Green Management and Sustainable Development in Libraries

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Abstract

The present research was conducted with the aim of identifying the status of green management in the public libraries of the cultural and artistic organization of Tehran Municipality. The type of research is applied and survey-descriptive. The statistical population is Iranian library managers, 37 people were selected as a sample. The data collection tool is a researcher-made questionnaire, and SPSS software was used to analyze the findings. The findings showed that the libraries in energy management with an average of 3.48 in poor condition, water and green space management with an average of 2.67 in poor condition, paper management with an average of 8.032 in good condition, waste management with an average of 82 6. In average condition, transportation management with an average of 3.85 in poor condition, air management with an average of 4.77 in poor condition, sound management with an average of 5.36 in average condition, green management and planning with an average of 24. 2. Education and culture of environmental issues to society with an average of 2.30 and to employees with an average of 2.04 are in an unfavorable situation. That the standards of green management in the building and equipment at an average level, green management and planning, education and culturalization to the society and employees in the unfavorable situation are observed in the libraries.

Original article

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Introduction

Green management includes many aspects, such as the adaptation of the building and library equipment to sustainability standards, the provision of environmentally friendly services, planning for the awareness of the society regarding the preservation of the environment, creating motivation and commitment in librarians to participate in environmentally friendly programs, providing information Green means paying attention to the proper cycle of natural resources and implementing programs and projects that protect natural resources, such as digitization of resources, participation and activity in national and international environmental protection programs, and observing and obtaining valid environmental standards and indicators (1)). As a social

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institution, the library can contribute to the sustainable development and preservation of the environment by implementing the green management system, informing, educating and promoting the society's culture.

Libraries, especially public libraries, can be suitable centers for promoting the correct culture of consumption. Optimum use of water, energy, paper and solid waste resources helps to reduce the costs in the complex, and since the correct management of these resources prevents their misuse and waste, it is also possible to help preserve the environment. Also, by reducing the current costs in the library through the establishment of the green management system, economic benefits will also be obtained, which will ultimately make the libraries become green libraries (2). A green library is a library that strives to spread and implement environmental protection policies by observing the components of sustainable management (3). It is a library that has green and sustainability management indicators (library building from the aspects of energy, water and paper, waste, transportation, air, sound management; green strategy and education; awareness and culture building to employees and society) to protect the environment. Respect the environment (4).

Public libraries are institutions that are supported by governments. Therefore, they should be the first institutions to be included in the principles of sustainability and turn themselves into a model for facilitating green culture in the country (5). Public libraries lead the society in this way by constructing green buildings and implementing sustainable plans and operations. Public libraries have an opportunity to become environmental leaders in society. Public libraries can use green methods and technologies in the architecture of their buildings. Public libraries can show their patrons how to use these methods at home, at work, and in the community. Public libraries can use various methods to educate the community about environmental responsibility methods and provide educational programs about environmental sustainability well in their communities (6).

When librarians talk about green libraries, green library buildings usually come to mind. The green library movement in the United States began in the early 1990s. The meaning of the term is that librarians, libraries, cities, universities and colleges are committed to a green library and reducing environmental impacts. This innovation has been realized by building green library buildings, greening the existing library facilities, providing green library services, protecting the environment and sustainability methods in the library. Building a green library using a leadership in Energy and Environmental Design (LEED) is a way that some libraries choose to become a green and sustainable library (7). Green libraries are traditionally built through construction aspects such as minimizing "negative environmental effects" and maximizing "quality of the indoor environment" by choosing a precise location, using natural building materials and returnable environmental products. They are known to nature, protection of resources (water, energy and paper) and responsible disposal of waste (recycling, etc.).

But the green library is not necessarily limited to the construction of the green building, but also carries the green mission. There are other indicators to achieve the ideals of environmental sustainability of libraries. In addition to the fact that the library building must be environmentally friendly, it must be able to act as a trainer and leader as a motivating factor for environmentally friendly office management, providing environmentally friendly services to users, implementing environmentally friendly activities and Provide information and education on environmentally friendly lifestyle (1).

