IFLA Guidelines for Green and Sustainable Libraries

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With contributions and support from the IFLA Environment, Sustainability and Libraries Section's (ENSULIB) Guidelines for Green and Sustainable Libraries Working Group

First Draft

February 2025
To be endorsed by the IFLA Professional Council

Cover photo: TBA, © TBA

Suggested citation: Hauke, P., Mocatta, A., and Pun, P. (eds.) (2025). IFLA Guidelines for Green and Sustainable Libraries. The Hague, IFLA. https://repository.ifla.org/handle/TBA

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Preface

Acknowledgments

This first edition of the IFLA Guidelines for Green and Sustainable Libraries is the result of a collaborative effort among individuals from across the globe. The Guidelines team was led by Ms Petra Hauke (Humboldt-Universität zu Berlin, Germany), Ms Antonia Mocatta (University of Sydney, Australia), and Ms Priscilla Nga Ian Pun (University of Macau Library, Macao SAR), with contributions from IFLA's Environment, Sustainability and Libraries Section (ENSULIB) Standing Committee members Ms Amanda Delali Fie (Ghana), Ms Eva Hackenberg (Germany), Ms Rossana Morriello (Italy), Mr Arnold Mwanzu (Kenya), Ms Vivian Puerta (Colombia), and Ms Ana Zdravje (Slovenia).

The team was supported by other members of IFLA units, including Library Buildings and Equipment Section, LBES (Mr Benjamin Meunier, Hong Kong SAR; Ms Caroline Ilako, Uganda; Mr Santi Romero, Spain), Libraries for Children and Young Adults Section, LCYA (Ms Marianne Marten, United States), National Libraries Section, NATLIB (Ms Liisa A. Savolainen, Finland), Europe Regional Division (Ms Agnes Hajdu Barat, Hungary), Middle East and North Africa Regional Division (Ms Bayan Abu Sini, Jordan), Sub-Saharan Africa Regional Division (Ms Monica Mensah Danquah, Ghana, and Mr Ogou-Gara Richard Seglo, Benin), and Information Technology Section, IT (Mr François-Xavier Boffy, France).

A workshop at the International Library Conference in Barcelona, Spain, 6–9 October 2024, provided additional valuable input. Following the development of the Guidelines' first draft, feedback was sought across IFLA, the IFLA ENSULIB Section and the international green and sustainable library community. This input was gratefully received and considered and the Guidelines have benefited greatly from it.

Background

The checklist for "Sustainable Buildings, Equipment, and Management" by Klaus Ulrich Werner can be seen as a precursor to the Guidelines (Werner 2013). The checklist has been translated into more than 30 languages and made available in open access on ENSULIB's "Green Library Website" (ENSULIB n.d.a). Also, ENSULIB's book publications (ENSULIB n.d.b) *Going Green: Implementing Sustainable Strategies in Libraries Around the World. Buildings, Management, Programmes and Service*s (Hauke, Charney, and Sahavirta 2018), *New Libraries in Old Buildings: Creative Reuse* (Hauke, Latimer, and Niess 2021), and *Libraries Driving Education for Sustainable Development* (Hauke, Mocatta, and Pun 2025) informed the Guidelines, as did *Tools for Green Libraries* (ENSULIB 2022a).

Developing the Guidelines has been on the ENSULIB agenda since its foundation as a Special Interest Group in 2009. With the elevation of ENSULIB to IFLA section status, the project was identified as a priority.

The formation of a project group for the Guidelines was initiated in September 2023, and work started in December 2023. The project proposal was submitted to the IFLA Advisory Committee on Standards in January 2024 and approved in April 2024 with revisions requested by IFLA's Standards Review Team. The project was widely publicised on numerous IFLA channels including IFLA News (ENSULIB 2024a), the ENSULIB Newsletter, and a project website "The IFLA Guidelines for Green and Sustainable Libraries", all with an invitation to support or collaborate on the project. The final draft was submitted for final approval to IFLA's Standards Review Team in TBA 2025 and was subsequently published in TBA 2025.

Purpose of the Guidelines

The objective of this document is to provide a tool for the planning, implementation, and evaluation of green and sustainable libraries. The document is also intended to serve as a framework for the development of national guidelines for green and sustainable libraries. The Guidelines are applicable to all green and sustainable libraries, regardless of their size, focus, or location, and can be adapted to reflect local circumstances and needs. They reflect library services that can be delivered in most countries by dedicated library staff. The Guidelines are intended to support national and local government policies based on the United Nations 2030 Agenda's 17 Sustainable Development Goals (SDGs) (United Nations 2015a, [2024]). Recognising that not all countries will be able to meet these broader SDGs, it is hoped that at least some the opportunities presented in the Guidelines can be achieved in most contexts, and that the document provides a starting point for environments where green and sustainable libraries are not widely evident or well supported.

The Guidelines provide a framework for the establishment, operationalisation, and evaluation of new and existing green and sustainable libraries. They aim to help promote the achievement of the 17 SDGs in various communities or organisations, including local municipal, school and university, and special library settings. The Guidelines are aimed at librarians, library administrators, legislative and administrative bodies, designers and architects, facility managers, and other stakeholders responsible for the creation, management and funding of libraries of all types. Using the Guidelines, planners should determine the priorities for their library and consider what is feasible within its context. They may either be aiming for minimum standards, to improve on existing provisions, or to achieve best practice.

Role of Green and Sustainable Libraries

Sustainability as a fundamental principle has led humanity to reconsider our way of life. This has become more urgent with the impending climate catastrophe. With the publication of the United Nations 2030 Agenda and the 17 SDGs, sustainability has been defined as a priority in all forms of public action. Implementing the Goals requires active democratic processes in which everyone, including governments, corporations, organisations, institutions, and individuals should and must participate.

The role of libraries in contributing to environmental education and the realisation of the broader SDGs has been variously and widely addressed in the academic literature (Hauke, Mocatta, and Pun 2024).

Libraries are increasingly regarded as socially relevant educational institutions, educational partners, and role model contributors to the SDGs. Libraries are closely connected to their communities and reach all segments of the population. They impart knowledge in a variety of ways, including through their collections, exhibitions, lectures, events, makers' spaces and shared resources, such as sewing machines, tool kits, musical instruments and more, and by addressing topics such as urban gardening, seed libraries, STEM or citizen science, repair cafés, etc. These activities provide libraries with excellent opportunities to influence public awareness and offer a platform for civic engagement and sustainable development.

More libraries worldwide are positioning themselves as "sustainable" or "green". Their audience is increasingly responsive, and library authorities in communities and municipalities are committed to the value of libraries as educational institutions for the common good.

One of the first projects ENSULIB undertook after its establishment as an IFLA section was to define "What is a Green Library?" It was recognised that this official definition was urgently needed prior to other work being progressed. Evidence of the definition's value is seen in its translation by librarians from 38 countries or language communities.

