



Treading the Green Path at Panjab University Library (India)

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Abstract

Over the years, climate change has become the world's largest environmental problem affecting every nation on a social and economic level. It has caused rise in sea levels, more frequent and severe weather events like hurricanes, droughts, and floods, which have lowered food production, interfered with ecosystems, impacted water supplies, and raised risks for various health related disorders. In terms of attaining the objectives of green buildings and sustainable development, India has been catching up to the western nations with persistent efforts at various policy development levels by creating plans for the construction and upkeep of green buildings. To address the environmental issues while planning and creating new facilities, buildings that utilise and consume energy efficiently while maintaining the comfort and productivity must be designed and developed, to be ecologically responsible. Green libraries or sustainable libraries are those that are built with environmental concerns in mind and use its resources, environmentally friendly and sustainable infrastructure, and public library services to educate the public about environmental issues. The goal of the current study was to examine the initiatives and current state of the green initiatives implemented by Panjab University in Chandigarh for both its departmental and central libraries (A.C. Joshi Library) with respect to its infrastructure as well as initiatives in the various sections. The study concluded that even though some attempts have been taken in this area, more efforts and further steps are required to achieve a completely functional green library to safeguard the interests of the patrons and planet Earth.

Keywords: Green Libraries; Sustainable Libraries; Green Buildings; Climate Change; University Libraries; Academic Libraries; Developing Countries; India

Introduction

Climate change

Climate change has become the biggest environmental challenge today, which has a broad social and economic impact on every country of the world, resulting in rising sea levels, severe and more frequent weather events such as hurricanes, droughts, and floods, leading to reduced food productivity, collapse of ecosystems, reduced water supply, increased health risks (Banholzer et al., 2014; Kopp et al., 2019; Mann et al., 2017; Sorensen et al., 2020). It is critical for the planet's survival and sustainable well-being to mitigate climate change. Hence, adaptation is necessary. As a result, all the countries of the world, along with various national and international organisations, have committed themselves to protecting the planet Earth from degradation. To fight climate change, numerous nations ratified the United Nations Framework Convention on Climate Change (UNFCC) in 1992.

It has established a financial mechanism to aid developing countries with assistance from the developed countries. The Kyoto Protocol is one of its universal action plans, which was adopted in 1997 and entered into force in 2005 (Kyoto Protocol, UNFCCC Website, n.d.). The Paris Agreement, which went into effect in 2016, was another example of this. Its goal was to improve nations' capacity to address the effects of climate change by providing suitable financial channels (UNFCCC, 2015). Most scientists worldwide now concur that the earth is experiencing extreme stress. Quoted as being 'unequivocal' by the Nobel Prize-winning Intergovernmental Panel on Climate Change, it has been concluded that human activities have been responsible for the temperature increase worldwide (Rosenthal & Revkin, 2007). Focusing on the increasing climatic hazards faced by the developing nations, the IMF in its World Economic Outlook report has urged developed countries to assist them so as to reduce the harm and the impact of climate change. Additionally, it has called on the international community to focus on institutional frameworks and policies, infrastructure investments, increased resilience, and other adoption strategies like technology innovation and activity diversification, in order to reduce the harm caused by increasing temperatures in hot countries (International Monetary Fund, 2017). The International Monetary Fund (IMF) estimates that governments around the world are spending \$5.5 trillion to properly account for the environmental harm caused by energy use. To assist low-income and vulnerable middle-income nations in becoming more resilient to external shocks, including long-term issues like climate change, the IMF established the Resilience and Sustainability Trust (RST) in 2022 (International Monetary Fund, 2022).

In the year 2019, among the countries affected by extreme meteorological phenomena attributable to climatic alterations, India was found to be ranked seventh (Hussain et al., 2024). Need of the hour is to improve green infrastructure for environmentally sustainable development through combined efforts of all such organisations, governments and every individual in any profession to combat the universal emergency of climate change.

Green Building Movement

In order to be environmentally responsible when designing and developing new facilities, buildings that use and consume energy efficiently ensuring the comfort and productivity of the people inhabiting them doesn't suffer, must be created. Provision of natural light, proper ventilation with clean air, and consideration for ergonomic requirements are characteristics of such structures (Boyden & Weiner, 2000). Poor environmental and economic conditions during childhood and adolescence, have life-long impacts on health (Lindström et al., 2014). Hence, green buildings are now being now being considered as an option for sustainability globally across various types

of organisations and nations as it improves the air quality leading to better health of the inhabitants.