Several researches abroad have been conducted regarding sustainability initiatives and the dissemination of environmental information by librarians and green management in public libraries (5, 6, 8, 9) and also a research (10) was conducted that developed certification and environmental management systems. He considers a common environment such as LID or ISO in a public library to be necessary in order to improve the sustainability of libraries and hopes that this model will be used all over the world. He also believes that with the help of this project, environmental labels and environmental audit systems will be developed and the environmental awareness of employees and customers will increase and the library will be greener and more sustainable. Researches have also focused on green library services, green buildings, people's awareness about the environment, and increasing interactions between libraries in the field of environment (7, 11, 12, 10). In their research, the researchers came to the con-

clusion that Croatian librarians are interested in participating in the program and their awareness of environmental protection issues is increasing and they are eager to participate in the development and address environmental issues (13). In another research, the development of green policies, procedures, strategic plans, missions and vision documents and green librarianship at the level of library services has been examined (14). In Iran, a study was also conducted to evaluate sustainable management in university libraries in Iran and in a research article, he compiled indicators of sustainable and green management in Iranian libraries (1). Some studies also focused on the architecture of the National Library and Documentation Organization of Iran with the green architecture criteria of the Lead Standard (15) and investigated the various sources of water, energy, paper, and solid waste in the National Library of Iran, as well as the management of the consumption of these resources (2). Another group of researchers focused on green design in library buildings and the effect of natural factors on the sustainable design of libraries (16, 17).

In the conducted researches, sustainable libraries and environmental indicators and green management in libraries have been evaluated, as well as the importance of the role of libraries in education, culture and raising the awareness of society and employees regarding environmental issues for environmental participation. Therefore, these researches can help officials and policymakers to improve library management and move towards green management. The importance of establishing green management in libraries, especially public libraries, can be very useful and effective in educating, informing and culturalizing the society. Therefore, the current research was conducted with the aim of evaluating green management (library building and equipment, green planning status, training, awareness and culture building to employees and society) in the public libraries of the cultural and artistic organization of Tehran Municipality in order to answer the following questions:

1. What is the condition of the building and equipment in the public libraries of the cultural and artistic organization of Tehran Municipality in terms of green management?

2. What is the status of green management and planning in the public libraries of the cultural and artistic organization of Tehran municipality?
3. What is the status of education, awareness and culturalization of environmental issues to the society in the public libraries of the cultural and artistic organization of Tehran Municipality?
4. What is the status of education, awareness and culturalization of environmental issues to the employees of public libraries of cultural and artistic organization of Tehran municipality?

Research Methodology

Considering that the current research seeks to lay the groundwork for better understanding and meeting the existing needs of the country's public libraries, it is an applied research and was conducted with a descriptive-survey method. The research population is 35 managers of public libraries of cultural and artistic organization of Tehran Municipality. A total of 30 libraries were studied without sampling, of which 3 libraries did not respond to the questionnaire and 27 libraries were evaluated.

The data collection tool is a researcher-made questionnaire containing 89 closed questions. The mentioned questionnaire is divided into 4 sections including: the condition of the library building and equipment, the condition of management and green planning in the library, the condition of education, awareness and culturalization of environmental issues to the society, and the status of education, awareness and culture of environmental issues to employees. , it is divided that the first part consists of 7 components including: energy consumption management, water and green space management, paper consumption management, waste management, transportation management, air and noise management, and the answers to the questionnaire questions are in a spectrum Ten grades were provided and divided into 5 levels from 0 to 10 to assign a score. In this way, a five-point quality scale was used to give a score, in which 0 to 2 points (very low), 3-4 points (low), 5-6 points (moderate), 7-8 points (high) and 9-10 ranks (very high) were considered. To determine the validity of the form and content of the questionnaire, experts and experts in the field, as well as supervisors and consultants, were asked to comment

on the questions of the questionnaire. The questions were localized according to the conditions of Iran and the necessary amendments were made in several stages and some of the questions were removed or added. Cronbach's alpha method was used for the reliability of the questionnaire. The alpha coefficient for the questionnaires is presented separately in Table 1. All the results indicate good reliability of the questionnaires. The results are presented in the table below.