The definition follows (ENSULIB 2022b):

> **What is a Green Library?**
> *Environment* means the surroundings or conditions in which human beings, organisations, animals, or plants live and operate. Environments can be natural, social, or cultural.
>
> *Sustainable development* is development that "meets the needs of the present without compromising the ability of future generations to meet their own needs" (Our Common Future/Brundtland Report, UN).
>
> Present environments are endangered by climate change and other threats including social inequalities. All organisations, institutions etc. should strive to protect the environment through sustainable development. This includes all kinds of libraries, which can play an active and significant role in sustainable development.
>
> A *green and sustainable library* is a library which takes into account *environmental, economic and social sustainability.* Green and sustainable libraries may be of any size, but they should have a clear sustainability agenda which includes:

- *Green buildings and equipment:* The emissions, or carbon footprint, of the building and equipment are actively decreased.
- *Green office principles:* Operational routines and processes are environmentally sustainable.
- *Sustainable economy:* Consumption is restrained, circular and sharing economy practices are advanced and are made accessible to the community.
- *Sustainable library services:* Relevant and up-to-date information is easy to access for users, shared spaces, devices, and environmental education is offered, and operations are efficient. The library has a positive carbon handprint.
- *Social sustainability:* Good education, literacy, community engagement, cross cultural diversity, social inclusion, and overall participation are considered. The library works actively to reduce inequality.
- *Environmental management:* Environmental goals are SMART (Specific, Measurable, Achievable, Realistic and Timebound), and the library works to decrease its own negative impact on the environment. The library's environmental policy, its implementation and the results of environmental work are communicated to a broader audience.
- *Commitment to general environmental goals and programmes:* Commitment is guided by the UN Sustainable Development Goals, the Paris Climate Agreement and related environmental certificates and programmes.

The decision to turn a public, academic, school or company library into a green and sustainable library often arises from the personal interest of individual library staff as well as the institution in which the library exists. It is based on a commitment to general environmental goals and programmes, as described in the definition quoted above. These commitments are in line with the 17 United Nations Sustainable Development Goals as set out in the UN 2030 Agenda (United Nations 2015a), the Paris Climate Agreement (United Nations 2015b) and, importantly for libraries, the UNESCO Education for Sustainable Development programme (UNESCO 2020).

We hope that the Guidelines will provide inspiration and encouragement for libraries to take up the challenge and join the "green library movement" (Antonelli 2008). Libraries are encouraged to seize the opportunity to fulfill their important role in tackling the SDGs, and as key players in the education sector.

Introduction

Sustainability as a fundamental principle has led us to reconsider our way of life. This is not only driven by the impending climate catastrophe. The publication of the United Nations 2030 Agenda and its 17 Sustainable Development Goals (SDGs), defines sustainability as the basis for all forms of public action for maintaining environmental, economic, and social balance. Implementing the goals requires democratic processes in which everyone should and must actively participate.

The ethical values of libraries are crucial to upholding democracy and freedom of speech within their communities. Each library plays a unique educational role by providing reliable information to its audience, thereby contributing to the promotion of equality and the creation of a sustainable society. Libraries also support multiculturalism and language diversity, and make printed and digital materials accessible to the public, ensuring that access to information is not limited by one's socioeconomic status. In smaller cultural communities, libraries play a significant role in publishing literature with low commercial value, ensuring that non-commercial literature does not remain unpublished.

In line with these values and with maintaining their position as socially relevant educational institutions, libraries increasingly see it as their duty to play a leading role as sustainability models and educational partners. Libraries are closely connected to their communities and reach people from all walks of life. This provides them with excellent opportunities to influence public awareness and offer themselves as platforms for civic engagement and sustainable development.

Libraries and librarians can be role models for green and sustainable practices. Library buildings are increasingly being designed to incorporate green construction and energy use principles. Libraries also pursue sustainable practices in their business operations such as through sustainable sourcing, recycling and reduction of printing. They employ a variety of approaches to impart sustainability knowledge and reach all sections of their user population. In addition to thematically relevant exhibitions, lectures and events, libraries host initiatives such as urban gardening projects, seed libraries, STEM or citizen science projects, or repair cafés to encourage visitors to think about a more sustainable way of life.

Audiences are becoming increasingly receptive to sustainability concepts as more libraries around the world position themselves as sustainable or green. Despite this, some library authorities and municipalities still need to be convinced that libraries make an essential contribution to the common good as educational institutions.

These Guidelines offer a broad range of opportunities for libraries of all kinds to position themselves convincingly as green and sustainable libraries. Examples range in scale and scope with many being simple and free to implement even for libraries with few staff and limited financial resources. An aim of the Guidelines is to encourage

libraries of all sizes to contribute to the development of sustainable cities and communities.

The Guidelines may also be used to provide library funders or city councilors with a blueprint to show what a green and sustainable library is, what these libraries do in the interests of the parent organisation municipality or university, and what social benefits they bring. It shows how libraries can actively and effectively support and accelerate efforts to achieve the goals of the 2030 Agenda, and that they are of essential importance to the organisation, municipality or university achieving their green strategy.

The Guidelines aim to provide a set of concrete recommendations and best practices that can be applied to libraries or information centres of any size and type. By implementing these Guidelines, libraries can demonstrate their commitment to environmental responsibility, increase awareness of green and sustainable issues, inspire active change in their communities, support DEI (diversity, equity and inclusivity), and foster a more sustainable future.

The scope of the Guidelines for developing green and sustainable libraries includes recommendations that will help achieve global consistency and accountability, knowledge sharing on best practices, ways to enhance of the impact on sustainable goals and DEI through policy and practice, how libraries can fulfil a vital role as community leaders in sustainability.

The intended audiences of the Guidelines are librarians, organisational and community stakeholders, local government agencies, policymakers at national and regional levels, both formal and informal educational institutions, and other interested organisations and individuals. The principles outlined in the Guidelines can be adapted to local contexts, whether in high-income or low-income regions.

1 Green and Sustainable Library Principles

The principles highlighted in this chapter can be adapted to local contexts in countries with any level of income.