The application of concepts for developing green building requires efforts and often reflects in the state of mind (Le Ber & Gregory, 2004). Characterised by efficient and less use of water, optimum energy, proper use of natural resources, low waste production and healthier places for the people either living or working in them, green building are the way for the future (Training Programmes, IGBC, 2015). As environmental issues and resource scarcity worsen, the idea of green buildings is becoming more and more popular as a way to lessen the effects of urbanisation. It is thought of as a building that is ecologically and resource-efficiently planned, constructed, refurbished, maintained, or reused (Green Building Concept, Tata Power, n.d.). Such buildings use eco-friendly processes which are environmentally responsible and resource efficient throughout a building's life cycle (USEPA, 2017). It provides various environmental benefits comprising reduced water wastage, improved air and water quality, etc. along with various economic and social benefits including better productivity and improved quality of life. Keeping in view the importance of green buildings, Goldman Sachs, the investment bank, announced its move to Battery Park City in 1995 and donated \$1 million to a community centre and \$3.5 million to the library branch (Kaminer, 2010). Microsoft is also committed to enable a sustainable future and has reduced the company's emissions by 9.5 metric tons of carbon dioxide equivalent and it recycles nearly 10 million kilograms of consumer e-waste every year (Corporate Environmental Sustainability, Microsoft, n.d.)

Leadership in Energy and Environmental Design (LEED) is working at global, regional and local levels with top building professionals around the world to design buildings which use less water and energy. During 2015-2018, LEED-certified buildings were estimated to generate as much as \$1.2 billion in energy savings, \$149.5 million in water savings, \$715.3 million in maintenance savings, and \$54.2 million in waste savings (USGBC, 2020; Clay et al., 2023). It is working on more than 79,000 projects from 160 countries (LEED, n.d.). The six credit categories, "sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovative design", which form the basis of its scoring system for new construction. LEED v5 certification is issued to buildings with the latest advancements and sustainable technologies (Zarghami & Ahmad, 2025). Apart from LEED, various other organisations at the national level are also taking the lead in this direction.

Green Building Movement in India

India has been catching up with the western countries towards achieving goals of sustainable development and green buildings. With a focus towards making it possible for India to make proper utilisation of its natural resources

and building sustainable environments, the Indian Green Building Council (IGBC) was formed in 2001 (WGBC, 2017). It develops new green building rating programmes, certification services and training programmes. A national rating system-GRIHA has been developed by TERI (The Energy and Resources Institute, New Delhi) with support from MNRE (Ministry of New and Renewable Energy, Government of India) for this purpose. The Bureau of Energy Efficiency (BEE) introduced the Energy Conservation Building Code (ECBC) in 2007 with an objective to establish baseline criteria for building construction that achieve energy efficiency by adhering to specific design guidelines (Sendrayaperumal et al., 2021).

CII-Sohrabji Godrej Green Business Centre building in Hyderabad is the first green building set up in 2004 and was awarded the Platinum rating by LEED. Since then, sustainable architecture has witnessed significant growth across the country. Other green buildings in India include Infosys Ltd. (Mysore), Indira Gandhi International Airport (Hyderabad), Infinity Benchmark (Kolkata), and I-Gate Knowledge Centre (Noida), which exemplify environmentally responsible design. Today, all types of buildings are going the green way- be it the government building, IT Park, office, residence, bank, airport, institution, hospitals, hotels, factories, schools, libraries, illustrating a national transition towards sustainable and energy-efficient construction practices. Thus, with constant efforts at different levels of policy developments, India has developed strategies for developing green buildings and their maintenance

Green libraries

Since libraries are a great place to educate citizens about the eco-friendly environment, librarians can act as leaders and guides of environmental sustainability for the nation. Libraries can take a proactive role in confronting environmental issues, particularly in climate change (Hawco, 2019; Todaro et al., 2021). Mathiasson and Jochumsen (2022) advocate for libraries and librarians to increase their involvement in promoting sustainability and sustainable development. Libraries should adhere to green policies and engage in environmentally friendly, sustainable practices, and bring general awareness among library professionals in order to achieve the desired goals, thereby acting as catalysts for significant environmental change (Ajani et al., 2024; Bincy & Vasudevan, 2023). A green library is an important part of any such institution that aims to minimise the impact of climate change by conserving natural resources and regulating all waste materials. One of the major goals of libraries is to promote social equity and fairness, which is achieved by placing branches and mobile libraries in key locations; providing technology and programmes to everyone. Regarding the environment, libraries function as local models and testing grounds for green initiatives in addition to providing information (Landgref, 2010).

