environmental Education Policy (PNEA) and established EE as an essential and permanent component of education and also as a formal and non-formal educational process, to name a few important initiatives in this area at national level.

*objetivos e diretrizes da Lei n. 9.795/1999, que dispõe sobre a EA e instituiu no Brasil a Política Nacional de Educação Ambiental (PNEA), além de investigar sua relevância social para a comunidade local. Utilizou-se, para o desenvolvimento da pesquisa, a modalidade estudo de caso, que conciliou a coleta de dados bibliográfico, histórico e documental, com as informações obtidas nas visitas in loco. Concluiu-se que embora ainda existam melhorias a serem implementadas, o projeto está em harmonia com a PNEA e contribui de modo social e educacional positivo entre a população de faixas etárias e classes sociais diversas, em prol da cidadania ambiental e de um meio ambiente equilibrado.*

**Palavras-chave:** cidadania ambiental; Lei n. 9.795/1999; meio ambiente; Política Nacional de Educação Ambiental.

Education understood as a right to be exercised for the entire of human life is a concept disseminated by the United Nations Educational, Scientific and Cultural Organization (UNESCO). It includes various forms of learning and has spread impressively throughout the world also regarding non-formal education. Since 2020, it has been included in the Federal Constitution as one of the principles according to which education must be provided, so that the right to education and learning is not limited by time or space, occurring throughout life (BRASIL, 1988).

This research is based on these structuring concepts, and is aimed at studying the case of a non-formal EE project in the city of Manaus, state of Amazonas, Brazil, as a result of a visionary idea by the local Judiciary. Its purpose was to serve as a substitute process of sentencing for environmental crimes, which resulted in a space for pedagogical practices of non-formal EE, aimed at raising awareness among environmental offenders and the local community over the years, contributing to preserve endangered species of Amazonian fauna and flora threatened with extinction.

The adopted method involves qualitative research, in the form of a case study of the project entitled “*Oca do Conhecimento Ambiental*” (Environmental Knowledge Hut) located at the Jungle Warfare Instruction Center (CIGS), which currently houses the only zoo in the city of Manaus. Once the methodology and the object of study was set, the field research began by looking for information that would allow to contextualize the project and analyze whether it complies with the structure of Law 9,795/1999.

To this end, data was collected from official documents and databases of the *Vara Especializada do Meio Ambiente* (Specialized Environmental Court – VEMA), State Court of Amazonas (TJAM), Municipal Department of Education (SEMED) of Manaus and *Oca do Conhecimento Ambiental CIGS* (CIGS Environmental Knowledge Hut), such as court proceedings, reports, record books, legislative and bibliographical review, images and websites, as well as conversations with some representatives of the institutions. All this allowed deepening knowledge on the project and concluding that it is in line with the criteria established by the PNEA and its social relevance.

## 1 Environmental education and the PNEA

Castro and Canhedo Jr. (2005) attribute to EE, as a pedagogical and political process, the training of individuals to exercise citizenship through research,

reflection and action on environmental problems affecting the quality of life and health. In addition, it permits developing interdisciplinary knowledge based on an integrated view of the world, seeking to reconcile the various existing and emerging areas of knowledge in an interdisciplinary way.

Thus, Article 225 of the Brazilian Constitution states that everyone has the right to an ecologically balanced environment, as this balance is essential for a healthy quality of life, as well as establishing the dual duty to defend and preserve the environment for present and future generations (BRASIL, 1988).

To understand what is meant by the environment, Queiroz *et al.* (2017) clarify that its legal definition came about with the advent of Law 6,938/1981, which provides for the PNMA, and Article 3, I, states that the environment is “the set of conditions, laws, influences and interactions of a physical, chemical and biological order, which allows, shelters and governs life in all its forms” (BRASIL, 1981; our translation).

For Silva (2019), the concept of the environment must be global and encompass all of nature and related cultural goods, which includes soil, water, air, flora, and fauna, as well as historical, artistic, tourist, landscape and archaeological heritage and the work environment, as provided for in Article 200, VIII of the Brazilian Constitution.

Thus, the focus of the OCA CIGS project concerns the natural aspect, “the one that is easiest for everyone to identify, encompassing all the scientificity called ‘nature’ [...] formed by natural resources, water, soil, air, flora and fauna” (QUEIROZ *et al.*, 2017, p. 55; our translation), whose environmental legal asset is natural resources in general and specifically the wild fauna and flora of the Amazon region.

At this point, the Brazilian Constitution establishes in Article 225, Paragraph 1, VI, that it is the duty of the Public Power to “promote environment education in all school levels and public awareness of the need to preserve the environment” (BRASIL, 1988; our translation).

