

Sustainable and Green Libraries in Brazil: Guidelines for Local Governments

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Abstract

Brazil, a world leader in natural resources, has been taking measures in order to guarantee an effective implementation of public policies, as well as effective environmental and educational management in its practices and services by aiming at environmental sustainability. However, regarding the Library Science field, specially the sector of Public Libraries, the roles and responsibilities of these institutions and librarians are little discussed in this scenario. This paper assumes that public libraries are institutions supported by the government, therefore they should be the first institutions to incorporate principles of sustainability and turn themselves into models of green cultural facilities in the country. This work presents a brief scenario of Brazilian public libraries, especially the Biblioteca Parque do Estado do Rio de Janeiro, the only facility of its kind that has achieved the Gold LEED Environmental Certificate. It also discusses the Ministry of Environment's Sala Verde project, which offers a collection of environmental books which aim at fostering the development of green rooms and their patrimony for environmental education and sustainability in Brazilian libraries. This study also suggests national guidelines for the implementation of public policies for green and sustainable libraries in the country. The objective is to stimulate such implementation in local and state governments.

Keywords: Green Libraries, Sustainability, Public Libraries, Public Policies, Library Science, Environmental Education.

Introduction

Environmental issues are considered very complex, since they involve cultural, social and economic aspects, among others. The 1972 United Nations conference on the Environment in Stockholm, Switzerland, is considered as a milestone in Brazil when it comes to environmental issues, for the regulatory basis in Brazil was expanded since that conference. Nonetheless, it was only in 1989 that the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) was created with the aim of “coordinating and executing environment and preservation policies, conservation and rational use, as well as inspecting, controlling and developing renewable natural resources” (CARIBÉ, 1992, p. 41). In 1993 the Ministry of Environment was created (MMA) and today IBAMA is under this Ministry. The National Environment Politics on the other hand, was established by law number 6,938, 1981, with the creation of the National System for the Environment (SISNAMA) and of the National Council for Environment (CONAMA).

In this context, we consider that Brazil has been adopting measures for effectively instituting public policies and principles on management and environmental education in its practices and services by aiming at sustainability. However, this process has become cumbersome and, specifically regarding the fields of Library and public libraries, little is said about the role and responsibility of these institutions and librarians in this scenario.

We believe that all libraries have potential for making citizens aware and should serve as an example for everyone. In addition to it, public libraries, which are maintained by the State, should be the first to incorporate principles of sustainable construction; criteria and principles of natural resource economics; procedures for minimizing environmental impacts; rationally manage public goods; adequately manage solid waste and; collaborate in the expansion of information access by encouraging reading on it and sustainable practices.

Accordingly, we developed a survey in order to collaborate with the making of guidelines to support the implementation of green libraries in the country and, therefore, public policies aiming at this kind of cultural facility. Below are the initial results of the research.

Public Libraries Scenery in Brazil

In Brazil, the government agency responsible for implementing public policies for libraries is the National System of Public Libraries (SNBP), under the Ministry of Culture (MinC), however, there are no specific national guidelines aiming issues involving environment, sustainability and dissemination of environmental information within public libraries.

The country follows IFLA/UNESCO (1994) guidelines for public libraries and the Caracas’ Declaration (1982), which expresses Latin America and the Caribbean’s public library commitment with the region, reinforcing its role of encouraging citizen participation and democratic government.

According to April 2015 SNBP data, Brazil has 6,102 local and state public libraries in the 26 states and the Federal District. It is the most present cultural public facility in Brazilian municipalities, with the potential to become a center of appropriation, production

and dissemination of information and environmental knowledge. In this context, it is understood that these institutions — maintained by the State — should be the first to incorporate the principles of sustainability and become an exemplar green cultural facilities in the country.

The Green Room Project

Among governmental projects facing environmental problems involving libraries, we highlight the "Green Room" project of the Ministry of Environment (MMA), which began in 2000 with the aim of encouraging the implementation of social and environmental spaces that act as potential informational and environmental education centers:

The basic dimension of any Green Room is the availability and democratization of environmental information and the search for maximizing the possibilities of the materials distributed by the MMA (including the author), contributing for the construction of a space that offers, besides access to information, the possibility of reflection and construction of environmental action. The Green Room is a defined space, linked to a public or private institution which may engage in projects, actions and educational programs related to environmental issues. It must fulfill a dynamic role in an articulating and integrating perspective, enabling initiatives that facilitate the effective participation of different society segments in environmental management, following an agenda permeated by educational activities, which walk towards sustainability (BRASIL, 2012).