With careful site selection, the use of natural building materials and biodegradable products, resource conservation (water, energy, paper), and responsible waste disposal (recycling, etc.), green libraries aim to minimise their negative effects on the environment and maximise the quality of the indoor environment (Online Dictionary for Library and Information Science (ODLIS), n.d.). Often referred to as a sustainable library, it is one that was constructed with environmental considerations in mind and uses its holdings, ecologically friendly and sustainable infrastructure, and public library services to educate the public about environmental issues (New World Encyclopaedia, n.d.). Chowdhury (2012) defined a new concept of green information system in the context of modern libraries as those systems which have been made to reduce greenhouse gas emissions at every stage of its lifecycle, in various work sections and processes, from the production of content to dissemination, access, use, and disposal. Fedorowicz-Kruszewska (2021) emphasised that all sustainable libraries can be green, but not all green libraries can be sustainable, which includes all economic, social, and environmental aspects. Such green library buildings reduce the use of water and energy by using natural and renewable resources. This not only reduces the financial aspects of building but also reduces the carbon footprint from the environment leading to better health of the living beings. Libraries form an integral component of the broader environmental movement and are frequently referred to as 'environmentally friendly libraries'. Within the academic library setting, green libraries are becoming prevalent as an advanced sustainable practice. The emergence of Green Libraries fosters sustainable practices within academic libraries and has the capacity to exemplify sustainable practices for the academic community (Adeyemi et al., 2024). These libraries incorporate environmentally conscious design, energy-conserving systems, and sustainable resource management practices within their operational frameworks. Through participation in collaborative endeavours like the Climate Action Libraries Network (CALN) and the Global Library Consortium for Climate Action (GLCCA), libraries can enhance their impact and facilitate substantial change worldwide. The interconnectedness of environmental issues requires cooperation among nations, as well as collaboration with non-governmental organisations, businesses, and civil society (Ajani et al., 2024).

A lot of emphasis is being given to make the libraries green and sustainable for the welfare of Planet Earth by various national and international library associations. In order to promote Green libraries, IFLA has formed a Special Interest Group to promote and develop sustainable library resources and services. IFLA's Environment, Sustainability and Libraries Section (ENSULIB) has offered the Green Library Award annually since 2016 to libraries, strongly associated with the Sustainable Development Goals (SDGs) of the UNO. In the year 2021–2022, the award has been divided into three categories: *Green*

Award, Green Project, and Special Recognition (Zakaria & Hendi, 2025). In 2017, IFLA also started an initiative, Library Map of the World, which gathers and shares performance data from libraries worldwide that are playing a crucial role in supporting the SDGs. Recently in 2025, an award was presented at the IFLA World Congress in Astana, James Baldwin Library, Paris, France was honoured with first place for the best Green Library Award, the Thammasat University Library, Bangkok, Thailand was awarded first place for its Green Library Project, and Special Recognition Award was given to the City Library *Ivan Goran Kovačić*, Karlovac, Croatia. The awards have inspired libraries to involve themselves in environmentally sustainable activities, thereby contributing to the achievement of the SDGs (IFLA, 2025). Sarah Ann Long (ALA President, 1999-2000) initiated a project along with Global Learning of New Jersey entitled “Libraries Build Sustainable Communities.” The project defined three components of sustainability, namely, Economy, Ecology, and Equity (ALA, n.d.). ALA has formed a Sustainability Round Table called “SustainRT” whose mission is to provide a forum for exchange of ideas and opportunities amongst the ALA members for a healthy, and economically viable society as well as provide resources for the library community for sustainability through curriculum development; collections; exhibits; events; advocacy; communication; library buildings and space design (ALA, n.d.). Moreover, back then in 2019, ALA incorporated sustainability as a fundamental principle of librarianship. In 2008, Special Libraries Association stated that it would start the process of becoming an environmentally conscious organisation for the members, board, volunteer leadership, and their staff (SLA, 2008). It also created the “SLA: Knowledge to Go Green” initiative in 2008.