As Gadotti (2005) elucidates, this public awareness refers to the non-formal EE modality that can take place in multiple spaces with flexible learning time and variable duration, respecting the differences and capacities of each individual. It is more diffuse, less hierarchical and bureaucratic, and although practiced outside the formal system, it is also an organized and systematic educational activity.

In addition to being an important milestone for environmental protection, Law 6.938/1981, under the influence of the Tbilisi Declaration, was also important for EE in Brazil, as it established formal and non-formal education as one of the

principles set out in Article 2, X (BRASIL, 1981; QUEIROZ *et al.*, 2017).

Despite this, the Brazilian normative instrument that finally regulated Article 225, Paragraph 1, VI, of the Brazilian Constitution was Law 9,795, of April 27, 1999, which provides for EE and instituted the PNEA, regulated by Decree 4.281, of June 25, 2002.

The PNEA represents a significant advance in the dissemination of EE, by establishing it as “an essential and permanent component of national education” that must be present “at all levels and modalities of the educational process, both formal and non-formal” (our translation). In addition, its fundamental objectives should be to stimulate critical awareness of environmental and social problems, democratize environmental information, encourage individual and collective participation in preserving the environment and strengthening environmental citizenship (BRASIL, 1999).

Article 1 of this law defines EE as follows:

EE is understood as the processes through which individuals and the community build social values, knowledge, skills, attitudes, and competencies aimed at conserving the environment, which is a good for the common use of the people, essential to a healthy quality of life and its sustainability (BRASIL, 1999; our translation).

Therefore, based on the understanding that the “knowledge society is a society of multiple learning opportunities” (GADOTTI, 2005, p. 3; our translation), it follows that education, in all its forms, including EE, implies an expansion of the learning space beyond the formal school model. It also constitutes a participatory, dynamic learning process, built through the exchange of experiences within the community and with other interacting spaces, thereby enabling the construction of a multitude of knowledge, attitudes, and values related to environmental protection.

In this sense, the model of solving local environmental problems is considered by UNESCO to be one of the most important characteristics of EE and also the structural basis for building a sustainable society (CASTRO; CANHEDO JR., 2005).

The PNEA aims to meet the need for interdisciplinary practices, interactivity, and participatory cooperation to defend the environment, as well as adapting the Brazilian legislation to international standards. To this end, it introduced the legal concept of non-formal EE practices in Article 13: “non-formal EE is understood as educational actions and practices to raise awareness among the community on environmental issues and at their organization and participation to defend the quality of the environment” (BRASIL, 1999; our translation).

Therefore, activities such as “workshops, dynamics, exhibitions, conferences, seminars, lectures, courses, games, gymkhanas, walks, trails” are part of EE actions and practices, aiming to involve and sensitize the community to local, regional, national, and international environmental issues, (THOMAS, 2017, p. 249; our translation).

In this way, “men educate themselves in communion, mediated by the world” (FREIRE, 1987, p. 44; our translation), contributing to the formation of ecological subjects (CARVALHO, 2012), aware of their role as protagonists of the physical space in which they live and the position they occupy as members of a planetary-conscious society.

## 2 *Oca do conhecimento ambiental*: the origin of the project

The *Oca do Conhecimento Ambiental* project was created by Law Judge Adalberto Carim Antonio, who at the time was the chief judge of the TJAM’s Court of Environment and Agrarian Issues (VEMAQA), now known as VEMA.

There are four Ocas in the city of Manaus, which were inaugurated in 2005, 2006, 2013 and 2014, as compensation for the damage caused to the environment by environmental offenders sentenced for the crime, and the result of the environmental criminal transaction being the construction and donation of these spaces (GAMA; OLIVEIRA; AMORIM, 2018).

As Souza (2016) and Gama, Oliveira and Amorim (2018) highlight, as a result of a judicial agreement which, although mandatory, does more than punish environmental offenders, it should encourage them to change their behavior. It is about contributing to the development of environmental citizenship, as offenders, in addition to compensating for the damage, must also participate in environmental lectures as alternative penalties in the Environmental Reeducation Workshops held at the Environmental Citizenship Space (ECAM).

In the preface to the book “*OCAS do Conhecimento Ambiental: uma experiência inovadora no município de Manaus*” (OCAS of Environmental Knowledge: an innovative experience in the municipality of Manaus), Antonio informs that the name Oca “was given recalling the dwelling of Brazilian ancestors” as these units were created for the environmental compensation of society for environmental crimes, based on the observation that “EE is so important to the formation of citizenship, but does not happen properly in the most deprived and peripheral areas of the city of Manaus, if so” (GAMA; OLIVEIRA; AMORIM, 2018, p. 9-10; our translation).