It is important to say that this project did not favor the public library, but it expanded its scope to public and private institutions from an on-demand service model, with the commitment of the beneficiary institution to devote on maintaining an area, with a library character, focused on environmental education. Currently, according to MMA the country has 363 green rooms in spaces such as universities, city hall facilities, associations, community and public libraries, among others. This year, the federal government is organizing a training course for these library managers on policies for environmental education (BRASIL, 2015).

The Green Room Project is considered an initiative that highlights the need for public libraries to constitute and make available to their communities a collection of works on environmental issues, in addition to stimulating the development of actions that streamline these collections.

Green Libraries in Brazil

Green Building Council Brazil (GBC Brazil), created in 2007, it is an non-profit organization that disseminates the Leadership certification in Energy and Environmental Design (LEED), adapted to the Brazilian reality. According to the Institution's website, Brazil is fourth place in the ranking, besides working on educating professionals, spreading technologies for better practice, materials and processes and having a proactive role beside the government or private institutions.

LEED “is responsible for identifying and reporting the efficiency and environmental performance indicators of the building. The evaluation system is based on credits that are weighted to generate an environmental performance rating of the undertaking into levels” (GBC Brazil, 2014).

According to Pereira and Salgado (2013), the most commonly used certificates in the country are the Leadership in Energy and Environmental Design (LEED) and the Brazilian adaptation of the Haute Qualité Environnementale (HQE), the AQUA High Environmental Quality (AQUA) certificate issued by Vanzolini. This is so new in the country that, according to Salgado, Chatelet and Fernandez (2012), the first Brazilian venture that won the LEED certificate is a bank branch, located in Granja Viana, SP in 2007, and the first one to be certified by AQUA was a shop in the city of Niterói, RJ in 2009.

By analyzing the two commonly used certificates in Brazil, the authors cited above state that the AQUA seal is more rigorous, as it needs to meet more criteria than LEED, and includes sustainability requirements since the pre-design preparation, project implementation and finally at the implementation stage after work delivery. The Vanzolini foundation, responsible for AQUA certification, has three on-site audits over the three steps in order to verify that all sustainability criteria are met.

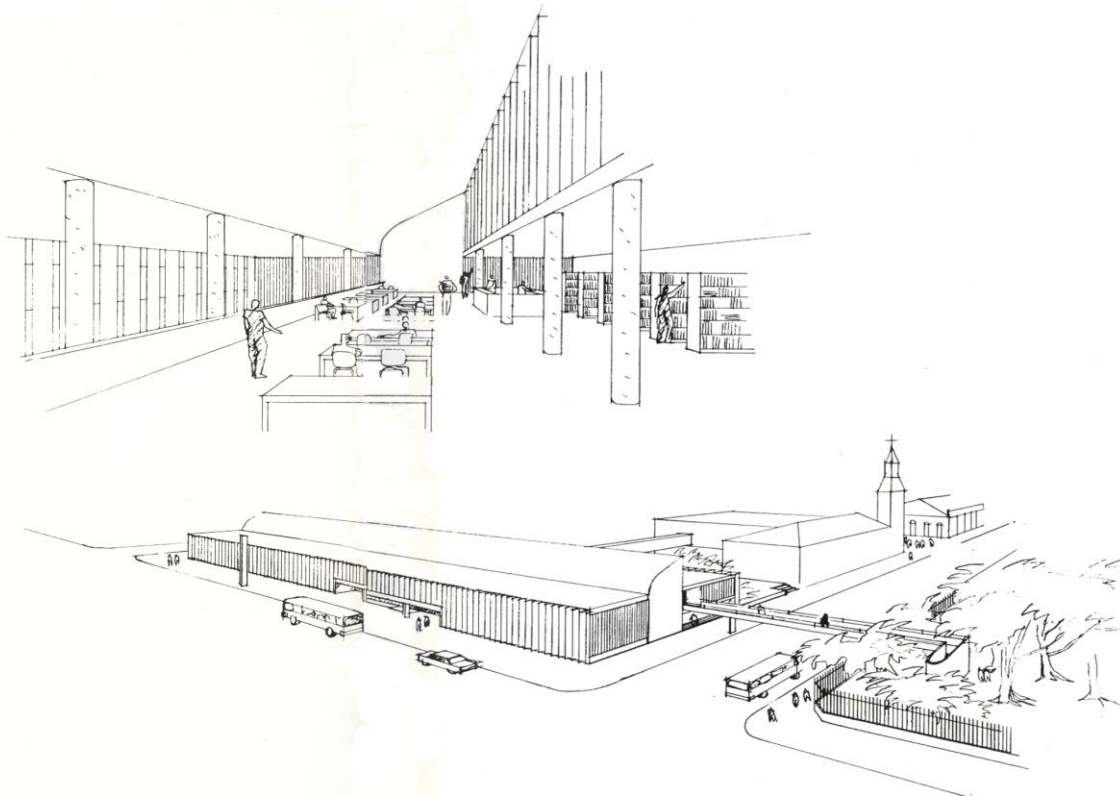
It is worth noticing that the LEED certificate is divided into certification scopes. For example, there is Core & Shell LEED, which is basically the performance’s forefront, and the interiors LEED, that allow projects to earn LEED certification when only the building’s interior has in fact a satisfactory environmental performance. In AQUA’s process, it is not possible to choose a part of the project, or choose which categories the building will meet or not, since all aspects need to be addressed.