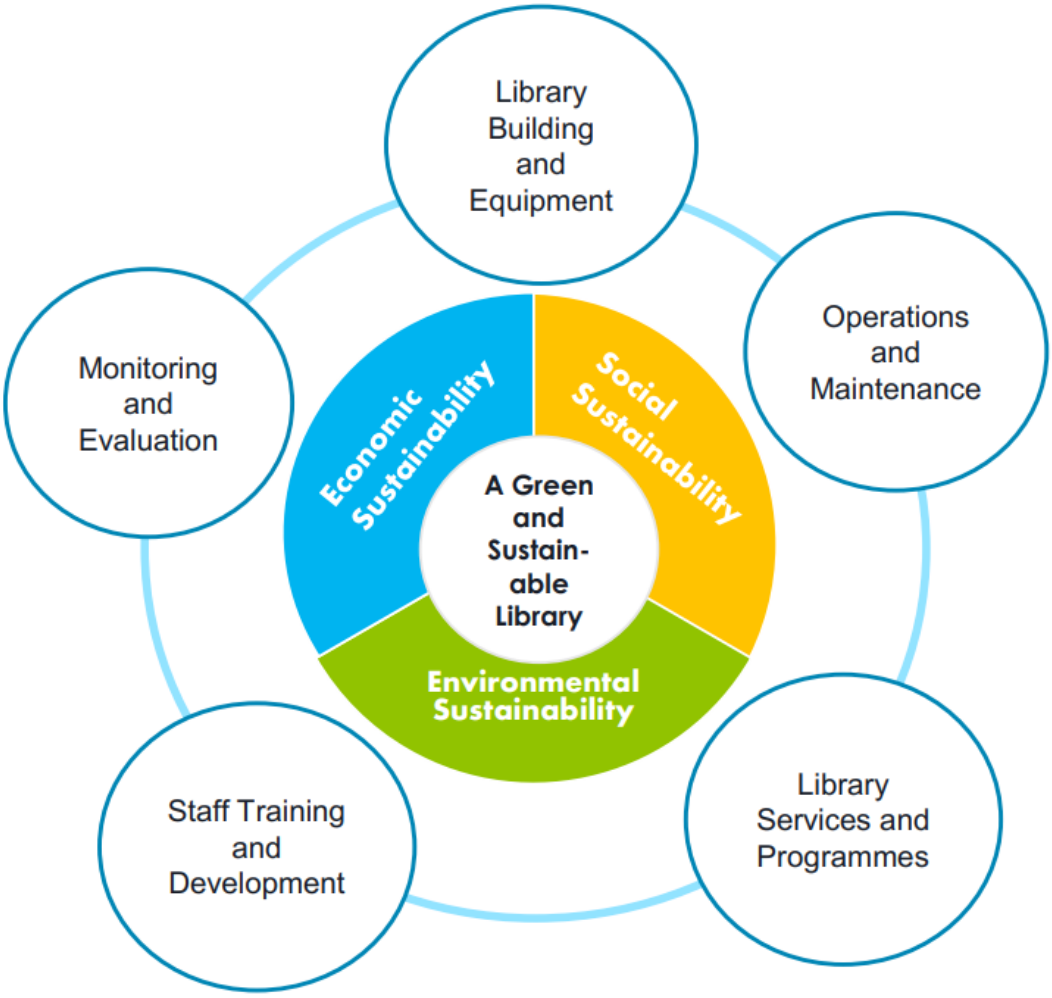

Fig. 1: A Green and Sustainable Library. © Benjamin Meunier, Priscilla Pun and Ana Zdravje.

1.1 Minimising Environmental Impact of Buildings and Equipment

1. Reduce, reuse, recycle: Minimise waste and conserve resources.

2. Green building design: Incorporate sustainable design elements in new library construction or renovations.

3. Energy efficiency: Optimise energy consumption through efficient lighting, HVAC (heating, ventilation, and air conditioning) systems, and renewable energy sources.

4. In dry climates and regions with moderate weather, natural ventilation may provide the most energy-efficient way of ventilating and cooling building.

5. For very hot, cold, or humid regions, HVAC systems may be necessary but can be highly efficient if designed with sustainability in mind.

6. Water conservation: Implement water-saving measures, such as rainwater harvesting and efficient plumbing.

1.2 Health and Well-Being

1. Indoor air quality: Ensure good ventilation and air quality to promote health and well-being.

2. Noise reduction: Minimise noise pollution to create an environment conducive to learning.

3. Ergonomic design: Provide comfortable and accessible spaces for staff and users.

4. Biophilic design: The use of natural light, water features, introduction of plants or windows with an aspect over a natural setting.

1.3 Community Engagement

1. Education and awareness: Promote environmental awareness and sustainable practices among library users and the community.

2. Partnerships: Collaborate with local organisations and initiatives to address environmental challenges.

3. Community outreach: Educate users about sustainability and encourage environmentally friendly practices.

1.4 Resource Efficiency

1. Minimise the carbon footprint of the collection: Consider whether print or digital presents the most sustainable solution given the specific context of the library.

Where possible, implement a digitisation strategy in line with the objectives of the SDGs.

2. Sustainable long-term preservation: Consider and adopt the most suitable strategy to guarantee perpetual access to the collection, including sustainable physical storage using natural temperature and humidity regulation, or digitsation using a long-term shared library or archival storage.

3. Green collection development: Select and acquire materials that are environmentally sustainable, such as open access resources and recycled materials.

4. Sustainable procurement: Prioritise the sourcing of environmentally friendly products and services for the library.

5. Waste management: Implement effective waste management programmes to reduce landfill waste.

1.5 Accessibility and Inclusion

1. Universal design: Ensure the library is accessible to all users, including those with disabilities.

2. Inclusive programming: Offer programmes and services that cater to diverse needs and interests.

3. Accessibility of the collection: Ensure the collection is available to the widest audience at no cost, including through strategies such as open access, open educational resources (OER), and delivery services for people with reduced mobility.

1.6 Green Information and Communications Technology (ICT)

1. Optimise hardware deployment: Extend the lifecycle of of computers, monitors, tablets and mobile phones. Choose devices that are fit-for purpose, but not over-spec'd as larger, more powerful devices have a greater environmental impact. As a general rule, larger devices consume more resources and have a higher level of environmental impact than the smaller ones in production, transportation and usage. Where possible, seek to re-use or recycle hardware that is end-of-life for its original purpose. Follow best practice in hardware and battery recycling.

2. Energy-efficient hardware: Use energy-efficient computers, servers, and network equipment.

3. Cloud-based services: Utilise regional / local cloud computing to reduce on-premises infrastructure and avoid constant long distance data transfers.

4. Sustainable data centres: Support data centres that prioritise energy efficiency, and environmental sustainability and provide services to local communities based on warmth production.

5. Artificial Intelligence usage: Given the resource-intensive nature of AI, reserve its use for situations that would be impossible or impractical by other means.

1.7 Useful Resources

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2 Library Buildings and Equipment

Whether designing a new building or conserving an existing one, any library can be a green and sustainable library. This chapter explores sustainable design solutions for library buildings, featuring both high-tech and low-tech approaches. It emphasises the use of locally sourced and sustainable materials. It provides practical guidelines for planners, designers and architects, highlighting that sustainability can be achieved without a new building, as noted by former AIA (American Institute of Architects) president Carl Elefante: "The greenest building is the one that is already built."

It is crucial for library building and equipment projects to be led by green building and technology experts, with libraries advocating for the use of construction materials and techniques that have a lower environmental impact, and the use of renewable energy if fossil fuels are still in use.

2.1 Project Planning, Finance

1. Define an exemplary "green building" as economical, environmentally friendly, and resource-conserving.

2. Establish the environmental objectives of the building owner or client.

3. Determine the level of sustainable design and operation based on established frameworks (e.g., LEED, BREEAM, other national certification standards).

4. Conduct preliminary life cycle assessment (LCA) considerations, covering construction, operation, maintenance, decommissioning, disposal, and CO_2 balance.

5. Consider both operating costs and life cycle costs.

6. Explore available financial support options.

7. Assess and minimise noise and environmental impacts on the immediate surroundings during the construction period.

2.2 Tendering

1. Keep in mind that the public sector should be a role model, especially educational and cultural institutions such as a libraries.

2. Prefer companies for construction and equipment that are certified sustainable.

3. Prefer materials, equipment and products that result in a lower environmental impact. Issue tenders for materials and processes that include sustainability criteria and consider relevant certifications.

4. Engage and support local construction businesses and select construction equipment and materials from the local area.

2.3 Site / Location

1. Consider the ecology of the site and its surroundings (contaminated land, endangered species, climatic conditions, emissions, noise, etc.).

2. Evaluate the negative environmental impact of building on a site that is poorly oriented, has a complicated geometry or a slope that confounds the construction of the building.