Therefore, the Ocas, in addition to being “idea-generating hubs, promoters of sustainable practices”, and “spaces for disseminating a broad and active environmental consciousness”, also establish a connection with the Amazon region by adopting “the aspect of a local cultural element, such as the concept of an indigenous symbol from which major decisions are made” (GAMA; OLIVEIRA; AMORIM, 2018, p.10; 21-22; our translation) and evoke their audience to the type of communal housing of Indigenous peoples, a space where several families from the same tribe can live harmoniously (FREYRE, 2003).

This case study focuses on the *Oca do Conhecimento Ambiental* (Environmental Knowledge Hut), which operates in the CIGS space, inaugurated in December 2014, and from now on is referred to simply as the OCA CIGS.

The CIGS was created during the military period by Decree 53,649 of March 2, 1964, with headquarters in Manaus, Amazonas, subordinated to the Border Elements Group (BRASIL, 1964). In 1969, Decree 64.366 of April 17, 1969, created the 12th Military Region in Manaus and transferred the headquarters of the Amazon Military Command (CMA) from Belém (PA) to Manaus (AM). In addition, the Border Elements Group was extinct, and its headquarters and its headquarters became home to the CMA and the 12th Military Region.

Starting in 1970, CIGS was placed under the *Diretoria de Especialização e Extensão* (Directorate of Specialization and Extension (DEE)) to provide Jungle Operations courses for Brazilian military personnel and friendly nations. Since 1982, it has been subordinated to CMA, although it technically remains affiliated with DEE, now known as the Board of Directors of Military Technical Education (DETMil), taking on the status and mission of making jungle fighters the best in the world (CIGS, 2016a).

Following this introduction about CIGS, the physical space that houses OCA CIGS, the events that led to the project itself are reported.

## 2.1 OCA CIGS: start of the project, procedural path, and physical structure

According to the records of Public Civil Action (ACP) No. 001.07.342415-4—case 0342415-90.2007.8.04.0001—the OCA CIGS was built due to an environmental criminal settlement between the plaintiff and the defendant Pátio Sertório Shopping (Manauara Shopping), mediated by the head judge of VEMAQA, during a hearing on April 1, 2009.

The aforementioned ACP was filed on July 23, 2007 by the *Organização para o Desenvolvimento Ambiental e Humano* (Organization for Environmental

and Human Development (ODAH)), a legal entity under private law located in Camaçari (BA), against the defendants Pátio Sertório Shopping, the Municipality of Manaus and the Amazonas Environmental Protection Institute (IPAAM), requesting a halt to the construction of the commercial enterprise that was being built at the time, as well as the annulment of the environmental licenses already granted, alleging the occurrence of environmental damage.

According to the plaintiff's arguments, in addition to the fact that the Shopping Center was being built in a Permanent Preservation Area (APP), in the forest fragment between Av. Mário Ypiranga Monteiro and Av. Jornalista Umberto Calderaro Filho (formerly Rua Recife and Av. Paraíba), the licenses issued were fragile due to the lack of an in-depth technical study.

Once an agreement was reached between the parties, the compensatory action included the creation of the "Oca do Conhecimento", a cultural space with all the related expenses, such as the acquisition of the land, construction of buildings and purchase of equipment, destined for later donation and administration by an institution to be defined by TJAM, and the location should be defined within 180 days (AMAZONAS, 2007).

At this point, it is noteworthy that the ACP includes information that the commercial development (Shopping Manauara) would include the construction of a mini zoo (AMAZONAS, 2007), from which it can be inferred that this was also a reason that may have contributed to the construction of the OCA at the CIGS Zoo.

In the ACP (AMAZONAS, 2007), the plaintiff informs that it became aware of the shopping center's construction through the media and demonstrations by people and civil organizations, such as the Archdiocese of Manaus, through Father Guillermo Antonio Cardona Grisale, who circulated a manifesto on environmental damage and sent it to the public authorities asking for the construction to be canceled. For this reason, the ODAH commissioned a technical-environmental study of the area—conducted by a surveyor, two biologists and an environmental engineer—to ascertain the possible environmental damage, and the technical opinion attested that continuing with the construction would cause irreparable damage to the environment.

Based on this technical opinion, ODAH approached the Federal Public Prosecutor's Office (MPF) in Amazonas, which asked various bodies to provide the necessary information, and the State Public Prosecutor's Office (MPE) opened Procedure 055/07/18<sup>a</sup>, developed by the Specialized Prosecutor's Office for the Defense of the Environment and Historical Heritage, to monitor the project (AMAZONAS, 2007).