The use of sustainable products is also provided in LEED certification. Besides, in Brazil there is a Chemical Product Safety Informational Sheet (FISPQ), which is a document that provides information on various aspects of chemicals (substances or mixtures) for safety, health and environment.

Biblioteca Parque do Estado do Rio de Janeiro is the first and only in the country that has received the LEED Gold environmental certification.

Biblioteca Parque do Estado do Rio de Janeiro

Biblioteca Parque do Estado do Rio de Janeiro (BPERJ) was founded on March 15, 1873 by Emperor D. Pedro II. Over the years, it was transferred several times and had its name changed due to changes in its administrative structure and institutional affiliation. It was in 1987 that the Library won a new building, inspired by the Popular Library of Information, of Georges Pompidou Center, Paris, France, where its spaces were improved in terms of access and comfort for users. The unique design of the new library valued its relationship with the city, as it can be seen in the following image. However, part of this project was not realized, such as the walkway that would link the library to Santana Course (VINAGRE FILHA, 2009) .



New State Library Project
Source: VINAGRE FILHA, 2009

In that moment, BPERJ went through architectural changes, modernization and expansion of its collection and services, creating for example the Bank of Public Information and Video Sector, an innovation in Brazil at the time.

In 2008 a renewal process started there, and in March 29, 2014 it was reopened after an extensive expansion work, within the modernization project, qualification and computerization of public libraries in the state.

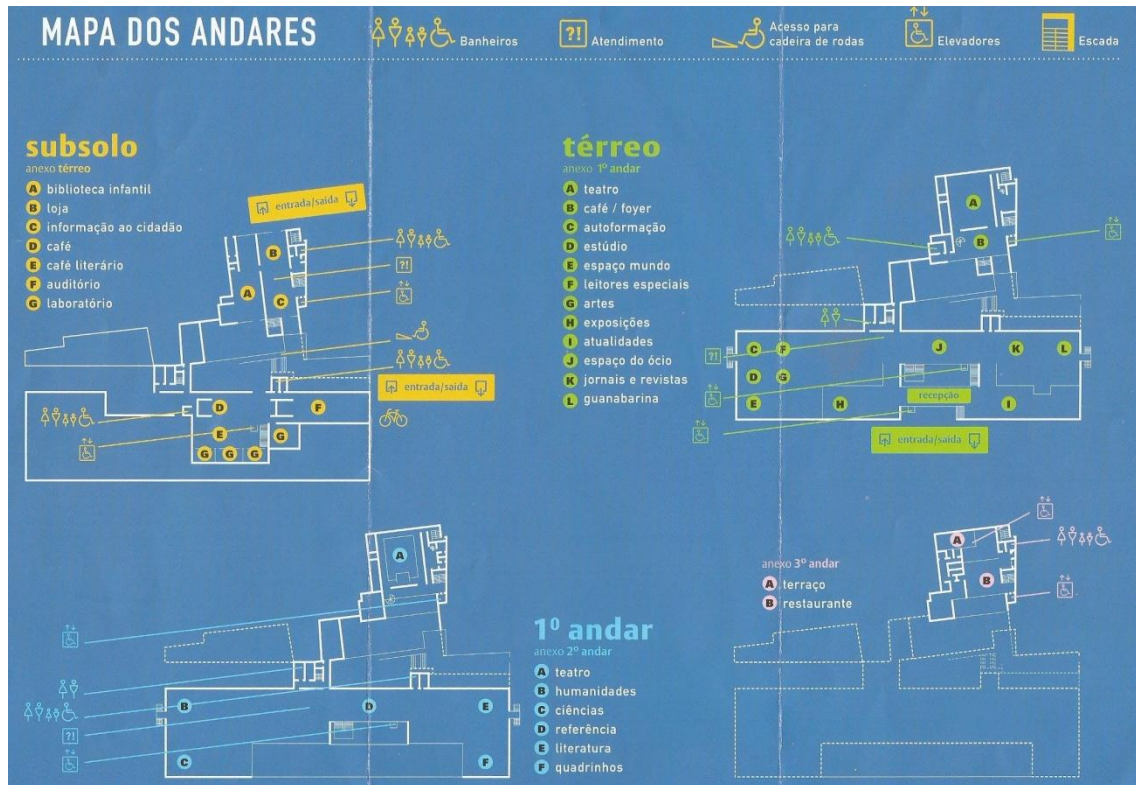
BPERJ is considered the matrix of *Biblioteca Parque* Network that the Government of Rio de Janeiro holds, including the *Biblioteca Parque de Manguinhos*, the Niterói Public Library and *Biblioteca Parque da Rocinha*, and serves as a model for state public libraries.