3. Consider the extent of resource consumption during construction.

4. Account for the requirements of site development, including costs for site clearance and ongoing maintenance.

5. Evaluate opportunities for greening the site and its surrounding areas.

6. Assess local infrastructure, including access to public transportation.

7. Provide spaces for green transportation (e.g., bicycles, electric vehicles), including appropriate security, shelter and charging amenities.

2.4 Building Design and Construction

Create “local” architecture, not “global”. The architectural project must be adapted to the climate, environment and communities of the place where the library is to be built.

2.4.1 Distribution and Organisation of Spaces

1. Achieve sustainability through compactness ("fat buildings").

2. Optimise the energy efficiency of the exteriors/building skin with well-insulated, intelligent design.

3. Plan the layout of library spaces to avoid unnecessary routes, such as long hallways, to avoid creating additional surface area that that will need to be ventilated and maintained.

4. Minimise the consumption of building materials through the intelligent arrangement of space.

5. Reduce energy consumption by zoning areas according to the specific requirements of each library function (e.g., climate control, lighting, and acoustics).

6. Make use of roof areas for green roofs and solar energy installations.

7. Bring the outdoors into library spaces by incorporating courtyards, green areas, balconies, and terraces.

2.4.2 Facades

1. Design facades that prioritise natural light to save on artificial lighting consumption.

2. Optimise window installations for energy efficiency, maximing light, airflow and insulation as needed.

3. Use structural measures, such as deep-set windows, to protect collections from sunlight.

4. Use the façade sustainably through greening and solar energy integration.

5. Implement absorbent facades, such as double facades, for enhanced thermal performance.

6. Design facades where all windows can be cleaned and repaired using sustainable methods, so that it is not necessary to hire special cleaning and repairing teams.

7. Apply energy criteria, including thermal insulation standards.

2.4.3 Rooftop Space

1. Make use of roof areas for green roofs and solar energy installations.

2. Place natural light inlets on the roof to illuminate interior spaces and reduce artificial lighting.

2.4.4 Building Climate

1. Implement effective solar protection.

2. Consider structural aspects of solar protection, such as low-lying windows.

3. Optimise window glazing quality for thermal insulation.

4. Manage the interior climate of the library entrance to prevent loss of heating or cooling by designing access doors that provide thermal insulation between the exterior and the interior (e.g. a double automatic door vestibule with intermediate gate or revolving doors).

5. Use natural ventilation solutions whenever possible to reduce the energy consumption associated with air conditioning. Where air conditioning is necessary, seek energy-efficient systems.

6. Differentiate the climate control needs according to specific library functions.

7. Utilise concrete effectively, considering its core temperature.

8. Ensure high quality interior air supply to avoid sick building syndrome, including the elimination of harmful materials and gases.

9. Avoid the use of artificial humidification where possible.

10. Seek opportunities to incorporate indoor vertical gardens.

2.4.5 Artificial Lighting

1. Choose low energy-consumption light sources.

2. Install presence detectors in spaces that are used occasionally, such as bathrooms, classrooms, etc., to control lighting and minimise energy use.

3. Install sensors that control the level of artificial lighting based on the amount of natural light entering from outside.

2.4.6 Water Management

1. Implement sustainable water management.

2. Capture rainwater for the building's own consumption.

3. Prevent excess rainwater and greywater from flowing into the sewerage system. This excess water should be re-used or returned to the earth.

2.4.7 Construction Materials

1. Prioritise maintenance-friendly construction methods that minimise the requirement for costly, future servicing.

2. Ensure the ecological friendliness of materials.

3. Choose locally-sourced materials that are suitable for the local climate. Consider utilising traditional materials, such as timber or bamboo.

4. Select natural materials and construction methods that promote good health (non-hazardous materials).

5. Prioritise durability and longevity.

6. Ensure repairability.

7. Facilitate ease of recycling and cleaning.

8. Use a significant proportion of recycled materials, such as aluminum, steel and timber.

2.4.8 Interior Finishing Materials

1. Use durable and low-maintenance floor finishes and carpets.

2. Install flooring made of resistant, durable, easy-to-clean and low-maintenance materials.

3. Install natural, sound-absorbing acoustic materials on ceilings and walls to enhance the usability of spaces.

4. Consider the origin of timber, its cultivation methods, and relevant green certifications.

5. Prioritise the use of renewable, recycled or upcycled materials.

2.4.9 Sustainable Construction

1. Assess and minimize noise and environmental impacts on the immediate surroundings.

2. During construction, sufficient space must be reserved for the entry and exit of materials, as well as for their storage.

3. Minimise the waste generated by the construction process, by considering deconstruction rather than demolition, reducing packaging and using pre-fabricated components where feasible.

2.5 Building Design that Supports Preservation and Conservation

A stable storage environment is key to preserving large collections across all formats. Preservation buildings or stacks should maintain a consistent internal climate, with gradual temperature and humidity changes over the seasons. The ideal temperature for the storage of paper-based materials storage ranges between 18° and 22° C, and relative humidity (RH) should sit between 40 and 55%.

1. Stacks should be designed to be well insulated and to prevent the ingress of water or damp. This will aid in providing an environment that temperature stable and free of excess humidity.

2. Ensure precise temperature and humidity control to preserve materials while balancing energy use with preservation needs. Mechanical ventilation, heating, and cooling contribute to energy consumption.

3. Prioritise renewable energy sources (e.g., wind, solar) and use systems that minimise temperature and humidity fluctuations, balancing preservation with energy efficiency.

4. In storage and use areas (reading rooms, exhibits) use shading and glazing systems to protect collections from UV light, while maximising natural light for energy efficiency.

5. Implement air filtration and circulation systems to maintain air quality, preventing material degradation from dust, pollutants, or excess moisture.

6. Use low-emission, non-toxic materials in construction and finishes to avoid chemical reactions with archival materials.

7. Install fire suppression systems with low-impact agents that meet safety standards and environmental considerations.

8. Create specialised storage systems for controlled access, stacking, and organisation, ensuring space efficiency and material integrity.

9. Balance energy-efficient technologies (HVAC, insulation) with the stable conditions required for archival storage.

2.6 Certificates

Regardless of the condition of building or budget, there are opportunities to improve environmental sustainability of buildings incrementally.

1. Refer to national or international standards for sustainability in construction or in refurbishment.

2. Use protocols and standards for site selection, energy efficiency, water consumption, material and resources, and indoor environmental quality, e.g.:

    - LEED rating system: Leadership in Energy and Environmental Design (US standard). https://www.usgbc.org/leed

    - BREEAM: Building Research Establishment Environmental Assessment Method (UK standard). https://breeam.com/

    - SKArating (UK assessment system for interior fit-out). https://skarating.org/

    - DGNB: Deutsche Gesellschaft für Nachhaltiges Bauen (German Certificate for Sustainable Building). https://www.dgnb.de/de/zertifizierung/das-wichtigste-zur-dgnb-zertifizierung

    - Green Star Rating System (Australian standard). https://new.gbca.org.au/green-star/exploring-green-star/

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3 Operations and Maintenance

This chapter is intended to help libraries move towards becoming fully sustainable and green by minimising their environmental impact, reducing resource consumption, and fostering a space that supports both ecological sustainability and the wellbeing of the community.

