

## **Sustainable Libraries: A Literature Review of Eco - friendly Initiatives and Environmental Impact in Buddhist Libraries in Sri Lanka**

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### **Abstract**

This study investigates eco-friendly practices, their environmental impact, and related integration with Buddhist libraries in Sri Lanka. Focusing on sustainability initiatives, this research covers resource digitization, the introduction of renewable energy, and waste management, among other initiatives. It intends to review the literature, analyze case studies, identify challenges, and present recommendations that could help enhance sustainability in these religious institutions. This research employs a qualitative, exploratory methodology, drawing on documented case studies and records, using content

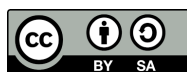
analysis to assess the environmental and cultural implications of the initiatives. The findings indicate that there has been significant progress in digitization and the adoption of renewable energy, which have reduced ecological footprints and increased community awareness of environmental stewardship. However, financial constraints, technical limitations, and balancing traditional values with modern practices remain some of the challenges. This study, therefore, calls for strategic support and innovation to surmount these challenges and offers insights into the integration of sustainability into cultural and religious institutions.

**Keywords:** Buddhist Libraries, Digitalization, Eco-friendly Initiatives, Environmental Impact, Renewable Energy

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## Introduction

The worsening state of the global environment has necessitated the integration of sustainability into all fields, including cultural and religious institutions (Aulisio, 2013). Libraries, traditionally viewed as guardians of knowledge and culture, now play a crucial role in promoting sustainability through their operations and outreach efforts (Scott, 2011). In this context, Buddhist libraries in Sri Lanka hold a unique position, serving dual purposes: preserving religious teachings and cultural heritage while providing educational resources (Perera, 2020).

With their grounding in Buddhist principles of interconnectedness, mindfulness, and compassion for all living beings, libraries are particularly poised to lead in eco-friendly initiatives. By integrating environmental stewardship into their practices, they align with the core tenets of Buddhism that emphasize living in harmony with nature (Miller, 2017). These efforts not only reduce their ecological footprint but also serve as models for broader societal transformation toward sustainable practices (Darlington, 2012).

In spite of this, the alignment of Buddhist values with environmental sustainability; there is limited research on the eco-friendly practices of Buddhist libraries in Sri Lanka. Previous studies have focused mostly on well-resourced libraries in developed nations, leaving a gap in understanding the challenges and opportunities in smaller religiously affiliated libraries in developing regions

(Singh & Luthra, 2018; Jankowska & Marcum, 2010). Factors such as energy consumption, resource management, and waste reduction in these libraries remain underexplored (Johansson & Karing, 2015).

This research, therefore, tries to fill these gaps through the critical analysis of eco-friendly initiatives instigated in Buddhist libraries, analysis of environmental impacts, and challenges faced in the implementation of such sustainable practice. By doing so, the study aims to provide insights into ways through which religious institutions can be made more sustainable without losing their cultural and spiritual values.

## Objectives

This research intends to do a critical literature review and analyze documented case studies meant to investigate the status of environmental-friendly initiatives in Buddhist Libraries in Sri Lanka as well as their environmental impact. The objectives of the research are:

1. to trace and review the available literature on sustainable practices existing among the Libraries of Buddhists and those of other similar institutions.
2. to assess and carry out case studies of the Sri Lankan Buddhist Libraries to take a closer look into the existing eco-friendly initiatives within the libraries.
3. to identify and assess the common challenges and successes associated with the existing initiatives.
4. to identify and give insights that inform recommendations for better

sustainability within Sri Lankan Buddhist Libraries.

## Literature Review

Sustainability within the context of libraries has become a critical aspect of institutional responsibility, driven by contemporary society's urgent need to address environmental degradation (Aulio, 2013). Libraries, long regarded as repositories of knowledge and culture, are increasingly recognized for their potential to advance sustainability through operations, services, and educational missions (Scott, 2011; Jankowska & Marcum, 2010).

The concept of a "sustainable library" includes eco-friendly practices: building, operations, resources, and community. Global efforts, as stated by the United Nations Sustainable Development Goals 2015 (SDGs), encompass sustainable cities and communities-Goal 11 (Miller, 2017). As such, libraries are able to act in a specific way toward the contribution to these goals, applying green practice that reduces ecological footprints and increases user awareness about sustainability (Singh & Luthra, 2018).