The library renovation was based in a project made by the same architect who developed the building's construction project, in the 1980s, Glauco Campelo. On the other hand, the internal ambiance and furniture project was carried out by architect Bel Lobo, the landscaping by Burle Marx Foundation and the signage project by Tecnopop co. The renovation project as a whole had as main reference the models of Santiago Library, Chile and Medellin and Bogota libraries, Colombia.

Currently, BPERJ is open from Tuesday to Sunday from 10 am to 8 pm and receives approximately 4,000 users per month. It is set up as a place of large spaces, comfortable and functional, which offer access to information through various ways: literature, music, theater and arts by using different media and materials.

It also promotes reading activities in an informal educational space, with a collection of more than 90,000 fiction and non-fiction books, art books, comic books, newspapers, rare

books collections on Rio de Janeiro's history (Guanabarina space), leisure space with lounge chairs, world space (international literature), 20,000 films, three million digitalized songs, a children's library, 195 theater seats, 90 auditorium seats, audio and video studios, multipurpose rooms for laboratories, cafeterias, restaurants, roof gardens, patios and bike racks as follows:



BPERJ Floors Map

Source: BPERJ Spreadsheet

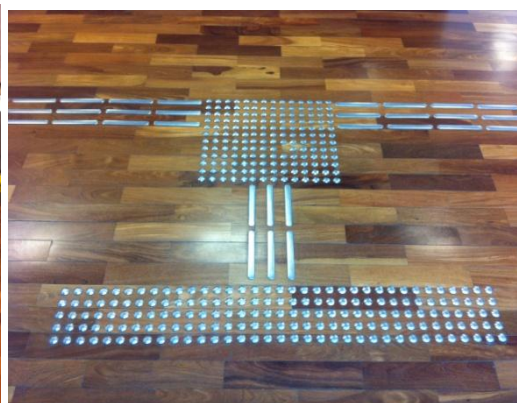
In its 15,000 square meters, the library provides access to a variety of art forms, such as the Waltércio Caldas sculpture, located in the courtyard, specially designed for the Library. The theater offers dance performances and concerts, an audio and video studio where you can edit videos and record pieces of music, a multimedia space where everyone have access to movies (a collection available to all), a literary cafe stage for concerts and evening parties and an exhibition space where you can also exhibit paintings.

The BPERJ's Educational Program aims to strengthen knowledge networks through the establishment of dynamics that integrate the library and schools. Library tours are the heart of the educational program and it reaches students, teachers and all the visitors who wish to expand repertoire and investigate new forms of exploring the library and its collection. In addition to receiving groups of students, BPERJ also offers preparatory visits aimed at professionals in public and private sectors, as well as general educators.