3.1 Strategic Goals

1. Publish a mission statement on the library's website outlining its overall sustainability strategy and goals.

2. Align sustainability goals with the UN Agenda 2030 objectives.

3. Establish clear targets for energy savings and implement effective control measures to reduce consumption.

4. Develop reward and incentive schemes to encourage sustainable practices within the organisation.

5. Influence business partners, including publishers, booksellers, and suppliers, to adopt sustainable practices.

6. Address new target audiences by promoting the organisation's sustainability efforts.

7. Foster strategic green partnerships to further sustainability goals and expand impact.

3.2 Exemplarity

1. Lead by example with proactive and exemplary sustainability practices.

2. Engage library users and stakeholder groups, such as funding agencies and Friends of the Library, in sustainability efforts.

3. Organise sustainable mobility campaigns and promote sustainable commuting by encouraging walking, cycling, or public transport to reduce carbon emissions and enhance health. Install bike racks outside the library.

4. Install educational signage to inform visitors about energy and water conservation, and encourage eco-friendly resource consumption behaviors in library spaces.

5. Ensure transparency of energy costs to encourage reduced consumption and drive cost control efforts.

6. Initiate resource reduction initiatives such as by minimising paper use, promoting reusable items, and avoiding plastic book covers.

7. Seek opportunities to re-use or extend the life of items, including refurbishing worn furniture or extending the life of library computers.

3.3 Marketing, Partnerships, Visibility

1. Promote your green and sustainable commitment visibly, using tools like the IFLA poster “This Library Supports the SDGs” (https://repository.ifla.org/items/559e6835-1ec3-44ca-8944-38e46a35ad21) or the ENSULIB Green Library Poster (https://www.ifla.org/the-green-library-poster/).

2. Follow ENSULIB, IFLA’s Environment, Sustainability, and Libraries Section (https://www.ifla.org/units/environment-sustainability-and-libraries/) for ideas and resources.

3. Sign up for the Green Libraries Manifesto via the CILIP website (https://www.cilip.org.uk/page/GreenLibrariesManifesto).

4. Join green and sustainable library networks or start one.

5. Seek partnerships with other green and sustainable libraries to exchange experiences and resources.

6. Support local environmental initiatives: Partner with community groups, environmental NGOs, and other stakeholders to amplify local climate initiatives and educate the public about how they can get involved in grassroots efforts.

7. Build partnerships with local governments, non-government organisations (NGOs), and businesses to access funding and resources.

8. Integrate climate change topics into library curriculum: Collaborate with local schools and educators to include climate change and sustainability topics into curricula and educational programmes, supporting students and teachers in learning and teaching about the climate crisis.

9. Follow the United Nation's 12 High-Impact Initiatives to accelerate progress on the Sustainable Development Goals (SDGs) (https://sdgs.un.org/SDGSummitActions/HII).

10. Display an energy performance certificate at the library entrance for public visibility.

11. Incorporate public relations (PR) initiatives focused on the library's sustainability activities.

12. Create a dedicated green section in the annual report to highlight environmental achievements.

13. Consider participating in the annual IFLA Green Library Award (https://www.ifla.org/g/environment-sustainability-and-libraries/ifla-green-library-award/).

3.4 Library Management

3.4.1 The Green Library Office

1. Minimise physical footprint and maximise use by creating shared and flexible library spaces. For example, consider implementing hot desking where information desks can serve as workspaces outside of desk hours, or shared offices or workstations that account for teleworking and reduce the number of desks and computers needed.

2. Prioritise green procurement by choosing local, certified suppliers, considering CO_2 emissions and packaging materials.

3. Opt for green shipping services to reduce environmental impact.

4. Use local printers and bookbinders to minimise CO_2 emissions from transportation.

5. Reduce paper usage by exploring sustainable digital alternatives.

6. Implement digital archiving to minimise paper storage needs.

7. Choose office supplies and equipment based on their origin, energy consumption, and recyclability.

8. Avoid products with toxic, harmful, or difficult-to-recycle components.

9. Explore alternatives to plastic bags in the library.

3.4.2 Finance and Procurement

1. Ensure a sustainability focus when purchasing library goods and services; for example by buying recycled photocopy paper, or asking publishers or book vendors not to use plastic packaging.

2. Support small, local and Indigenous suppliers. Actively choose to purchase goods and services from local or minority-owned businesses, particularly those from underrepresented or historically marginalised communities.

3. Prioritise fair trade products in all procurement decisions.

4. Ensure equitable, legal, and transparent sourcing practices that discourage potential corruption or preferential treatment of a supplier.

5. Avoid waste by carefully considering how many copies of a book are needed, or how much stationery is necessary to order.

6. If the library has a bank account or invested endowments, choose financial institutions or funds that invest sustainably and do not support environmentally or socially destructive industries.

7. Assess supplier compliance with modern slavery laws and regulations, where applicable.

3.4.3 Green Information and Communication Technology (Green IT)

1. Use computer hardware and IT infrastructure for as long as possible. Repair what can be repaired, reuse what can be used in a different context, or recycle using sustainable processes.

2. Adapt the deployment of computer equipment to need. Measure computer usage in lecture rooms and adjust the number of devices based on actual use. Prefer shared devices when staff work remotely on a regular basis, or in different library branches.

3. Prioritise energy-efficient equipment to reduce overall power consumption. Regularly monitor and track energy usage to identify opportunities for further optimisation.

4. Utilise hardware with energy-saving certifications (e.g., Energy Star) to ensure compliance with sustainability standards.

5. Opt for thin clients instead of traditional PCs, as they have a lower power consumption, a potentially longer lifespan, and their production has a lower environmental footprint.

6. Implement software solutions that optimise energy usage by automatically switching devices to standby mode when not in use. Remove unused applications and documents to reduce energy consumption due to background usage and storage.

7. Regularly update software to limit cybersecurity threats.

8. Choose network printers over individual stand-alone devices to reduce carbon footprint, power usage and improve efficiency.

9. Equip workstations and printers with switchable sockets, allowing for the easy disconnection of power when devices are not in use and standby mode cannot be deactivated.

10. Prioritise digital formats over paper for library operational documentation to minimise resource consumption. Implement double-sided, black and white printing as the default setting for all print jobs.

11. Avoid the use of thermal paper whenever possible, opting for more sustainable alternatives.

12. Encourage scanning as an alternative to printing for documents and resources, reducing unnecessary paper waste.

13. Where possible, provide loan and return receipts by email instead of printing physical copies to reduce paper usage.

14. Ensure proper recycling of used printer cartridges to minimise waste and promote a circular economy.

3.4.4 Sustainable Travel for Library Employees

1. Promote sustainable travel and role model best practice by encouraging staff to use public transport, cycle, or carpool for workshops and conferences.

2. For unavoidable air travel, consider CO_2 offset options. These practices reduce the library's carbon footprint and set a positive example for the community.

3. Inform staff about climate-conscious travel policies, such as opting for virtual meetings and offsetting CO_2 emissions for necessary flights.

3.5 Staff Kitchen, Library Café, Event Catering

1. Equip staff kitchens with energy-saving electrical appliances to minimise energy consumption.

2. Ensure that hot water is produced using energy-efficient methods to further reduce energy use.

3. Reduce waste by prioritising the use of glassware, china, crockery, and cutlery that can be washed and reused, rather than disposable plates and plastic cutlery.

4. Where possible, choose fairtrade-certified products to support ethical and sustainable sourcing.

5. Offer vegan food options to cater to diverse dietary needs and promote plant-based eating as a healthy, environmentally friendly choice.