In response to the MPF's letter, the defendant Pátio Sertório Shopping presented licenses and authorizations (AMAZONAS, 2007) issued by the Municipal Department of the Environment (SEMMA)<sup>1</sup> and IPAAM, such as: Municipal Conformity License no. 012/6-LUAI, and the IPAAM. 012/6-LUAI, issued by SEMMA; Preliminary License – LP 204/06-IPAAM; Municipal Installation License 004/07/SEMMAS; Installation License – L.I 061/07 – IPAAM; Deforestation Authorization 024/07 – IPAAM; and Environmental Control Plan (PCA).

However, despite the licenses issued by the municipal and state environmental agencies, it was found that the Preliminary Environmental Impact Study (EPIA) and the Environmental Impact Report (RIMA) had not been carried out. Consequently, neither the public hearings to present them to Manauara society, essential requirements for assessing the possible impacts of installing the project and analyzing the feasibility of installing the work, nor the granting (or not) of the environmental licenses took place. In addition, there was the fact that the area where the project will be built was an APP, as it is home to endangered species of fauna and flora such as Brazil nut trees and several *buriti* and *tucumã* palms, as well as water springs, among others (AMAZONAS, 2007).

Despite the fact that the parties failed to comply with the EPIA/RIMA in the process of building this project with a high environmental impact on the city, it should be noted that the EPIA had been legally stipulated since Conama Resolution 01/86 (CONAMA, 1986), which became an express requirement both in Article 225, Paragraph 1, IV, of the Brazilian Constitution (BRASIL, 1988), and in Article 235 of the Amazonas State Constitution (AMAZONAS, 1989), whose original wording of which at the time of the events stated that “the environmental impact study will be an integral and obligatory part of the licensing process” (AMAZONAS, 1989; our translation), a requirement later introduced by Municipal Law 605/2001, which established the Environmental Code of the Municipality of Manaus (MANAUS, 2001).

Also, according to the heading of Article 9 of Conama Resolution 01/86, “the RIMA must reflect the conclusions of the environmental impact study” and contain certain minimum criteria set out in items I to VIII and in the sole paragraph of that article (CONAMA, 1986; our translation).

These facts served as a basis for the ACP to be filed against the parties, which called for the construction to be halted until the ACP was judged and for all

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<sup>1</sup> Since 2009, it has been called Municipal Department for the Environment and Sustainability (SEM-MAS).

the environmental licenses granted in non-compliance with the legislation to be declared null and void, among other requests. As a result, a multidisciplinary team was set up during the course of the process to assess and improve the PCA and propose suggestions for environmental remediation (AMAZONAS, 2007).

After the criminal settlement was reached on April 1, 2009, the site of the Oca, which was to be defined in 180 days, had its deadline extended<sup>2</sup> for practical and administrative reasons.

Thus, it was only on August 14, 2013 that Manauara Shopping informed the court that after negotiations with the Brazilian Army and the TJAM, an area in the CIGS had been made available for the construction of the *Oca do Conhecimento*, according to Official Letter 026/13 – Div. Vet., issued on August 5, 2013, by the Commander of the CIGS, Colonel Alfredo José Ferreira Dias, who authorized the construction along the lines of the architectural project approved by the Amazonian Court of Justice and the Brazilian Army (AMAZONAS, 2007).

The ACP records that Judge Jorsenildo Dourado do Nascimento, appointed by Ordinance 2,948 of November 19, 2012, to answer for VEMAQA, issued an order on July 30, 2013, giving the MPE notice to appear in the case, as *custus legis* (AMAZONAS, 2007).

In response, the MPE stated the following in the ACP of August 21, 2013: (a) the judicial agreement signed between the parties put an end to this lawsuit; (b) although there were errors in the suppression of vegetation, with the extinction of part of the APP, it was verified by the technical team that prepared the report that techniques were applied to minimize the adverse effects caused; (c) in parallel with that, various compensatory measures were defined by the state and municipal environmental agencies and the Court; (d) the environmental agencies, particularly with regard to this ACP, instructed the plaintiff association to ensure that the agreed minimization and compensation measures were implemented; (e) finally, the Court requested that the plaintiff be summoned to comment on the documents attached by Pátio Sertório, regarding compliance with measures (AMAZONAS, 2007).

In January 2014, the VEMAQA judge authorized the start of construction of the space, with a deadline of eight months to finish the OCA CIGS (AMAZONAS, 2007).

After the physical space was defined and the construction approved, it began

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<sup>2</sup> According to the records of the ACP, this Oca was to be built on land in the Boa Vista Community, in the Puraquequara neighborhood, an option that was discarded due to problems in regularizing the land (AMAZONAS, 2007).

on the OCA CIGS, in the São Jorge neighborhood, on the west side of Manaus, and it was inaugurated on December 11, 2014 (GAMA; OLIVEIRA; AMORIM, 2018; CIGS, 2016b), as a result of a partnership between the following actors: VEMAQA/TJAM, Pátio Sertório Shopping and CIGS (AMAZONAS, 2007).

