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Green Library: Sustainability through Reading

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Abstract

The green library is a new concept and it is gaining admiration among the library professionals worldwide. The paper highlights the conditions of environment, impacts on society, green library, role of modern librarian, and features of green library, initiatives in and outside India. The paper also discuss role of initiatives and programs like United Nations Development Programme (UNDP) and LEED (Leadership in Energy and Environmental Design).It also gives an overview of green library and role of a green library in preservation and conservation of environment. Furthermore the paper focuses on the importance of green library in ongoing era and green library initiatives.

Keywords: *Green Library, Green librarian, Green Library Movement, Sustainable Library.*

1. Introduction

A sustainable library Sustainability has many meanings, including preserving natural resources for the future, living in a carbon-neutral way, and meeting the needs of the community now whilst ensuring that the needs of future generations are also met. In this article, sustainability is defined as living and working in a practical and environmentally responsible manner, to ensure

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the protection of the world's resources for future generations. The term 'sustainability' is often used interchangeably with the word 'green'.

In most cases, sustainable buildings cost less to operate and maintain than non-sustainable buildings. They create less strain on natural resources and are more attractive and comfortable than older buildings. Although the initial financial outlay for the building or redevelopment of a green library is more expensive than a traditional build, the decreased running costs and added benefits to the community and environment make the overall investment a more cost-effective long-term proposal.

A sustainable library encompasses not only design and refurbishment of library buildings, but also improved day-to-day operations and procedures of the library. It also contributes to educating the community about responsible environmental practices. Libraries are in a unique high-profile position that enables them to be community role models by implementing sustainable strategies. Public libraries have the opportunity to become environmental leaders in our communities as they are committed to the community and to the future by creating welcoming and long-lasting buildings. When creating green buildings, libraries make good use of public funding and lead the way in the community by implementing sustainable design and operations.

2. Designing for and measuring sustainability

According to the Green Building Council of Australia, the building sector contributes 23% of all greenhouse gas emissions in Australia each year (Green Building Council of Australia 2009). The building sector therefore has the potential to make a huge impact on lowering greenhouse gas and energy emissions.

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There are many tools for measuring and assessing the sustainability of buildings in Victoria, such as Green Star (Green Building Council Australia), STEPS (Sustainable Tools for Environmental Performance Strategy) and SDS (Sustainable Design Scorecard) (Municipal Association of Victoria 2011). The average Green Star certified building uses around 66% less energy, 51% less water and emits 62% less greenhouse gases than traditional buildings (Green Building Council of Australia 2009). Currently, the Green Star system is the most commonly used certification system, administered by the Green Building Council. This system is holistic, national and voluntary. It rates buildings on nine factors:

1. Management (of the design and construction)
2. Indoor environmental quality
3. Energy
4. Transport
5. Water
6. Materials
7. Land use and ecology
8. Emissions
9. Innovation.

Buildings can achieve a maximum of 6 stars. The star system indicates 4 Star (Best practice in environmentally sustainable design (ESD) and/or construction), 5 Star (Australian excellence in ESD) and/or construction or 6 Star (World leadership in ESD and/or construction).

3. Reducing energy consumption

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Buildings can achieve a reduction in energy consumption and costs by implementing a number of different strategies, ranging from renewable energy sources to energy-efficient lighting and climate control systems.

3.1 Renewable energy

Renewable energy provides smarter and cleaner ways of meeting the energy needs of a building, as opposed to using non-renewable resources such as coal and gas. Power is generated by sources such as solar, wind and hydro (water). Renewable energy systems reduce greenhouse emissions, decrease demand on conventional energy resources and are becoming more cost effective in the long term. The most common renewable energy systems used in Australia are solar power systems and wind turbines.

Solar power generates power by converting sunlight into electricity. Energy produced can power fixtures and appliances in a building. Solar panels require a significant upfront cost, but once installed they need little maintenance and can last for up to 20 years. Excess energy can be fed into the main electricity grid or into a storage system. Wind turbines or generators use the wind to turn a propeller which drives a generator and produces electricity to power a building onsite. Wind turbines are usually installed on a tower and are better suited to rural or non-urban areas.

3.2 Building orientation and mass

Reductions in building energy use through lighting systems and climate control systems can be gained through strategic building orientation and massing. Building massing, which is the overall size and shape of a building, can reduce reliance on artificial lighting by making the most of natural lighting. Buildings can be oriented in a way that utilizes the sun's path at the building

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site. Building massing can also be used to influence elements such as rainwater harvesting and acoustics.