Its facilities are accessible with infrastructure, assets and equipments to meet people with different types of disabilities, as it can be seen in the following pictures:



Special reader's space for the blind
Source: Picture taken by the author



Tactile floor, which allows blind people mobility
Source: Picture taken by the author

In November 2014, BPERJ took an important step to become green, being the first Brazilian library to obtain the LEED Environmental Certification and the second in Latin America, since the first was Nicanor Parra Library in Chile.

In order to achieve this certification, a project was elaborated with House of the Future consultancy, a company engaged in sustainable construction. Resources from Rio de Janeiro's state government and Light's sponsorship were also used through Rio's State Law of Culture Encouragement. This work resulted in the construction of an area of approximately 2,000m of Eco-roof, resulting in thermal comfort inside the building by the reduction of the heat island effect, which is common in large urban centers. Bellow are pictures of BPERJ Eco-roof:



Eco-roof
Source: Pictures taken by the author



Another score factor for achieving LEED certification was installing a photovoltaic power generation plant onto the Eco-roof, which provides about 4kWp of installed power and 5MWh a year, ensuring savings in energy consumption. 162 monocrystalline modules were

also implemented, being supported by a structure attached to the cover, and six inverters that transform the energy for electrical system using. The plant makes up for 132.5 tons of CO₂.



Photovoltaic Power Generation Plant
Source: BPERJ website

Rain water is collected through a recycling system. The water is reused for plants irrigation and bathroom discharges, and it consequently minimizes environmental impacts associated with the generation and consumption of water and energy. In practical terms, the library's electricity consumption was reduced by approximately 28% and water consumption by 45%.

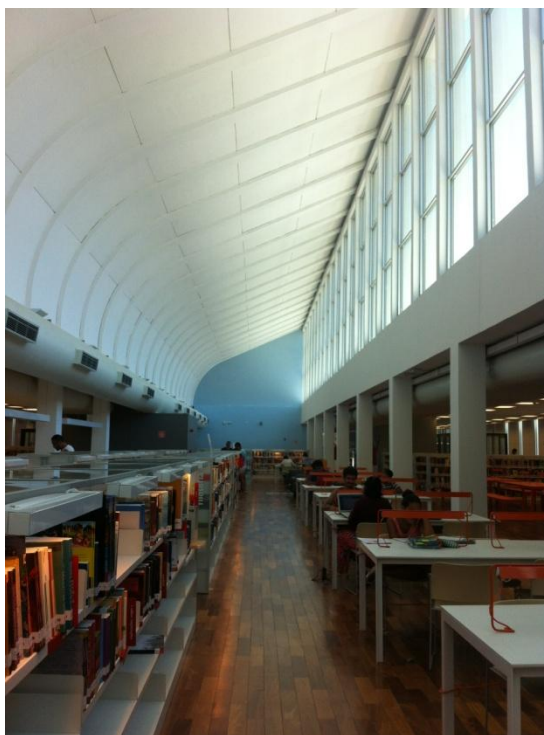
The windows glasses were also designed for reducing the heat. Double glazing glasses for solar protection were installed, reducing up to 52% of heat that hits the building.



BPERJ's windows

Source: Picture taken by the author

Wide windows, as shown in the following images, also allow natural lighting to enter minimizing the use of electricity.



BPERJ's windows

Source: Pictures taken by the author



Its wood floor has FSC certification, which ensures that timber and non-timber come from responsible forest management. The formica used in furniture is also sustainable, because it was made out of recyclable PET bottle material.

The building itself has brought environmental benefits such as hydroelectric energy savings through the use of solar energy and natural lighting and water use mitigation with this rainwater capturing system.

In relation to water savings, plastic seals were kept in the bathrooms taps, so that the taps can be neither fully pressed nor stay open for long. In addition to that, water fountains do not need disposable cups.

Even though the library uses sustainable cleaning materials, it still needs to work on environmental management issues in the workplace, since considerable sustainable initiatives were not identified either in the office supply procurement or contracting services or waste disposal.

According to its managers, BPERJ also has a commitment to the environmental awareness of its employees, interns, librarians and has included in its mission environmental education, contributing to the generation of a population that is conscious and concerned about the environment, that has the knowledge, skills, attitudes, motivation and commitment to collaborate individually and collectively in current and future problems.