The OCA CIGS has a total built area of 293.80 m<sup>2</sup>, according to the Technical Responsibility Register (RRT) and is located in the geographical region of the CIGS (AMAZONAS, 2007), a space that, despite being on the urban perimeter of Manaus, occupies 6,000 m<sup>2</sup> of built area, whose surroundings are made up of preserved forest and houses a zoo with various specimens of Amazonian flora and fauna (SILVA; SANTOS; TERÁN, 2019).

Unlike the other three *Ocas do Conhecimento Ambiental* that were incorporated into SEMED's basic structure, under the terms of Law 1,913, of September 29, 2014 (MANAUS, 2014), the activities of OCA CIGS were developed and managed through a shared management model, by signing a Technical Cooperation Agreement among SEMED, SEMMAS and CIGS (SEMED, 2014; CIGS, 2016b; GAMA; OLIVEIRA; AMORIM, 2018).

According to correspondence from the Coordination of Environmental Knowledge Centers (SEMED, 2021), sent in response to the researchers' questions, in this management model, the Brazilian Army/CIGS is responsible for the physical infrastructure and SEMED for the pedagogical part, which justifies the non-incorporation of the OCA CIGS into the organizational structure of this Secretariat. It was also reported that a draft for a new Technical Cooperation Agreement was under consideration by the Brazilian Army.

Thus, the information presented in this article, in addition to that obtained from VEMA and the ACP, is made up of data collected on site at OCA CIGS and at the Ocas Coordination Office at SEMED, such as planning and activity reports, pedagogical proposals, monthly and general quantitative reports for 2019, CIGS Process Management document—such as Guided Visit to the Zoo, images of events held, “*O Curupira*” video, attendance lists, letters, email correspondence from the Ocas Coordination, and information obtained from the official SEMED and CIGS websites.

The physical structure where the OCA CIGS operates houses four rooms: (a) an auditorium with capacity for 80 people; (b) a lobby for exhibiting work by researchers, students or those developed by the CIGS Zoo or partners; (c) an interactive room, with an exhibition of skeletons and stuffed animals, an exhibition of objects and fun activities; (d) a room where other recreational activities are carried out, exhibiting games, objects, panels, materials and videos,

always with a focus on preservation, conservation and environmental protection and presentation of the *Curupira* Game – UFAM and ZOO CIGS (CIGS, 2016b).

The maintenance and cleaning of the OCA CIGS building is the responsibility of the Army and the current staff structure is made up of a pedagogue from SEMED, who is responsible for scheduling the visits and for the theoretical activities, which include welcoming visitors to the OCA CIGS, video presentations, demonstrations of the spaces, lectures and monitoring of activities by trainees from projects in partnership with Higher Education Institutions (HEIs) such as UFAM, UEA, IFAM<sup>3</sup>, among others.

The practical activity of visiting the zoo is the moment that generates the greatest expectation in visitors, especially children, who are usually accompanied by trainees from the higher education institutions who receive training from the CIGS Veterinary Division.

According to Gama, Oliveira and Amorim (2018), the OCAS are provided with permanent material and third-party services resulting from environmental compensation signed with the perpetrator(s) of environmental crimes for the composition of the environmental damage, during a criminal transaction hearing at VEMA, under the terms of article 27 of Law 9,605/1998 (BRASIL, 1998).

For example, during a visit to VEMA, a court case was presented in which the perpetrator of the crime (irregular transportation of coal) accepted the environmental criminal settlement proposed by the MPE, which was then ratified by the Court. The agreement consisted of the donation of two teacher's chairs, within 60 days, according to a project presented by CIGS, with the obligation for the offender to present VEMA with the invoice of the goods and the receipt of their delivery to CIGS, in addition to his participation in the EE course given by ECAM.

### 3 Case study of the “OCA CIGS” non-formal education space

OCA CIGS is a continuous flow project, i.e., with an indefinite term, which has been in existence for almost seven years since its inauguration in December 2014, until the data collection for this research, in the months of October and November 2021.

It is noteworthy that the only period of total suspension of public service activities took place between March 2020 and June 2021, due to the COVID-19

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<sup>3</sup> Federal University of Amazonas (UFAM), State University of Amazonas (UEA), Federal Institute of Education, Science and Technology of Amazonas (IFAM).

pandemic, with OCA CIGS reopening for public visitation in June 2021.

According to Gil (2005, p. 587), the case study “is a type of research design characterized as an in-depth and exhaustive study of the object(s) defined by the researcher” (our translation). This study analyzed OCA CIGS from January to December 2019, the year before the pandemic.