The scholarly publishing sector, in an effort to promote green libraries, has not been left far behind. The Wilson Library Bulletin first featured a special section on “*Libraries and the Environment*” in February 1991 to reignite the interest in a green environmental movement, advocating thinking globally and acting locally (Antonelli, 2008; Cantú & Anderson, 2003). The University of California, Los Angeles Library (UCLA) started a peer-reviewed journal, *Electronic Green Journal* in January 1994, which contains articles on various aspects of green libraries. In 2003, a paper was published by Brown titled “*The New Green Standard*” in Library Journal, discussing the emerging trend of green libraries and proclaiming that libraries were on the cutting edge of green design (Brown, 2003). Le Ber and Gregor (2004), in their paper titled “*Becoming Green and Sustainable*”, mentioned the factors: weeded materials, office paper/junk mail, outdated computers, obsolete media, and building utilities, requiring attention for the greening of academic libraries. Moreover, a number of blogs, such as the Green Libraries Blog of ALA, provide information on significant activities, events, literature, and projects underway. Green Libraries LibGuide from the University of Illinois Library

enlists resources to help libraries go green. GreenLibraries.org provides information about Green and Sustainable Libraries (Green Libraries Website, n.d.).

A number of libraries have embraced the green movement internationally as well as nationally. At the international level, Cambridge Public Library (USA), Scottsdale's Arabian Library (Arizona), Villanueva Public Library (Columbia), Vennesla Library (Norway), Central Public Library (Singapore), Delft University of Technology Library (Netherlands), King Fahad National Library (Saudi Arabia) are some of the libraries which have been the global leaders and early adopter of the green libraries movement. Libraries which have taken the initiative in India include Karnataka University Library, Madras University Library, Mumbai University Library, Calcutta University Library, Anna Centenary Library and so on. The present study attempts to analyse the steps taken and present status of green initiatives taken by Panjab University, Chandigarh for its Central (A.C. Joshi Library) and departmental libraries.

Green initiatives at the Panjab University Library

Panjab University (PU) was set up at Lahore in 1882 and has the credit of being one of the oldest universities in India, having a long tradition of pursuing excellence in teaching and research in science and technology, humanities, social sciences, performing arts and sports. It shifted to Chandigarh during 1958-1960, following the partition of India. The university adheres to the green movement concept as it has a lot of green cover which makes the environment rich in oxygen. The university has setup facilities for rain water harvesting, solar water heaters and use of e-rickshaws on the campus. The A. C. Joshi Library which has a rich collection of resources comprising books, journals, manuscripts, rare books, theses, reports, etc., has been recognised as a heritage building.

(a) Support of the infrastructure of the library for taking green initiatives

The foundation stone of the A.C. Joshi Library building was laid in 1958 by Dr. S. Radhakrishnan, the then Vice-President of India (A. C. Joshi Library Website, n.d.). The Library building which is a tall structure having five levels is situated at the centre of the university campus and was designed by Pierre Jeanneret. The building has been built on modern principles of architecture in red stone and concrete. The staff's workspace is on the south side, while the reading rooms face north. Between the two, is the stack area. In addition to having a networking infrastructure, it has central air conditioning. The building is a heritage one surrounded by trees and plants making it an eco-friendly building which is healthier for the users and the staff. The university including the library is a no-smoking zone. The poly bags have been banned by the administration of Chandigarh which is also applicable to Panjab University. The paper napkins are also banned in the university, making the area including the surroundings of the library much cleaner and tidier. The

initiatives taken by the university authorities to promote the use of e-rickshaws (three wheelers) also benefits the library to have less pollution near the library premises.

The design of the library building is a perfect model for utilisation of sunlight as one side of the library is of glass walls/windows enabling the sunlight to reach the reading halls. The height of the ceiling of the reading halls is such that it maintains an optimum temperature during summers as well as winters and provides the perfect atmosphere for the users for studying. The furniture in the library is made up of teak wood instead of plastic and iron, thus limiting the green gases emissions and also being recyclable. The catalogue cabinets are also made up of teak wood, further helping the library with green initiatives. The computer systems in the library are shut down manually after the working hours of the Library. Lighting in the library is not required during the day time. However, after daytime the library uses tube lights and not LED lights which are not very supportive measures towards green initiatives.

(b) Implementation of green initiatives in acquisition section.