Table 1: Reliability of the questionnaire

Variables	Cronbach's alpha
The state of energy consumption management	0.891
Status of water and green space management	0.848
The status of paper consumption management	0.757
The state of waste management	0.753
The status of transportation management	0.732
Air management status	0.638
Noise management status	0.820
The status of green planning and management in the library	0.973
The state of education, awareness and culturalization of environmental issues to the society	0.964
The status of education, awareness and culturalization of environmental issues to employees	0.958

In this research, SPSS software and descriptive statistics were used to analyze the data. In descriptive statistics, descriptive statistics indicators including frequency, median, average, mean, minimum and maximum data are used. The description of the data has been done by calculating the statistical indices and preparing the table.

Results

Question 1: What is the condition of the building and equipment in the public libraries of the cultural and artistic organization of Tehran Municipality in terms of green management?

In the study of public library buildings, seven components have been used in terms of green management, which are: energy management, water and green space, paper, waste, transportation, air and sound.

- Energy Management

For a general review of all the items of the energy management component in the current research, in order to calculate the average, maximum and minimum scores, the results are shown in table 2.

Table 2: The state of energy management

General criteria	Mean	Median	Mode	Min.	Max.
Energy management	3.49	3.572	1.38	0.63	7.50

The findings show that the average status of energy management in the studied society is equal to 3.49. Half of the libraries scored less than 3.57 points and the other half scored more than that. The highest frequency was equal to 1.38. The minimum score of energy management variable is 0.62 and the maximum is 7.50. Based on these findings, it is clear that the state of energy management in the public libraries of Tehran, affiliated to the cultural and artistic organization of the municipality, is not suitable.

- Management of water and green space

For a general review of all the items of the water and green space management component in the current research, in order to calculate the average, maximum and minimum scores, the results are shown in table 3

Table 3: Status of water and green space management

General criteria	Mean	Median	Mode	Min.	Max.
Water and green space management	2.68	2.43	3.29	0	9.70

The findings show that the average status of water and green space management was 2.68. In terms of water and green space management, half of the libraries scored less than 2.43 and the other half scored more than that. The highest frequency was 3.29. The minimum score of this variable is zero and the maximum score is 9.70. Based on these findings, it is clear that the state of water and green space management is not in a good state.

- Paper management

For a general review of all the items of the paper management component in the current research, in order to calculate the average, maximum and minimum scores, the results are shown in table 4
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Table 4: The status of paper management

General criteria	Mean	Median	Mode	Min.	Max.
Paper management	8.033	8.130	6.75	3.10	10

The findings show that the average status of paper management is 8.03. In terms of paper management, the score of half of the libraries is less than 8.13 and the other half is more than that. The highest frequency was equal to 6.75. The minimum score of this variable was 3.10 and the maximum score was 10. Based on these findings, it is clear that the state of paper consumption management is in a good state.

- Waste management

For a general review of all the items of the waste management component in the current research, in order to calculate the average, maximum and minimum scores, the results are shown in table 5

Table 5: The state of waste management

General criteria	Mean	Median	Mode	Min.	Max.
Waste management	6.821	6.833	4.83	3	10

The findings show that the average status of waste management was 6.82. The score of half of the libraries in terms of waste management is less than 6.83 and the other half is more than that. The highest frequency was equal to 4.83. The minimum score is 3 and the maximum score is 10. Based on these findings, it is clear that the state of waste management is in an average state.

- Transport management

For a general review of all the items of the transport management component in the current research, in order to calculate the average, maximum and minimum scores, the results are given in table 6.

Table 6: The status of transportation management

General criteria	Mean	Median	Mode	Min.	Max.
Transport management	4.78	4.6	4	0.2	10

The findings show that the average status of transportation management is 4.78. Half of the libraries scored less than 4.6 points and the other half scored more than 4.6 points in terms of air management. The highest frequency was equal to 4. The minimum score for air management status is 0.2 and the maximum is 10

points. Based on these findings, it is clear that the state of air management is in an average state.

- Air management

For a general review of all the items of the air management component in the current research, in order to calculate the average, maximum and minimum scores, the results are given in table 7.

Table 7: Air management status

General criteria	Mean	Median	Mode	Min.	Max.
Air management	4.78	4.6	4	0.2	10

The findings show that the average status of air management is equal to 4.78. Half of the libraries scored less than 4.6 points and the other half scored more than 4.6 points in terms of air management. The highest frequency was equal to 4. The minimum score for air management status is 0.2 and the maximum is 10 points. Based on these findings, it is clear that the state of air management is in an average state.