### 3.1 Pedagogical proposal and legal basis of the OCA CIGS project

The OCA CIGS project’s pedagogical proposal is to provide information on the importance of the environment and Amazonian fauna, targeting schools in the public and private education networks in Manaus, as well as tourists and visitors who come to visit the CIGS Zoo (SEMED, 2014; GAMA; OLIVEIRA; AMORIM, 2018).

The target audience for OCA CIGS is: (a) children and adolescents in basic education, comprising early childhood education (0-6 years) and elementary education (7-14 years); (b) young people and adults in high school and technical education (15-18 years); (c) young people and adults from HEIs (18-59 years); (d) elderly people (60 years or older) living in Manaus; (e) riverside communities, associations, fishermen, artisans, extractivists, the Amazonian community in general; (f) visitors wishing to learn a little more about Amazonian fauna and flora (CIGS, 2015).

For the visit, the heads of the schools and institutions send a letter to the Colonel in charge of the CIGS, suggesting the day and time of the visit and the number of participants. The letter is received by the pedagogue based at OCA CIGS; and once the CIGS Commander has approved the appointment, the visit takes place free of charge.

On the day of the visit, before they leave for the practical activity, which consists of going to the CIGS Zoo to see the animals that are part of the regional fauna, theoretical pedagogical activities are carried out at the OCA CIGS, mediated by a pedagogue with a specialization in EE, linked to the Coordination of Environmental Knowledge Halls, who receives ongoing training as one of the strategies to meet the PNEA.

Among the theoretical activities, visitors begin by watching the video “*O Curupira*” produced as a result of the “Curupira Project: popularizing scientific knowledge about the ecology and conservation of Amazonian fauna”, produced jointly by the Federal University of Amazonas (UFAM) and CIGS.

The video presents, in a playful way, the character who is known as

the guardian of forests and protector of animals and who disguises himself as a military man to investigate why animals are kept in the CIGS Zoo. During his investigation, he finds that the animals there were taken in because they were victims of mistreatment, some very badly injured, seized by environmental agencies and unable to return to their natural habitat.

He notes that in the CIGS zoo these animals receive care from veterinary officers, a balanced diet and safe environment in which to live. Ethical guidelines are also given to visitors on exhibiting the animals, so that they avoid making noise and do not give food during their visit, so that *Curupira* returns to the forest with the certainty that the animals are being well cared for.

Afterwards, lectures are given on topics such as the importance of defending fauna for the ecosystem, animal welfare, a presentation of the wild animals at CIGS and the conditions of mistreatment that led them to the zoo, conscious consumption and its benefits for quality of life, selective collection and environmental conservation, followed by conversation circles in which everyone is encouraged to interact and is led to self-reflection.

Visitors are then taught on the difference between domestic and wild animals, as well as why the animals are at CIGS, which is a space for animal rehabilitation and study by military personnel working in the Amazon region and veterinary and zootechnical students. In addition, they are instructed on the importance of the Zoo for Manaus, as many of the animals in the CIGS Zoo are taken there by the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA), coming from seizures involving trafficking, captivity or because they are used as domestic animals.

Among the educational resources used are a visit to the lobby with a display of colorful banners with photos and information on some Amazonian wild animals, a visit to the interactive room where there are stuffed animals, and an exhibition of the skeletons of some of the Amazonian fauna, such as the alligator (*melanosuchus niger*) which lived from 2009 to 2016 in the CIGS zoo and is the result of the “Skeleton preparation project” developed by a UFAM Zootechnics undergraduate under the guidance of a professor from Nilton Lins University with the support of CIGS and sensory boxes in which people can touch parts of animals, such as feathers, hooves etc. and feel different textures, stimulating the imagination and senses of younger children, which are also excellent tools in the teaching-learning process for all age groups.

The lobby is also home to exhibitions with environmental themes, such as those that took place in October 2019: the Tree of Environmental Knowledge

project, Municipal Protection and Civil Defense Week and the exhibition “*Em Cantos da Natureza*”, by local artist Nara Nascimento, with photographic records of small beings from the Amazon fauna and flora.

In a search of the VEMA database between February 2013 and December 2015, Souza (2016) identified 133 court cases, of which the third highest incidence (14%) of environmental infractions<sup>4</sup> in Manaus in this period were those related to the killing, persecution, hunting or use of specimens of wild fauna, native or on a migratory route, a criminal type provided for in Article 29 of Law 9,605/1998 (Environmental Crimes Law), with a highlight among seizures for the presence of birds and large quantities of chelonians.

Thus, the data presented in the study strengthens the relevance of the environmental awareness and education work aimed at preserving Amazonian wildlife, jointly conducted by OCA CIGS and the Zoo.