Panjab University has a rich collection of around 7 lakh publications including textbooks, bound volumes of journals and periodicals, theses/dissertations submitted by the students, some rare books, reports, information sources published by government (central, state, and U.T), back collection of newspapers, and a collection of around 1490 rare manuscripts. Its holdings of back volumes of periodicals go back to nineteenth century. Recently, the library has become a part of One Nation One Subscription (ONOS). The routine acquisition process of the library employs both electronic as well as print means for acquiring books as well as journals. The reports of the section which are generated through ILS are however printed. Also, the library does not use the budget module of SLIM 21 and relies on manual paper work so as to coordinate with the university authorities. However, on drawback is that the section contacts the department heads through print means for obtaining recommendations instead of electronic media as the administration of the university is largely based on print communications.

(c) Implementation of green initiatives in circulation section

The circulation section of the library caters to the need of over 10,000 users including the students, researchers, faculty members and members of non-teaching staff. The membership form of the library is available online. However, the authentication by the chairperson is required which necessitates for submission of the same in the printed format. Although, the circulation of the documents has not been completely stopped manually, yet the users are generally encouraged to use self-check in and check-out using the RFID system. The users are sent an SMS on their registered mobile number for confirming the issuance of the book. An SMS is also sent to remind them of the due date and on returning the book through self-checkout

(Book-Drop box). This process saves a lot of paper, as book pockets and book cards are not prepared and attached to the books in the library. However, the books which are to be transferred to the departmental libraries need to be attached with a book pocket and book cards.

(d) Implementation of green initiatives in reference section

The reference section of the library makes use of e-mail service for providing inter-library loan, ILL request through mail, and events through Facebook. However, no chat reference service is provided by the library. In the digital library section, no printing facility is provided so as to reduce paper usage and encourage users to read/save in digital formats.

(e) Implementation of green initiatives in maintenance section

Swachh Bharat Abhiyan (Clean India Initiative) initiated by the Government of India also encourages all educational institutions to maintain cleanliness and hygiene and adopt green measures. For this committees have been formed in each department in the Panjab University. Hence, the library also being a part of this initiative, is adopting green measures. All the policies framed have to be adopted by the maintenance section, accordingly.

Conclusion and Suggestions

Panjab University is trying to vouch for the status of Institute of Eminence (IoE) under three major areas namely, (i) Energy (ii) Medicine (iii) Environment. For this purpose, the present study endeavoured to analyse the Green initiatives currently adopted by A.C. Joshi Library at Panjab University, Chandigarh, India. The analysis indicates that although some of the efforts have been taken in this direction, still more can be achieved by adopting additional measures. The design of the building helps to make use of natural sunlight, during the evening hours LED lighting should be used to save energy and reduce emission of gases. To save energy, sensors should be used for auto shut down of devices and lightings. It would be better if the solar system panel installed at the roof top also provides power, which is lying unused. It will result in huge energy savings. The same roof top space can also be utilised for growing flowers and increase the oxygen level around the campus. In order to reduce air pollution, the surrounding area of the library should be made no vehicle zone. The library is not currently using the budget module of the SLIM21 software and relying completely on print communication. If the budget module is used, a lot of paper-work shall become paperless and help in reducing carbon footprint. Moreover, for communication with vendors and publishers, e-mail should be used to reduce wastage of paper. Instead of generating paper receipts for self-check-in and checkout, SMS should be sent to the registered mobile numbers of the users. Photocopying service should be minimised to reduce paper wastage and also reduce greenhouse gases emission from the photocopying machine. The reference section needs to provide the orientation program

online through the library website, using the available infrastructure. The reference librarian should provide the users information literacy programs promoting green initiatives in use of resources. The Librarian should make sure that the chemicals and cleansers used in the library are not toxic to the environment.

By implementing the aforementioned suggestions, the library can contribute towards the sustainable development of 'The City Beautiful' and hinder impact of climate change in the surrounding area. Moreover, if all the libraries in India and also the developing countries contribute a little to combat the hazards of climate change by adopting such small measures, it can certainly help save our Planet Earth.