During its restoration, the State Department of Culture demanded the Society Labour Studies Institute (IETS) an environmental educational program, where the following objectives were established: to make BPERJ a reference center on environmental education; To raise awareness in their visitors to environmental issues; to motivate the debate on sustainability; to generate multipliers, promote school-university-civil society interaction; to have a reference collection in the field; and to be a catalyst center of action and research in environmental education. The project came into force in 2015.

It is worth highlighting the emblematic sculpture of a tree with books hanging in the center of the children's playing area. For us, choosing the tree of knowledge as a symbol for the children brings them closer to nature and enhances their perception that knowledge also revolves around the tree, bringing a relaxation environment to play and learn.

Moreover, the children's programming includes environmental issues that are worked in moments of storytelling, workshops, etc.



Children's Library
Source: Picture taken by the author

Biblioteca Parque Estadual do Rio de Janeiro has also earned points for its certification for encouraging the use of bicycles as means of transport, discouraging the use of cars by providing a bike rack with 40 spaces for users. To illustrate all the points that were received by PBERJ here is a table provided by the House of the Future:

1000018783, Rio De Janeiro, RJ

 **Biblioteca Parque Estadual**

LEED BD+C: New Construction (v2009)

GOLD, AWARDED NOV 2014

 **SUSTAINABLE SITES** AWARDED: 20 / 26

SSc1	Site selection	1 / 1
SSc2	Development density and community connectivity	5 / 5
SSc3	Brownfield redevelopment	0 / 1
SSc4.1	Alternative transportation - public transportation access	6 / 6
SSc4.2	Alternative transportation - bicycle storage and changing rooms	1 / 1
SSc4.3	Alternative transportation - low-emitting and fuel-efficient vehicles	0 / 3
SSc4.4	Alternative transportation - parking capacity	2 / 2
SSc5.1	Site development - protect or restore habitat	0 / 1
SSc5.2	Site development - maximize open space	1 / 1
SSc6.1	Stormwater design - quantity control	1 / 1
SSc6.2	Stormwater design - quality control	1 / 1
SSc7.1	Heat island effect - nonroof	1 / 1
SSc7.2	Heat island effect - roof	1 / 1
SSc8	Light pollution reduction	0 / 1

 **WATER EFFICIENCY** AWARDED: 8 / 10

WEc1	Water efficient landscaping	2 / 4
WEc2	Innovative wastewater technologies	2 / 2
WEc3	Water use reduction	4 / 4

 **ENERGY & ATMOSPHERE** AWARDED: 19 / 35

EAc1	Optimize energy performance	11 / 19
EAc2	On-site renewable energy	1 / 7
EAc3	Enhanced commissioning	2 / 2
EAc4	Enhanced refrigerant Mgmt	2 / 2
EAc5	Measurement and verification	3 / 3
EAc6	Green power	0 / 2

 **MATERIAL & RESOURCES** AWARDED: 6 / 14

MRC1.1	Building reuse - maintain existing walls, floors and roof	3 / 3
MRC1.2	Building reuse - maintain interior nonstructural elements	0 / 1
MRC2	Construction waste Mgmt	0 / 2
MRC3	Materials reuse	0 / 2
MRC4	Recycled content	0 / 2
MRC5	Regional materials	2 / 2

 **MATERIAL & RESOURCES** CONTINUED

MRC6	Rapidly renewable materials	0 / 1
MRC7	Certified wood	1 / 1

 **INDOOR ENVIRONMENTAL QUALITY** AWARDED: 4 / 15

EQc1	Outdoor air delivery monitoring	0 / 1
EQc2	Increased ventilation	1 / 1
EQc3.1	Construction IAQ Mgmt plan - during construction	1 / 1
EQc3.2	Construction IAQ Mgmt plan - before occupancy	0 / 1
EQc4.1	Low-emitting materials - adhesives and sealants	0 / 1
EQc4.2	Low-emitting materials - paints and coatings	0 / 1
EQc4.3	Low-emitting materials - flooring systems	0 / 1
EQc4.4	Low-emitting materials - composite wood and agrifiber products	0 / 1
EQc5	Indoor chemical and pollutant source control	0 / 1
EQc6.1	Controllability of systems - lighting	0 / 1
EQc6.2	Controllability of systems - thermal comfort	0 / 1
EQc7.1	Thermal comfort - design	1 / 1
EQc7.2	Thermal comfort - verification	1 / 1
EQc8.1	Daylight and views - daylight	0 / 1
EQc8.2	Daylight and views - views	0 / 1