6. Provide sufficient but not excessive catering for events, ensuring that portions are appropriate to avoid food waste.

3.6 Facility Management

1. Avoid using harmful chemicals, particularly those that could pollute waterways or soil. Choose natural, biodegradable, and non-toxic cleaning products to reduce the library's environmental impact and ensure a healthier space for both staff and patrons.

2. Transition to energy-efficient lighting, such as LED bulbs, and implement smart control systems to minimise energy consumption while providing optimal lighting for library spaces.

3. Install water-saving fixtures, such as low-flow faucets and toilets, and regularly maintain plumbing to prevent leaks. Promote mindful water usage throughout the facility.

4. Set up comprehensive recycling stations and composting bins, encouraging patrons and staff to reduce waste and responsibly dispose of materials in line with sustainability principles.

5. Regularly service heating, ventilation, and air conditioning systems (HVAC) to optimise energy use and air quality, ensuring that the library's environment remains comfortable and healthy.

6. When undertaking renovations or repairs, prioritise the use of sustainable, recycled, and low-impact building materials to reduce the library's carbon footprint.

7. Encourage digital resources and reduce paper usage by offering e-books, online catalogues, and digital borrowing systems. Where printing is necessary, use recycled paper products.

8. If the library has outdoor spaces, plant them with native species that require minimal water and maintenance. Implement sustainable landscaping practices to reduce the library's environmental impact.

9. Designate areas in the library where patrons can engage with nature, such as indoor plants or green walls, to promote well-being and environmental awareness.

10. Track the library's energy usage, carbon footprint, and waste production to identify areas for improvement. Set measurable sustainability goals and work towards a carbon-neutral future.

3.7 Useful Resources

American Library Association (ALA). Sustainable Libraries Initiative. [2023.] *The National Climate Action Strategy for Libraries Implementation Guide*. Chicago, IL; Bellport, NY. https://www.sustainablelibrariesinitiative.org/media/document/614

Bibliosuisse. 2023. *Nachhaltigkeit in Bibliotheken/Guide to Sustainability in Libraries. Ein Ratgeber mit Best-Practice-Beispielen*. [Aarau, Switzerland]. Available in German and French. https://www.bibliosuisse.ch/angebote/downloads/ratgeber-nachhaltigkeit-in-bibliotheken-1#content

International Federation of Library Associations and Institutions (IFLA). 2022. *GET INTO... Education for Sustainable Development.* https://repository.ifla.org/server/api/core/bitstreams/1b345276-ae8d-4d1e-8109-754c26979e32/content

4 Library Collections, Services and Programmes

Green and sustainable libraries must offer services grounded in an analysis of their scope, purpose and strategic goals, and the information needs of the local community. In planning these services, clear priorities should be established, and a strategy developed for service provision in the medium to long term. Educational programmes that are accessible to all community members, including those in underserved areas, are essential, alongside inter-library collaborations to share green resources and knowledge.

4.1 Principles for Delivering Effective Green and Sustainable Library Services

1. An analysis of local community demographics should be undertaken and services developed and provided for the identified target groups.

2. The library's services should not be subject to any form of ideological, political, religious or commercial pressure.

3. Services should adjust and develop to reflect changes in society, for example, variations in family structures, employment patterns, demographic changes, cultural diversity and methods of communication.

4. Services should take account of traditional cultures as well as new technologies, for example, support for oral methods of communication as well as making use of information and communication technology.

4.2 User Needs Assessment

1. As resources are limited in even the wealthiest society it is not always possible to serve all customers to the same level.

2. The library must establish priorities based on an analysis of its intended scope, purpose and strategic goals alongside actual and potential customer needs and their access to alternative services.

3. Some of the actions a green and sustainable library can take to determine user needs are:
    - Consulting statistical data such as the government census to understand the demographic profile of the area served

- Conducting regular surveys on preferences regarding media types and non-media related services
- Analysing usage loan statistics
- Analysing visitor statistics in terms of age, language groups, education levels, usage of particular services (library of things, seed library, maker spaces, citizen science projects etc.)
- Providing the community with opportunities to suggest new media, services and activities
- Conducting impact studies to determine user satisfaction with the library services, e.g. in cooperation with a LIS school.

4.3 Collections

4.3.1 Environmental and Social Impact

1. When weighing up the purchase or retention of print collections, consider the long-term costs and environmental effects of physical storage. It is well recognised that printed materials result in environmental impacts including through the consumption of paper, water and energy during production. Storage space requires resource-consuming infrastructure to be developed, and power consumption associated with environmental controls results in significant carbon emissions over time. However, in some locations where relative humidity and temperature are stable and artificial environmental controls are not needed, or power can be supplied from sustainable sources, long-term preservation of physical items may result in lower energy consumption than holding digital collections.

2. Similarly, when weighing up the production or acquisition of digital collections, consider the long-term costs and environmental impacts of digital storage and retrieval. While digital collections can be a more sustainable option, they are not without environmental consequences and the continuous impact on environment should also be considered. Significant resources are required to maintain infrastructure and power required to store and retrieve digital collections.

3. Digital inclusion: Digital content has the potential to enable improved global accessibility, especially in the case of DRM-free, open access materials. Digital resources also provide benefits including full text search, data mining and accessibility for people with a disability. Once account is taken of the requirements of long-term digital preservation, digital collections can be an excellent option to provide the wider access to knowledge held in the libraries. However, any prioritisation of digital over print collections should only be done in consideration of the community's ability to access to digital devices and the internet. In some circumstances, print remains the most accessible medium.

4. Ensure the collection is available to the widest audience at no cost, including through strategies such as open access and open educational resources (OER).

5. Invest in developing a collection relating to the priority areas of science, environment and sustainability.

6. Provide collections that specifically covers the topics addressed by the SDGs, diversity, equity and inclusion, and promote and valorize green shelves. Consider making these topics a special focus for children and young adults as they are the future generations and must be aware of these issues

7. Develop a collection which reflects the cultures of all communities served, including social groups and languages, and leaves no one behind.

4.3.2 Culture and Development: Preservation of Cultural Heritage Materials

1. Develop an acquisition and preservation policy that cares for and preserves the cultures of minority groups, promotes language diversity and documents a range of social movements.

2. Select good quality, acid free boxes, folders and papers for the long-term preservation of cultural heritage materials.

3. Consider the creation of digital duplicates of cultural heritage materials so as to preserve valuable original items from over-use and damage.

4. Digitise cultural heritage collections in high demand by customers to facilitate ready access.

5. Standardise high-quality digitisation (using high-resolution scans, OCR, standardised metadata and etc.) to ensure that no re-digitisation is needed.

6. Collaborate with other memory institutions to avoid digitising the same content multiple times which would result in needless financial and digital waste. In national libraries and countries with legal deposit legislation, consideration should be given to how many copies of each item needs to be preserved. Duplication of items across multiple collections adds to environmental burden. Conversely, multiple copies across collecting institutions can also assure against permanent loss of content in the face of natural or other disaster.

7. When digitising materials, use data storage services which are committed to use renewable energy.

8. Follow long-term preservation metadata standards to ensure that digital collections are preserved for decades or even centuries.