The general objective of OCA CIGS is “to carry out EE, scientific research, recreation and leisure activities for the general visiting public [...], in order to be a link between Amazonian society and the CIGS Zoo through EE” (CIGS, 2016b; our translation), as well as “to sensitize visitors to the importance of caring for and preserving the environment in which we live” (SEMED, [2018?]; our translation).

The specific objectives of the CIGS OCA are fourfold: (i) to improve the EE system at the CIGS Zoo; (ii) to disseminate scientific knowledge about the ecology and conservation of Amazonian fauna; (iii) to spread ethical messages about how to consider the animals exhibited in zoos; and (iv) to identify the socioeconomic and environmental profile of visitors to the CIGS Zoo (CIGS, 2015).

Finally, according to CIGS (2015), the OCA CIGS project has the following legal basis: (a) Law 9,795/1999 (PNEA); (b) Law 8,069/1990 (Statute of the Child and Adolescent (ECA)); (c) Law 7,173/1983 (law on the establishment and operation of zoos); (d) Decree 4,281/2002 (which regulates Law 9,795/1999)

### 3.2 Results: people reached by the project

The reports analyzed (SEMED, 2019a), show that in 2019 the total number of visitors to OCA CIGS was 36,185 people, who were classified as coming from bookings and random visitors, i.e. people who visited the zoo and also passed through OCA CIGS and signed the “guest book” in the OCA lobby, as shown in Table 1.

<sup>4</sup> The highest incidence of environmental infractions (21%) refers to the criminal conduct of receiving or acquiring wood or coal without requiring a license from the seller; and the second (15%) refers to constructions, renovations, expansions, installations or operation of potentially polluting works or services, criminal types provided for in articles 46 and 60 of the Environmental Crimes Law.

**Table 1.** Total visitors to OCA CIGS 2019

Origin of visit/ month	Jan	Feb	Mar	Apr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dec	Total
Guest book	-	223	226	521	476	381	817	720	534	1,072	421	261	5,652
Booking	-	-	1,191	1,460	2,166	4,583	1,812	3,263	2,730	7,459	3,806	2,063	30,533
<b>TOTAL</b>	-	223	1,417	1,981	2,642	4,964	2,629	3,983	3,264	8,531	4,227	2,324	36,185

Source: adapted from SEMED (2019a).

According to Table 1, 85% of the visitors (30,533) was composed of scheduled appointments, and the remaining 15% (5,652) were random visitors. It is also observed that the months with the highest foot traffic were October (8,531), June (4,964), and November (4,227), representing 24%, 13.5%, and 12% of the total, respectively.

Considering that October 2019 presented the highest number of visitors to OCA GICS, data from that period (SEMED, 2019b) were used to classify the visitors (Table 2) and the types of visiting institutions (Table 3).

**Table 2.** Classification of visitors to OCA CIGS in October 2019

Visitor classification	Number of visitors	Frequency (%)
Children	5,025	59%
Teenagers	544	6.5%
Youth/adults	1,768	20.7%
Senior citizens	98	1%
People with disabilities (PWD)	24	0.3%
Not identified	1,072	12.5%
<b>TOTAL</b>	<b>8,531</b>	<b>100%</b>

Source: adapted from SEMED (2019b).

According to Table 2, in October 2019, more than half of the visitors (59%) were children, the main target audience of OCA CIGS, followed by young/adults (20.7%) and teenagers (6.5%). It's possible to observe that the age range of visitors is varied and spans all ages, including people with disabilities (PWD).

Regarding the type of visit, it was found that 87.5% were scheduled appointments, and the remaining 12.5% were unscheduled visits, typically by individuals who, while visiting the zoo, become aware of OCA CIGS and took the opportunity to know the space, registering their presence by signing the guest



book. This is the reason why the age group of this particular audience was not identified.

The types of visiting institutions in 2019 were also analyzed, as shown in Table 3.

**Table 3.** Types of institutions that visited OCA CIGS in October 2019

Type of institution	Number of visitors	Frequency (%)
Private school	28	35%
Municipal public school	17	21%
Churches	13	16%
Public institution	10	12%
State public school	8	10%
Associations	3	3%
Private HEI	2	2%
NGO	1	1%
<b>TOTAL</b>	<b>82</b>	<b>100%</b>

Source: adapted from SEMED (2019b).

The analyzed data revealed that the two main visiting institutions to OCA CIGS in October 2019 were private schools (35%) and municipal public schools (21%), totaling 45 schools together, which represents more than half (56%) of the visiting institutions for the month. If we include state public schools (8) in these numbers, the percentage increases to 66%, which is two-thirds of the total visiting institutions.

Among the visiting schools, two municipal schools were from the municipalities of Iranduba and Manacapuru, in the countryside of Amazonas, with 224 and 38 visitors. Under the classification “Association”, there were two associations of PWD (visually impaired people and persons on the autism spectrum) and a residents’ association.