 **INNOVATION** AWARDED: 4 / 6

IDc1	Innovation in design	3 / 5
IDc2	LEED Accredited Professional	1 / 1

 **REGIONAL PRIORITY** AWARDED: 4 / 4

EAc1	Optimize energy performance	1 / 1
EAc3	Enhanced commissioning	0 / 1
EAc5	Measurement and verification	0 / 1
WEc1	Water efficient landscaping	1 / 1
WEc2	Innovative wastewater technologies	1 / 1
WEc3	Water use reduction	1 / 1

TOTAL 65 / 110

40-49 Points
CERTIFIED

50-59 Points
SILVER

60-79 Points
GOLD

80+ Points
PLATINUM

LEED Punctuation table

Source: House of Future Archive

Guidelines for Green Libraries in Brazil

Based on what has been implemented in BPERJ and in studies, we consider that it is possible to point out guidelines to improve the relationship of Brazilian public libraries and the environment and move towards transforming them into green libraries.

Those guidelines should take into account that in the case of constructing a new library or renovating an existing one it will be easier to employ sustainability criteria in the project aimed at this certification. But in those libraries that do not have the resources or conditions for renovations, it is also possible to think about attitudes, procedures and actions to improve its relationship with the environment and, this way, collaborate with the environmental awareness of the population it serves.

In addition to the construction of sustainable buildings there are several actions that could be applied in the daily activities of a library to lessen the impact of humans on nature

and promote the sustainable development of the region. It is extremely important that such actions be a part of the librarian's everyday life, working as a starting point so as to raise environmental awareness, generating behavior change in the community.

According to Miller (2010) for a library to turn green it is necessary to pay attention to the services provided by it. It is also necessary to avoid the waste of all material used in library services, such as paper for printing documents or so, besides the material used for interlibrary loans. Encourage the use of digital publications, audio-books, e-journals, CDs and DVDs in order to avoid printing. Another important matter addressed by the author refers to the disposal of publications in the library collection, by caring for their reuse, donating them to other libraries or, if possible, recycling the material.

It is worth noting that keeping an updated collection on environmental issues involving the country is crucial for the development of diffusion actions on environmental information in the community.

The adoption of environmental management in the workplace is another important factor in establishing a green library because besides arousing the curiosity of those attending the library, it will serve as an example for environmentally friendly actions and behaviors. For example, even the cleaning products to be used in the library must also be evaluated, as well as the cleaning tools (brooms, mops and vacuum cleaners) as well as the chosen furniture for decoration.

In Brazil, the Environmental Agenda of Public Administration (A3P), published by the Ministry of Environment (MMA), has the general objective of implementing environmental management in Government's administrative and operational activities. This agenda presents principles of behavioral changes ranging from a change in investments, purchasing and contracting services by the government to proper management of solid waste generated at work and of used natural resources. All this to improve the quality of life in the workplace and contribute to sustainable development. This document serves as a reference to insert environmental management in any working environment and should be adopted by librarians.

In June 2014 the "Sustainable Procurement Manual" was launched, prepared by the Procurement Working Group of the Brazilian Business Council for Sustainable Development (CEBDS). This publication provides the purchasing professional from the private sector, a practical and complementary tool for decision making that incorporates sustainability criteria in selecting suppliers, responding to the need of the different areas involved to seek a consensus for the decision of selecting a supplier. This manual is intended for private enterprise, but can also serve as a tool for the government and, more specifically, for managers who work in public libraries.

Thinking 'sustainable library' is thinking it as a space for environmental education with updated and available collection on the subject. Therefore it is important to create programs and projects that besides having reading incentive as an aim, should also aim to educate users to take environmentally friendly actions with the intention of uniting reading and environmental awareness. Reading and story-telling mediations can bring good results when it comes to environmental awareness, as well as taking into account Environment

celebrations, which are available on the MMA website for lectures, debates, workshops, field work, exhibitions, competitions, among other cultural activities.

Conclusion

This study sought to demonstrate that Brazil has initiatives aimed at sustainability and the dissemination of environmental information such as legislation and agencies responsible for Brazilian public policies. In the country itself, there are also examples of public libraries that have been adopting measures to certificate its spaces and services. However, it is crucial that the National System of Public Libraries set minimum guidelines so that all public libraries in the country engage in this green movement and become propagation channels of planetary consciousness to maintain the quality of life and improve environmental conditions in the country.

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