9. Develop policies and procedures ensure that no copyright is breached by digitising materials.

4.4 Service Provision

1. Place SDG 4, target 7 at the centre of engagement: “Ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development.”

2. The following green and sustainable library services should be easily accessible to clients through a variety of formats, media, in-person and online:
    - Reading promotion and literacy
    - Loan of books and other media with a focus on sustainability
    - Information services using print and electronic media with a focus on sustainability
    - Sustainable programming and events
    - Reference services and communication campaigns that reach the community by using online applications and platforms they frequent such as live chat, blogs, cell phone messaging, and social media
    - Encourage client participation in sustainability campaigns.

4.5 Sustainable Library Services

Libraries should strive to ensure that relevant and current information is easily accessible for users. The sharing of spaces and equipment (computers, printers, scanners) supports the efficient and sustainable use of resources. Information and programmes on education for sustainable development should be offered.

4.5.1 Education for Sustainable Development

1. Host informational sessions to raise awareness about the United Nations' 2030 Agenda for Sustainable Development and its goals.

2. Provide platforms for in-depth discussions and educational events on fundamental human rights, fostering a deeper understanding of global justice and equity.

3. Coordinate activities, events, and initiatives to engage the community in global action days, promoting active participation in sustainability causes.

4. Develop themed rooms or special programming to mark important national and UN action days, aligning with global sustainability initiatives.

5. Provide educational programmes that enhance information literacy, such as those addressing critical issues like "fake news" and media literacy.

6. Share resources and information about educational opportunities, including nurseries, schools, universities, and vocational training, promoting lifelong learning.

7. Encourage literacy through targeted programmes that foster reading, writing, and storytelling, contributing to the development of creative and critical thinking skills.

8. Organise reading days and similar initiatives to promote the love of reading and engage community members in shared literary experiences.

9. Provide accessible ICT resources to enable all community members to engage with information, education, and digital platforms effectively.

10. Organise talks featuring environmentalists, scientists, and sustainability professionals to share their knowledge and insights on climate change and sustainability with library users.

11. Collaborate with local experts to host educational workshops on topics like energy conservation, waste management, climate change, the SDGs, and other sustainability issues.

4.5.2 Climate Empowerment

1. Create climate action resource centres: Establish a dedicated space within the library that offers books, online resources, and tools related to climate change, sustainability, and green living, making it easily accessible to all users.

2. Host green film screenings and discussions: Organise screenings of documentaries or movies related to climate change and sustainability followed by discussions or Q&A sessions to stimulate awareness and action among library users.

3. Promote green reading lists: Curate reading lists or resource collections on topics like climate justice, renewable energy, sustainable agriculture, and environmental activism, encouraging patrons to explore these subjects.

4. Incorporate climate literacy into library programmes: Integrate climate literacy into existing library programmes for all age groups to raise awareness about climate change and its impact—from storytelling sessions for children, to workshops and lectures for adults.

5. Offer eco-friendly alternatives and resources: Advocate for sustainable practices within the library by reducing its carbon footprint, such as by offering e-books, digital resources, and minimising paper use, while educating users about these practices.

6. Establish climate action teams: Encourage library users to join or form climate action teams that can work together on specific projects like tree planting, urban

gardening, or local clean-up events, fostering a sense of community action for the environment.

7. Facilitate climate-positive community events: Organise climate-positive community events such as swap meets (for clothes or books), green markets, or sustainable living fairs that promote sustainable consumption and lifestyle choices.

8. Host "Green Your Library" days: Organise days focused on making the library more eco-friendly, such as by promoting zero-waste practices, energy efficiency, or hosting repair workshops for electronics and books, empowering users to make a difference in their own spaces.

4.5.3 Nature and Agriculture

1. Offer resources and educational materials on the benefits and practices of organic farming to encourage sustainable agriculture.

2. Educate the community on the impact of toxins used in plant protection, promoting environmentally friendly alternatives for pest management.

3. Establish reading areas in outdoor spaces to help foster a stronger connection between library users and nature, enhancing their well-being.

4. Host plant exchange events to encourage community participation in sustainable gardening and the sharing of plant varieties.

5. Establish a seed library focused on heirloom and old plant varieties, promoting biodiversity and sustainable gardening practices.

6. Install bee feed dispensers to support local pollinators, fostering a healthier ecosystem around the library.

7. Create raised garden beds to provide opportunities for community members to grow their own food and learn about sustainable gardening practices.

8. Install a compost or worm bin to promote organic waste recycling and educate the community on the benefits of composting.

9. Organise guided foraging tours to teach participants about edible plants in the local environment, and provide foraging maps to encourage sustainable foraging.

10. Create community gardens on library grounds to promote food security, sustainability, and hands-on education about local agriculture.

4.5.4 Health and Wellbeing

1. Offer educational resources and workshops focused on healthy eating habits, sustainable food choices, and cooking techniques that promote overall well-being.

2. Provide media, workshops, and courses on various physical activities, such as dancing, swimming, and other forms of exercise, to encourage an active lifestyle.

3. Provide resources and programmes on meditation practices to promote mental health and wellbeing, fostering relaxation and mindfulness.

4. Offer media, workshops, and discussions addressing topics like depression, addiction, and other mental health issues to raise awareness and provide support.

4.5.5 Sustainable Consumption

1. Provide educational resources and lectures on sustainable agricultural practices to promote more productive and environmentally friendly harvests.

2. Establish a "library of things" where users can borrow tools, equipment, and other items to reduce unnecessary consumption and encourage sharing.

3. Implement a fairshare cabinet for the exchange of surplus food, helping to reduce food waste and promote community sharing.

4. Set up designated collection boxes for recycling small electronic items such as old mobile phones, contributing to e-waste reduction and material reuse.

5. Install water dispensers in the library to reduce single-use plastic bottle consumption and encourage sustainable hydration options.

6. Host clothing swap events to promote the reuse of garments and reduce textile waste.

7. Organise book flea markets to encourage the exchange of second-hand books, reducing waste and supporting sustainable reading habits.

8. Participate in local or national initiatives focused on waste reduction, supporting broader environmental goals.

9. Hold contests on waste reduction or climate action to engage library staff and users in sustainable practices.

10. Organise swap fairs where community members can exchange or donate used books, clothes, or household items to promote reuse.

11. Provide repair workshops or repair cafés where volunteers help users fix damaged items like bikes, books, electronics, or furniture, supporting a circular economy.

12. Hold workshops that teach users how to creatively reuse materials, reducing waste and minimising environmental impact.

13. Develop a programme for the safe disposal and recycling of electronic waste for library staff and users.

14. Educate the library community on waste reduction, recycling practices, and the environmental impacts of improper disposal.

15. Advocate for walking, cycling, and carpooling through educational campaigns that highlight their environmental benefits.

16. Offer remote, online services to reduce the need for physical transportation, promoting convenience and sustainability.

4.6 Social Sustainability

Social sustainability in a green library is integral to fostering a healthy and inclusive community. The library should focus on education, social engagement, and inclusion, ensuring access to information and services for all, regardless of background. To promote this vision, the library embraces diversity in both its internal operations and external offerings. By embracing these actions, the library not only promotes social sustainability but also creates a community space that is accessible, inclusive, and supportive for all.

1. Ensure that all materials, including flyers and signage, are culturally sensitive, presented in languages used throughout the community, foster an inclusive environment where everyone feels welcome.