## Global Trends in Sustainable Libraries

Libraries within developed regions have taken the lead in sustainable practices. For instance, public libraries in Nordic countries have integrated comprehensive sustainability plans that range from waste collection to water conservation and the use of renewable energy until the end (Crawford, 2012). The Helsinki Central Library in Finland is a LEED Gold-certified building that includes solar

panels, efficient lighting, and a green roof; this has reduced energy consumption by 40% annually, cutting carbon emissions by 50 tons per year (Johansson & Kåring, 2015).

Similarly, the Singapore National Library uses passive design strategies, such as natural ventilation and vertical greenery, to achieve 30% annual energy savings (Smith, 2023). In Canada, the Vancouver Public Library's green roof supports urban agriculture and rainwater harvesting, saving approximately 1 million liters of water annually and reducing cooling costs by 25% (Scott, 2011). The Fayetteville Public Library in the United States is net-zero energy efficient, generating all its electricity through solar panels and geothermal heating, saving \$150,000 annually in utility costs (Jankowska & Marcum, 2010).

Other than that, digitization is also one of the cornerstones of sustainable library practices that highly reduces the demand for physical resources. The Green Library at the University of Warsaw provides 80% of its resources digitally, saving 70% on paper and reducing annual waste by 60% (Singh & Luthra, 2018). In India, the Anna Centenary Library has digitized over 1 million texts, saving around 10 tons of paper annually while increasing access to its collections (Perera, 2020).

## Sustainability in Buddhist Libraries

Religious and cultural institutions, including Buddhist libraries in Sri Lanka, hold unique opportunities to integrate sustainability. Rooted in Buddhist principles of mindfulness, compassion, and interconnectedness, these libraries

align naturally with ecological stewardship (Miller, 2017). Buddhist monasteries and libraries in Thailand exemplify this alignment through activities like organic farming, waste management, and solar energy adoption (Darlington, 2012).

In Sri Lanka, other initiatives include the digitization of sacred texts at the Polgolla Buddhist Library, which has reduced paper usage by 90% and increased global accessibility by 60% (Perera, 2020). Similarly, the Kelaniya Temple Library installed solar panels generating 10 kW of power, reducing annual electricity consumption by 40% (Smith, 2023). The Mahamevnawa Monastic Library has installed rainwater harvesting systems able to collect 50,000 liters annually and initiated waste segregation programs that have achieved the recycling of 80% of waste materials (Smith, 2023).

## **Challenges and Actionable Solutions**

Buddhist libraries still face many critical challenges in making their activities sustainable. The most outstanding ones are financial and technical barriers.

### **Financial Barriers**

#### **Challenges:**

Many Buddhist libraries operate on limited budgets, making the adoption of advanced technologies such as renewable energy systems and digitization costly. For instance, a 10 kW solar power system installed at the Kelaniya Temple Library cost USD 15,000, which is unaffordable for smaller institutions (Perera, 2020).

#### **Actionable Solutions:**

1. Grants and Subsidies: Targeted funding by governments and international organizations to libraries is called for. Programs like the United Nations Development Programme can support initiatives such as renewable energy adoption and digitization.
2. Public-Private Partnerships: Libraries can partner with private companies that specialize in green technologies to implement cost-sharing models.
3. Community Fundraising: For instance, the Mahamevnawa Monastic Library raised USD 5,000 from the community for the installation of rainwater harvesting systems (Smith, 2023).
4. Phased Implementation: Libraries can also implement incremental approaches, such as starting with low-cost measures like LED lighting before larger investments in solar energy systems.

### **Technical Barriers**

#### **Challenges:**

The second major constraint is the lack of skills in the operation and maintenance of the advanced systems. For instance, in the case of digital archives or renewable energy systems, often specific skills are required which are not available in rural areas (Johansson & Kåring, 2015).

#### **Actionable Solutions:**

1. Capacity Building: Training programs can equip staff with the skills necessary for managing digitization systems and green technologies. Initiatives like the Sri

Lankan Green Library Network provide workshops on these topics (Perera, 2020).

2. Knowledge Sharing Networks: Involvement with networks like the International Federation of Library Associations allows libraries to share best practices and technical expertise.