- Sound management

For a general review of all the items of the sound management component in the current research, in order to calculate the average, maximum and minimum scores, the results are given in table 8.

Table 8: Sound management status

General criteria	Mean	Median	Mode	Min.	Max.
Sound management	5.37	5.572	5	0	9.30

The findings show that the average voice management status is equal to 5.37. Half of the libraries scored less than 5.57 and the other half scored more than that in terms of sound management. The highest frequency of points obtained was equal to 5. The minimum score for noise management is zero and the maximum score is 30.9. Based on these findings, it is clear that the state of air management is in an average state.

Second question: What is the status of green management and planning in the public libraries of the cultural and artistic organization of Tehran municipality?
In the study of green management and planning in the public libraries of the cultural and artistic organization of Tehran municipality, 11 criteria have been examined. In order to make a general review of all "green management and planning" items in the current research, we calculated the total score and checked the descriptive characteristics, the results of which are shown in table 9.

Table 9: Status of green management and planning

General criteria	Mean	Median	Mode	Min.	Max.
Green management and planning	2.246	1.364	0	0	9

The findings show that the average status of green management and planning in the library is equal to 2.24, half of the libraries scored less than 1.36 and the other half scored more than that. The highest frequency is also equal to zero. The minimum score of this variable is zero and the maximum score is 9. Based on these findings, it is clear that the state of green management and planning in the library is in a low state.

Question 3: What is the status of education, awareness and culturalization of environmental issues to the society in the public libraries of the cultural and artistic organization of Tehran Municipality?
In the study of the state of education, awareness and culturalization of environmental issues to the society in the public libraries of the cultural and artistic organization of Tehran Municipality, 9 criteria have been examined.

In order to make a general review of all the items of "the state of education, awareness and culturalization of environmental issues to the society" in the current research, we calculated the total score and checked the descriptive characteristics, the results of which are shown in table 10.

Table 10: The status of education, awareness and culturalization of environmental issues to the society

General criteria	Mean	Median	Mode	Min.	Max.
Status of education to the society	2.309	1	0	0	9.22

The findings show that the average status of education, awareness and culturalization of environmental issues to the society is equal to 2.309. In terms of this variable, half of the libraries scored less than 1 and the other half scored more than this score. The highest frequency is also equal to zero. The minimum score obtained for the state of education, awareness and culturalization of the society is zero and the maximum score is 9.22. Based on these findings, it is clear that the status of education, awareness and culturalization of environmental issues to the society in the public libraries of Tehran is in a low state.

Question 4: What is the status of education, awareness and culturalization of environmental issues to the employees in the public libraries of the cultural and artistic organization of Tehran Municipality?

In the study of the status of education, awareness and culturalization of environmental issues to the employees in the public libraries of the cultural and artistic organization of Tehran municipality, 8 criteria have been examined.

In order to make a general review of all the items of "the state of education, awareness and culturalization of environmental issues to employees" in the current research, we calculated the total score and checked the descriptive characteristics, the results of which are shown in table 11

Table 11: Status of education, awareness and culturalization of environmental issues to employees

General criteria	Mean	Median	Mode	Min.	Max.
Status of training to employees	2.046	1.125	0	0	9.25

The findings show that the average status of education, awareness and culturalization of environmental issues to employees is equal to 2.046. The score obtained by half of the libraries in terms of the status of education, awareness and culturalization of environmental issues to employees is 1.125. And the other half is more than this score. The highest frequency was also equal to zero. The minimum score of this variable is zero and the maximum score is 9.25. Based on these findings, it is clear that the status of education, awareness and culturalization of environmental issues to employees is in a low state.

Discussion

The results of the research findings show that the condition of the building and equipment of the public libraries of the cultural and artistic organization of Tehran municipality in terms of compliance with the components of energy consumption management, water management, waste management, paper consumption management, transportation management, sound and air management, is 34 and the minimum score is equal to 8 and the maximum score is 64. Therefore, the building and equipment of public libraries of the cultural and artistic organization of Tehran municipality is in an average condition and not in a good condition. In his research, a researcher has examined the importance of management of consumption in different sources of water, energy, paper and solid waste in the National Library of Iran (2). In his research, a researcher has done green building components and equipments to provide a model of a green library (1) and in his research, a researcher has confirmed the building of the National Library of Iran with green architectural standards of the lead standard at an intermediate level (15). Therefore, the results of the current research are in line with the results of some researches (1, 2, 15) and are not in line with

the researches that dealt with the importance of building design and library equipment and creativity in library sustainability (18, 19).