Despite categorized as “Churches”, when analyzing the detailed quantitative report for the month, it was found that such visitors come from Catholic churches, various evangelical denominations (Adventist, Pentecostal, and Assembly of God), and spiritual centers.

### 3.3 The social and legal effectiveness of the OCA CIGS project

The case study allowed the verification that the OCA CIGS project serves a significant social function. It spreads environmental awareness to the community

through non-formal educational actions, while also connecting and sensitizing the visiting public to the importance of preserving the natural environment, the habitat of all living beings, and the protection of the flora and wildlife of the Amazon rainforest.

This project stands out as it welcomes students from educational units in the countryside of the state, PWD, social and religious institutions, public bodies, and foreign visitors, encompassing people of all age groups and social classes, especially those from less privileged backgrounds, by granting free visits by appointment, contributing to the exercise of environmental citizenship.

Furthermore, legal effectiveness was observed, highlighting that the project: (a) fulfills the legal criterion of non-formal EE outlined in Article 13 of the National PNEA Law; (b) over nearly seven years, it has conducted various educational activities and practices aimed at raising awareness about environmental issues among the Amazonian community and tourists; (c) it emphasizes the importance of protecting and caring for the Amazonian wildlife; (d) it involves a significant portion of the community in local EE activities, particularly students from public (municipal and state) and private schools in the city of Manaus.

It is considered that, during the period analyzed, the project met the National EE Policy (PNEA) and achieved the established general objective and the majority (75%) of its four specific objectives. However, it was not possible to identify the socioeconomic and environmental profile of the CIGS Zoo visitor, one of the four specific objectives of OCA CIGS, in the reports presented.

Furthermore, it was observed that there are still space for improvement of the social and legal effectiveness of the project, such as: (a) to enhance the maintenance and cleanliness of the OCA space (fixing the auditorium's air conditioner, improving the cleanliness of the environment, acquiring a computer for exclusive use in OCA CIGS, as the currently used one is of personal use by the manager, providing a water dispenser and cups in the environment); (b) formalizing the renewal of the cooperation agreement for shared management of OCA between CIGS and SEMED, clearly and objectively assigning the responsibilities and competencies of each party; (c) structuring OCA CIGS with human resources, forming partnerships, and seeking funding to better support practical visitation, which is not conducted frequently, and which ceases to occur in a guided manner when there are no interns from technical courses and/or higher education institutions; (d) human resources would also allow for satisfaction surveys at the end of visits, in addition to achieving the only specific project objective that was not met.

## Conclusion

EE as an educational project, whether formal or non-formal, must be based on the critical thinking advocated by Freire (1987), as this will help students to develop a collective conscience and assume proactive attitudes, so that they become ecological subjects and multiplier agents in the space in which they live.

The *Ocas do Conhecimento Ambiental* project arose, according to its creator, from the realization of the need to bring EE to the formation of citizenship and the possibility that the judge has, when fulfilling his legal duty of applying penalties to environmental offenders, to do so not only with a penalizing logic, but at the same time that offenders compensate Manaus society, by participating in “educational practices aimed at preventing recidivism of environmental crimes in the city of Manaus” (SOUZA, 2016; our translation).

The OCA CIGS was the fourth and last oca implemented by VEMA and, together with the ECAM, which operates on the mezzanine of the Açaí floor of Manauara Shopping, are the result of the environmental compensation process for the construction of the shopping center in the agreement signed between the parties in the ACP.

The case study made it possible to analytically and critically evaluate an experience of non-formal EE in the city of Manaus, aimed at making decisions on it or proposing a transformative action (CHIZZOTTI, 1995). It was observed that OCA CIGS has served as a space to promote EE and has contributed to provide citizens with an environmental and planetary conscience, serving as another source to prevent future environmental crimes.

This non-formal teaching-learning practice contributes to visitors’ self-education and environmental citizenship, instilling values such as ethics, solidarity and responsibility towards the environment, animals, and other people (MORIN, 2003).

Although we are aware that “all understanding is partial and unfinished” (MINAYO, 2012, p. 3; our translation), we understand that OCA CIGS represents an educational project of great social relevance. This is because, in addition to the Manaus community, it reaches students from the countryside near the capital, people from various age groups, social classes and tourists who, on learning about this EE project, are made aware of the importance of protecting and preserving regional wildlife for a balanced environment, strengthening the exercise of environmental citizenship.

Finally, the conducted analysis allowed us to conclude that the legal

effectiveness of the project is achieved through compliance with legal provisions of the Brazilian Policy on Environmental Education and all environmental legislation protecting the environment. However, like any project, it is evolving and still requires refinements and improvements.

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