3.3 Materials

The materials used in the construction of a building can improve the sustainability of the library by reducing the need for mechanical systems to improve the indoor environment quality. The use of materials from sustainable sources also helps reduce the impact of the building's construction on the environment. Ideally, materials used in a building should also create minimal waste at the end of the building's life, preferably being easily re-used in other natural or industrial processes.

3.4 Water

Water shortages have been common in Australia for many years, resulting in the need to enforce water restrictions that vary in stages across the country. Due to the rising cost of infrastructure and the shortage of water in many Australian states and territories, costs have risen dramatically, reinforcing the need to think sustainably about water usage. The following actions can be implemented to reduce water consumption:

Harvest rainwater: aim to harvest enough to meet 100% of the building's water demand.

- Store run-off in water tanks: once a building has been constructed on a site, water run-off increases. Use run-off for landscaping or toilets.
- Treat and reuse water: waste water or storm water can be treated and re-used for irrigation purposes.
- Treat black water (from kitchen and toilets): needs to be treated either biologically or mechanically before it can be reused.
- Store water in underground or in-ground tanks.

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- Use drought-resistant plants and indigenous shrubs or trees and grasses: this reduces the need for watering as these varieties tend to require less water.
- Use mulch on garden beds: this keeps the soil moist and minimizes water loss from the soil and reduces the need for watering.
- Use electronic watering systems at night: this decreases water evaporation. Drip watering systems are preferred over sprinkler systems that can waste large amounts of water.
- Carefully landscape surrounding grounds: this can assist in thermal control; additionally, the plants will absorb carbon dioxide from the atmosphere.
- Where possible, minimize lawn areas or consider using indigenous grasses or materials such as synthetics, crushed rock or gravel in order to decrease the amount of water needed to maintain outdoor areas

3.5 Sustainable practices

Reduce, re-use and recycle – these are fundamental aspects of sustainable living and, from an operational point of view, all very valid ideas when it comes to reducing impact on the environment. But there is far more to sustainable practices than just these three concepts. It is important for libraries to start thinking outside the box in terms of truly sustainable practices. Ensuring that initiatives are embraced and changing the mindset of customers and staff are essential steps in the process of moving to a sustainable industry. Table 2 provides a list of initiatives that libraries can incorporate to ensure they operate more sustainably. Some libraries will be able to adopt all, or most, of these ideas; however, some will be able to adopt only a limited number of them, dependent upon budgetary constraints. It is important to recognise that some of these initiatives will, in fact, reduce a library's operating costs, such as a reduction in the use of energy and water.

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Many operational procedures and practices are entrenched in the library industry. It is imperative that library management ensures that all staff members are included in the planning, implementation and management of the new policies. This will ensure that staff feels they are included and have some ownership of the changes involved in moving towards a more sustainable way of operating.

4. Sustainability initiatives

Energy

- Signage in staffing areas (for example 'Please turn off when leaving room')
- Maximum use of natural lighting
- Light-sensitive lighting
- Movement-sensitive lighting
- Energy-efficient lighting
- Heating/cooling to be run only on extreme temperature days
- Re-use of warm air produced from computer/server rooms into areas in need of heat
- Green IT solutions, for example energy efficient servers, printers, photocopiers, computers, screens and programs
- Installation of thermal solar energy panels

Waste

- Recycle e-waste: can it be used by someone else or does it need to be recycled efficiently?
- Recycle everything! Toners, paper, cardboard, flyers, books, CD/DVD cases, etc.

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- Waste bins in every area of the library for rubbish, paper products, recyclables (different colour for different functions): this will require cleaners to be 'on board' with the library's needs
- Implement a waste audit that can be used as a starting point for measuring the library's waste and any possible reductions – an organization such as Green Makeover (www.greenmakover. com.au) can deliver this.
- Greater reliance on e-resources to reduce paper production and waste in monograph production Resource sharing to reduce the number of items required

5. Conclusion

This article offers a framework and point of reference that provides a valuable information guide, and can be used as a practical starting point for library services planning to build new libraries or refurbish existing library buildings. Three key areas of focus are highlighted: building/refurbishing, sustainable practices and education. Sustainability encompasses a wide range of principles and practices and involves making environmentally friendly design and construction decisions, implementing greener work practices and educating communities in the value of living sustainably. The article can be used in conjunction with the People Places guide (State Library of New South Wales 2012). It is hoped that future plans to build new libraries and re-fit existing buildings will include consideration and adoption of the ESD features and recommendations for sustainable practices outlined in this framework.

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