The status of green management and planning in the library is equal to 2.24. Therefore, the state of green planning and management in the library is in a low state and the distribution of this variable in the studied sample is not normal. Research has considered the development of green policies, procedures, strategic plans, missions and vision documents and green librarianship as important at the level of library services (14) and a researcher has considered the strategies of managing energy consumption and replacing new energies and preserving natural resources in libraries to meet the conditions of being green (10). The researchers confirmed the national strategies for the implementation of public policies for green and sustainable public libraries (5). Therefore, the results of the present study are in line with other studies (5, 10, 14).

The average status of education, awareness and culturalization of environmental issues to the society is equal to 2.30. Therefore, the status of education, awareness and culturalization of environmental issues to the society in the public libraries of the cultural and artistic organization of Tehran municipality is in a low state and the distribution of this variable in the studied sample is not normal. In their research, researchers have pointed out the increase in the awareness of library users and the entire society to make libraries greener (8). In their research, some researchers also emphasized on the general training of users (6). The results of the present study are not consistent with previous studies (6, 8).

The average status of education, awareness and culturalization of environmental issues to employees is equal to 2.04. The minimum score of this variable is zero and the maximum score is 9.25. Therefore, the status of education, awareness and culturalization of environmental issues to employees is in a low state and the distribution of this variable in the studied sample is not normal. In a self-study, a researcher found that Nigerian librarians' awareness of environmental issues was relatively low (8). Therefore, the results of the current research are in line with this research. In their research, the researchers came to the conclu-sion that Croatian librarians are interested in participating in the program, and their awareness of environmental protection issues is increasing, and they are willing to participate in the development and addressing the issues. They are passionate about the environment, so it was not in line with the present research (13).

Therefore, according to the obtained results, it is suggested:

1. Compilation of the green strategic plan for the cultural and artistic organization of Tehran Municipality and instructions for the implementation and development of green policies in the strategic plan of the cultural and artistic organization of Tehran Municipality entitled "Green Management of Libraries".

2. Forming a green group of employees in the cultural and artistic organization of Tehran municipality to take charge of green management affairs in line with environmental goals with the supervision and support of the management in line with the goals of the libraries.

3. Education, awareness and culture building about the value and necessity of environmental protection to the society and library staff and allocating a part of the website and physical space of public libraries of Tehran Municipal Cultural and Art Organization to environmental awareness and education.

4. Using green technologies in libraries to manage energy, water and natural resources, which are the most important assets of the country and future generations.

5. Holding educational workshops and in-service courses under the title "Environmental Literacy" for public library employees across the country.

6. Observance of green management components and standards in the design of public library buildings of the cultural and artistic organization of Tehran Municipality.

7. It is suggested that the public libraries of the cultural and artistic organization of Tehran Municipality coordinate themselves with the guidelines of organizations related to environmental protection (for example, the World Environment Commission and the Environmental Protection Organization of

Iran) in order to become one of the green and effective institutions in become sustainable development.

Conclusion

From the evaluation criteria of green management in public libraries, we can refer to the criteria related to building and equipment, green planning, training, awareness and culture building to employees and society. Green building evaluation criteria are seven components of energy management, water and green space, paper, waste, transportation, air and sound. Weakness in any of these criteria can cause a lot of damage to public libraries. Therefore, it should be given more attention. Since the public libraries of the cultural and artistic organization of Tehran Municipality are managed under the supervision of Tehran Municipality, if they have strategic plans and green policies for the management of their libraries, they can implement sustainable and green policies with proper management and cooperation and participation of employees. Become a green library to reduce energy costs and help preserve the environment. Public libraries with green planning and strategy can participate in environmental education by providing environmental information in different and appropriate ways such as making programs and showing movies or holding meetings, lectures, educational workshops and providing related environmental resources and environmental responsibility.

Ethical consideration

Ethical issues (such as plagiarism, conscious satisfaction, misleading, making and or forging data, publishing or sending to two places, redundancy and etc.) have been fully considered by the writers.

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