References

- A. C. Joshi Library Website (n.d). Retrieved October 30, 2025 from <https://library.puchd.ac.in/>
- Adeyemi, I. O., Oladaye, P. O., Odunayo, A. O., Omolokun, B. F., Fakorede, E. Y., Olayinka, I. O., & Eiriemiokhale, K. A. (2024). Green library practices in selected academic libraries in Kwara State, Nigeria. *IFLA journal*, 50(3), 511-524.
- Ajani, Y.A., Tella, A., Enakire, R.T. (2024). The green library revolution: A catalyst for climate change action. *Collection and Curation* 43(2): 60–67. DOI: 10.1108/CC-10-2023-0032.
- American Library Association. (n.d.). *Green libraries*. Retrieved October 30, 2025, from <https://www.ala.org/tools/green-libraries>
- American Library Association. (n.d.). Sustainability round table. Retrieved October 30, 2025, from <https://www.ala.org/rt/sustainrt>
- Antonelli, M. (2008). The green library movement: An overview and beyond. *Electronic Green Journal*, 1(27). DOI: 10.5070/G312710757
- Banhölzer, S., Kossin, J., & Donner, S. (2014). The impact of climate change on natural disasters. *Reducing Disaster: Early Warning Systems for Climate Change*. Dordrecht: Springer, 21–49.
- Bincy, O. K., & Vasudevan, T. M. (2023). Environmental sustainability: Awareness and practices among library professionals at the University of Calicut. *The Journal of Academic Librarianship*, 49(4), 102748.
- Boyden, L., & Weiner, J. (2000). Sustainable libraries: Teaching environmental responsibility to communities. *The bottom line*, 13(2), 74-83.
- Brown, B. (2003). The new green standard: With the LEED™ rating system in place it is easier to make sure your new library saves money as it treads lightly on natural resources. *Library Journal*, 128(20), 61-65.
- Cantú, A., & Anderson, B. (2003). It's Not Easy Being Green, But It Sure Is Fun Sustainability Programming at the Ann Arbor District Library. *Public*

- Libraries-Chicago-Public Library Association*, 42(4), 240-244.
- Chowdhury, G. (2012). An agenda for green information retrieval research. *Information Processing & Management*, 48(6), 1067–1077. <https://doi.org/10.1016/j.ipm.2012.02.003>
- Clay, K., Severnini, E., & Sun, X. (2023). Does LEED certification save energy? Evidence from retrofitted federal buildings. *Journal of Environmental Economics and Management*, 121, 102866.
- Corporate Environmental Sustainability, Microsoft. (n.d.). Retrieved December 4, 2017 from <https://www.microsoft.com/en-us/environment/default.aspx>.
- Fedorowicz-Kruszewska, M. (2021). Green libraries and green librarianship—Towards conceptualisation. *Journal of Librarianship and Information Science*, 53(4), 645-654.
- Green Building Concept, Tata Power. (n.d.). Retrieved October 31, 2025 from <https://www.tatapower.com/blogs/green-building-concept-why-it-matters-today>
- Green Libraries Website (n.d.). Retrieved October 30th, 2025 from <https://greenlibraries.org/>
- Hussain, S., Hussain, E., Saxena, P., Sharma, A., Thathola, P., & Sonwani, S. (2024). Navigating the impact of climate change in India: A perspective on climate action (SDG13) and sustainable cities and communities (SDG11). *Frontiers in Sustainable Cities*, 5, 1308684.
- International Federation of Library Associations and Institutions. (2025). *IFLA Green Library Award 2025 report*. Retrieved from <https://www.ifla.org/wp-content/uploads/IFLA-Green-Library-Award-2025-Report.pdf>
- International Monetary Fund. (2017). *World Economic Outlook October 2017: Seeking sustainable growth: short-term recovery, long-term challenges*. Washington, D.C: International Monetary Fund. Retrieved from <https://www.imf.org/en/Publications/WEO/Issues/2017/09/19/world-economic-outlook-october-2017>
- International Monetary Fund. (2022). *Proposal to Establish a Resilience and Sustainability Trust. IMF Policy Paper No. 2022/013*. Retrieved from <https://www.imf.org/en/Publications/Policy-Papers/Issues/2022/04/15/Proposal-To-Establish-A-Resilience-and-Sustainability-Trust-516692>
- Jankowska, M. A., & Marcum, J. W. (2010). Sustainability challenge for academic libraries: Planning for the future. *College & research libraries*, 71(2), 160-170.
- Kaminer, A. (2010, March 26). A Library That Most Can Only Dream Of. The New York Times. Retrieved December 6, 2017 from <https://www.nytimes.com/2010/03/28/nyregion/28critic.html>