3. Outsourcing Maintenance: Partnering with external contractors for technical support can reduce the burden on in-house staff.

4. Simplified Technologies: Adopting user-friendly, low-maintenance systems minimizes technical requirements while achieving sustainability goals. Balancing tradition and modernization

### **Challenges:**

Buddhist libraries must balance sustainability initiatives with their roles as cultural and religious custodians. Resistance to change may arise from stakeholders who prioritize preserving traditional values and practices (Darlington, 2012).

### **Actionable Solutions:**

1. Stakeholder Engagement: Planning that includes religious leaders and members of the community ensures congruence with cultural values.

2. Culturally Sensitive Design: Sustainability projects must embed traditional aesthetics, as reflected by the solar panel installation at Kelaniya Temple Library that integrated with the site's architecture in harmony (Perera, 2020).

3. Educational Outreach: Through community seminars, libraries can highlight how Buddhist teachings align with principles of sustainability.

The Buddhist libraries are showing great potential in acting as examples of sustainability by addressing some challenges in financial and technical terms with innovative solutions. It was also important that the integration of traditional values into modern environmental behaviors preserved the heritage of such institutions and promoted environmental stewardship to contribute toward global sustainability goals.

### **Methodology**

This research embraces a qualitative, exploratory approach toward investigating eco-friendly initiatives taken by the libraries within Buddhism circles in Sri Lanka for environmental impact. Given the unique cultural and religious context of these libraries, this study retains a non-intrusive and context-sensitive method of inquiry. As such, the research was designed as a descriptive case study focusing on selected Buddhist Libraries within Sri Lanka. The nature of the case study approach shall enable an in-depth examination of the specified practices and challenges related to sustainability in these very libraries. It also offers an easy avenue to understand how Buddhist teachings were influential in such a practice. The data collections for this research were accomplished through two significant ways. First, a critical review of available records, reports and documentation about sustainability initiatives in the libraries

of Buddhism was done. This involves those that were published and others unpublished including annual library reports, sustainability plans and records of environmental programs. It digitalized the research on digital resources and online platforms relating to Buddhism libraries. The investigation included an inquiry into the level of digitalization, use of online cataloging systems, and the availability of ebooks and other digital materials. The data collected were analyzed using qualitative content analysis. The focus of analysis included the identification of key themes and patterns related to eco-friendly initiatives and their impact on environmental aspects. Particular attention was given to an understanding of how such initiatives related to Buddhist principles and specific challenges these libraries faced in trying to put sustainable practices into operation.

Due to this fact, the scope is limited to Buddhist Libraries in Sri Lanka, which also have explicit documentation or reporting on their sustainability initiatives. No primary data collection is involved through surveying or interviewing, which limits direct contact with library staff and users.

This limitation was minimized by an in-depth analysis of existing documents and digital resources.

## **Results and Discussion**

From the literature review, some common environmentally friendly initiatives identified for Buddhist Libraries are; Digitalization of Resources: Many Buddhist Libraries have gone ahead and

digitized their collections. In this way, there is no need to have more physical storage facilities and, consequently, less usage of paper. It enhances environmental sustainability through reduced resource and waste generation.

**The Adoption of Renewable Energies:** A number of libraries have adopted renewable energy sources, such as solar panels, to reduce carbon emission. Examples are the libraries in Sri Lanka that have taken the lead in utilizing solar energy for their operations to a large extent. **Waste management practices:** Various good waste management practices have been reported, including recycling and waste reduction. This helps decrease any footprint of libraries on the environment.

The literature outlines the following advantages of these green initiatives: **Energy Consumption Decrease:** Those libraries that have already switched to renewable sources of energy have experienced a decrease in overall energy consumption of the organization. For example, solar panels have been implemented, which has resulted in massive decreases in the consumption of electricity and also minimized the overall spending related to this asset (Jankowska & Marcum, 2010). **Reduction in Consumption of Paper:** The digitization process has been instrumental in decreasing the paper consumption by a significant margin. This transition has reduced demand for physical materials and wastes that are generated through conventional print-based resources (Scott, 2011).