- Kopp, R.E., Gilmore, E.A., Little, C.M., Lorenzo-Trueba, J., Ramenzoni, V.C. and Sweet, W.V. (2019). Usable science for managing the risks of sea-level rise, *Earth's Future*, 7(12), 1235-1269.
- Kyoto Protocol, UNFCCC Website (n.d.). Retrieved October 30, 2025 from <https://unfccc.int/process-and-meetings/the-kyoto-protocol>
- Le Ber, J. M., & Gregory, J. M. (2004). Becoming green and sustainable: A Spencer S. Eccles Health Sciences Library case study. *Journal of the Medical Library Association*, 92(2), 266.
- LEED Website (n.d.). Retrieved October 30, 2025 from <https://www.usgbc.org/leed>
- Lindström, M., Fridh, M., & Rosvall, M. (2014). Economic stress in childhood and adulthood, and poor psychological health: Three life course hypotheses. *Psychiatry Research*, 215(2), 386-393.
- Mann, M. E., Rahmstorf, S., Kornhuber, K., Steinman, B. A., Miller, S. K., & Coumou, D. (2017). Influence of anthropogenic climate change on planetary wave resonance and extreme weather events. *Scientific reports*, 7(1), 45242.
- Mathiasson, M.H. & Jochumsen, H. (2022). Libraries, sustainability and sustainable development: A review of the research literature. *Journal of Documentation*, 78(6), 1278–1304.
- New World Encyclopedia. (n.d.). Green library. New World Encyclopedia. Retrieved October 23, 2025, from http://www.newworldencyclopedia.org/entry/Green_library
- Online Dictionary for Library and Information Science (ODLIS). (n.d.). Green library. Retrieved October 23, 2025, from https://odlis.abc-clio.com/odlis_s.html#sustainablelib
- Rosenthal, E., & Revkin, A. C. (2007). Science panel calls global warming 'unequivocal'. The New York Times, 2(3). Retrieved December 2, 2017
- Sendrayaperumal, A., Mahapatra, S., Parida, S. S., Surana, K., Balamurugan, P., Natrayan, L., & Paramasivam, P. (2021). Energy auditing for efficient planning and implementation in commercial and residential buildings. *Advances in Civil Engineering*, 2021(1), 1908568.
- Sorensen, C. J., Salas, R. N., Rublee, C., Hill, K., Bartlett, E. S., Charlton, P., ... & Lemery, J. (2020). Clinical implications of climate change on us emergency medicine: Challenges and opportunities. *Annals of Emergency Medicine*, 76(2), 168-178.
- Todoaro, N. M., Testa, F., Daddi, T., & Iraldo, F. (2021). The influence of managers' awareness of climate change, perceived climate risk exposure and risk tolerance on the adoption of corporate responses to climate change. *Business Strategy and the Environment*, 30(2), 1232-1248.

- Training Programmes, IGBC. (2015). Retrieved December 2, 2017 from <https://igbc.in/igbc/redirectHtml.htm?redVal=showEventssignin>
- U.S. Green Building Council (USGBC). (n.d.). LEED: Leadership in Energy and Environmental Design. Retrieved October 23, 2025 from <https://www.usgbc.org/leed>
- UNFCCC (2015). Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December 2015. In *Addendum. Part two: Action taken by the Conference of the Parties at its twenty-first session, United Nations Framework Convention on Climate Change Bonn*. Retrieved from <https://unfccc.int/resource/docs/2015/cop21/eng/10.pdf>
- United Nations Framework Convention on Climate Change (UNFCCC). (n.d.). Kyoto Protocol. Retrieved November 1, 2025, from https://unfccc.int/kyoto_protocol
- United Nations Framework Convention on Climate Change (UNFCCC). (2023, August 31). Introduction to climate finance. <https://unfccc.int/topics/introduction-to-climate-finance>
- USEPA. (n.d.). Retrieved December 2, 2017 from <https://www.epa.gov/environmental-topics>
- WGBC Website (n.d.). Retrieved October 30, 2025 from <https://worldgbc.org/gbc/indian-green-building-council/>
- Zakaria, M. S., & Hendi, O. M. (2025). IFLA Green Library Award from 2016 to 2023: An examination of the best practices. *Public Library Quarterly*, 44(3), 318-346.
- Zarghami, S. A., & Ahmad, T. (2025). Empirical evaluation of the LEED green building rating system: Exploring limitations through configurational analysis. *Building Research & Information*, 1-16. <https://doi.org/10.1080/09613218.2025.2541834>

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