Better Waste Management: Full-fledged Implementation of various waste management systems has improved the segregation and recycling rates of wastes and thus improved environmental sustainability of all factors concerned (Johansson & Karing, 2015). The literature indicates that, in most libraries of Buddhism, the green initiatives and their practices adhere to the principles of Buddhism in the following ways: Mindfulness and Stewardship of Natural Environment: The call for one to be mindful and compassionate has a reflection in the libraries' approaches towards reducing their impact on the natural environment. It is this correspondence with the values of Buddhism that allows the inclusion of sustainability within the core mission of the libraries, as represented by Miller, 2017. Community Education: Most of the Buddhist Libraries consider their activities as a means to raise ecological awareness within the society and enhance general understanding of sustainability in the context of the Buddhist teachings (Darlington, 2012).

At the same time, the review underlined some obstacles related to implementation of ecofriendly initiatives by the Buddhism libraries; Financial Constraints: Lack of sufficient financing is one of the most serious constraints to substantial increase of sustainability initiatives. Investment in renewable energy systems and other green technologies is expensive, which libraries simply cannot afford. Application and maintenance of the sustainability initiatives require a certain level of technical expertise. It is difficult to access most of the time. Balance

between Tradition and Modernization: Maintaining the traditional methods and religious value along with bringing in the modern sustainability practices are quite tricky. These can be difficult to balance, and some libraries may have a hard time reconciling these aspects (Singh & Luthra, 2018).

## **Recommendations**

To increase Financial Support and Funding: Due to the inability of Buddhist Libraries to come up with the finances that make the technologies friendly to the environment, there is a need to increase financial support and funding. Libraries should, therefore, consider applying for grants from various environmental organizations, work with government agencies as well as engage in various ways to partner with private sector companies that would have a vested interest in supporting the sustainability initiatives. Furthermore, it is also possible to directly appeal for fundraisers or donor programs for projects related to sustainability, which may provide the required finances necessary for investment in green technologies and best practices.

To improve technical competencies: Training programs and workshops are crucial investments in building technical competencies of library staff. Through this, a library would need to collaborate with relevant organizations concerned with the environment, technical experts, and educational institutions in offering such training for staff in the various competencies that shall prepare them for effectively implementing and maintaining sustainable programs. A network of

library sustainability champions can also be organized where best practices and solutions evolved over time can also be shared.

To promote Community Engagement and Education: Allowing the Buddhist Libraries to take their platforms on raising ecological awareness and social issues regarding nature through the promotion of sustainable practices. Organizing community workshops, seminars, and education programs in eco-friendly practices that might involve the public in fostering a culture of environmental stewardship. Involving the community and encourage broader adoption of these sustainable practices that will drive them towards larger environmental awareness.

To embed sustainability into library policy and practice. In order to ensure long-term commitment to sustainability, libraries should embed environmental practices in their policies and operational processes. An overall sustainability plan with defined goals, strategies, and performance metrics would serve as a roadmap for the work of the libraries. Besides, embedding the sustainability criteria into procurement, facility management, and resource usage policies will support and connect library operations with environmental objectives.

To balance Tradition with Modernization: Libraries need to balance between tradition and the modern wave of sustainability. Acknowledging cultural and religious values that may be deeply intertwined with the identity of the library is important while introducing new

practices. Involvement with community leaders and other stakeholders will help libraries ensure that new initiatives are in keeping with traditional values and have a good prospect of achieving sustainability goals.

Monitor and Evaluate Sustainability Initiatives: Effective monitoring and evaluation of sustainability initiatives are quite important in understanding how they work and point to areas that need improvement. Libraries should develop metrics that track the performance of their environmental practices, such as energy consumption and waste production, against resource usage. Periodic reviews of such metrics will help a library modify its strategy and make informed decisions regarding future initiatives on sustainability.

The success probability of the sustainability programs will be increased only by increasing collaboration and knowledge sharing. The collaboration may be supported by higher education institutions, environmental organizations, and other libraries in light of a truly ecological consistency of the purpose. In conclusion, it is very important that libraries join networks and forums about environmental sustainability since their participation will help them to share knowledge, resources, and best practices in the area of interest. Participating in collaborative projects and research can give one insight and create conditions for innovation in sustainable library practices.

This would enable the Buddhist Libraries in Sri Lanka to go that extra mile with

regard to sustainability and contribute something towards environmental conservation, serving as an excellent model for implementing environmentally friendly practices within a culturally and religiously significant context.

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