2. Create flyers and promotional materials in clear, simple language, making them accessible to all users, including those with varying levels of literacy or language proficiency.

3. Provide simple, culturally sensitive information sessions on sustainability topics, allowing individuals from diverse backgrounds to engage and learn at their own pace.

4. Provide a home delivery service using cargo bikes, available for individuals with mobility restrictions, ensuring that everyone has access to library materials, regardless of physical ability.

5. Offer online consultation hours to ensure accessibility for those who cannot attend in person, including people with mobility issues or those living in remote areas.

6. Provide a book café as a social space, offering reading and conversation opportunities, particularly for elderly people who may be isolated.

7. Host language meetings to support migrants in learning the local language, promoting social inclusion and intercultural understanding.

8. Organise storytelling cafés, where individuals from diverse backgrounds can share stories, encouraging cultural exchange and community bonding.

9. Organise special storytime events featuring therapy dogs to engage children and encourage reading in a comfortable, non-judgemental environment.

10. Provide information about local organisations that donate or distribute food, particularly in times of crisis, to support those in need.

11. Establish a swap shelf where community members can exchange books, clothes, or other items, fostering a culture of sharing and reducing waste.

12. Participate in local fair-trade programmes, supporting ethical trade practices and promoting awareness of fair-trade products.

13. Place collection boxes for eyeglasses in the library to encourage donations, supporting people in need of eyewear, particularly in lower-income communities.

14. Install a social period box in the library, offering free hygiene and menstrual products, particularly for homeless women or those in financial hardship.

15. Prioritise working with socially responsible businesses, such as bookstores and cleaning companies that uphold ethical and sustainable practices, further reinforcing its commitment to social sustainability.

4.7 Partnerships

1. Collaborate with government non-government (NGOs) public agencies for climate or sustainability campaigns

2. Collaborate with local government agencies to align library programmes with climate and sustainability policies, providing users insight into environmental governance.

3. Create internship opportunities with local green businesses, enabling community members to gain hands-on experience in sustainability practices and apply their learning in real-world scenarios

4. Facilitate knowledge-sharing among Indigenous communities on environmental sustainability.

5. Partner with local farmers to provide agricultural education and supply sustainable meals.

6. Plan visits to eco-friendly businesses, parks, or sustainable industries where community members can learn about sustainability. Following these visits, encourage participants to create awareness exhibitions or share their experiences via social media.

4.8 Useful Resources

CILIP. 2024. ”LibrariesWeek: Downloads”. https://librariesweek.org.uk/libraries-hub/

Jankowska, Maria Anna (ed.). 2013. *Focus on Educating for Sustainability: Toolkit for Academic Libraries.* Sacramento, CA: Library Juice Press.

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Library of Things. (n.d.). "Borrow useful things for your home, projects and adventures. Library of Things.” https://www.libraryofthings.co.uk/

National Library of Australia. 2003. *Guidelines for the Preservation of Digital Heritage*. Paris: UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000130071

Pun, Raymond, and Gary L. Shaffer (eds.). 2019. *The Sustainable Library’s Cookbook.* Chicago: Association of College and Research Libraries.

United Nations International Days and Weeks. https://www.un.org/en/observances/international-days-and-weeks

5 Staff Training and Development

When establishing a green and sustainable library it is essential to develop staff understanding of sustainability and environmental stewardship. This can be achieved through the delivery of tailored training and provision of learning resources. This chapter outlines how libraries can incorporate customisable training modules and leverage free or low-cost online resources to empower employees and communities while adhering to sustainable practices.

5.1 Tailored Training for Library Staff

Effective training is key to transforming libraries into green hubs of sustainability. Tailored training modules can be designed based on the library's specific needs, budget, and staff capacity. By offering flexible, scalable, and impactful training, libraries can ensure that staff are well-equipped to support green practices, advocate for sustainable initiatives, and engage the community in eco-friendly activities.

1. Training programmes should align with the library's resources, workforce size, and sustainability goals. Smaller libraries can benefit from short, focused sessions, while larger ones may adopt more comprehensive sustainability frameworks. Practical, relevant training helps foster a culture of environmental responsibility.

2. Train staff on how to promote sustainability, such as by curating green collections, managing energy-efficient resources, or providing environmental education. Empower employees to advocate for sustainability in their daily tasks and interactions.

3. Raising awareness about environmental issues is vital. Training on topics like climate change, sustainable development, and eco-friendly practices helps employees understand their role in creating a greener library and community. This can be achieved through workshops, seminars, or online courses.

4. Training either online or in person, must itself be sustainable. This can be achieved through reuse of materials, collaboration between libraries, sharing of best practices, sharing of resources across databases or library systems, either among library partners of curated by library associations. Library associations could prepare frameworks for training.

5. Sustainable development issues should be incorportated into programmes offered by library schools and within academic teaching for librarians and information professionals.

5.2 Online Resources for Cost-Effective Training

In addition to tailored in-house training, libraries can take advantage of numerous free or low-cost online resources. These resources provide easy access to valuable sustainability education, making sustainability training accessible to libraries of all sizes and budgets.

1. Climate Fresk workshops: Libraries can promote Climate Fresk workshops to help staff better understand climate change through interactive, collaborative learning. https://climatefresk.org/world/registration-workshop/

2. Erasmus+ and EU programmes: Erasmus+ supports sustainability and environmental education projects in libraries. It offers funding and a platform to share green practices across the EU. https://erasmus-plus.ec.europa.eu/

3. Open educational resources (OERs): OERs offer free, customisable materials like courses, articles, and videos to enhance library staff knowledge on sustainable practices. Libraries should explore OER platforms for relevant sustainability content where they can follow courses at their own paces.

4. The Secret to Talking about Climate Change: The TED Talk "The Secret to Talking about Climate Change" helps library staff communicate effectively about sustainability with patrons. https://www.youtube.com/watch?v=UHPZw0zbHNE

5.3 Useful Resources

Blue Marble Librarians. https://www.youtube.com/@bluemarblelibrarians/videos

Climate Fresk: Workshop Registration. https://climatefresk.org/world/registration-workshop/

Erasmus+. EU programme for education, training, youth and sport. https://erasmus-plus.ec.europa.eu/

European Commission. GreenComp: the European sustainability competence framework. https://joint-research-centre.ec.europa.eu/greencomp-european-sustainability-competence-framework_en

The Secret to Talking about Climate Change. https://www.youtube.com/watch?v=UHPZw0zbHNE

6 Legal and Ethical Considerations

The chapter on legal and ethical issues in green and sustainable libraries provides a foundation for ensuring that these libraries function responsibly, promote inclusivity, and maintain sustainability, while mitigating risks and fostering long-term environmental and societal benefits.

6.1 Legal Considerations

1. Ensure compliance with local, national, and international environmental laws and building codes.

2. Ensure compliance with procurement laws.

3. Ensure transparency and compliance with ethical sourcing standards.

4. Ensure user privacy and security of the data collected.

5. Adhere to legal requirements for proper recycling, and disposal of green library materials.

6. Compliance with intellectual property or copyright laws for all services and products used in green and sustainable libraries.

7. Ensure workplace safety standards are met in all aspects of library operations, including in green building projects in which safety regulation should be strictly observed during construction or renovation.

6.2 Ethical Considerations

1. Ensure inclusivity and accessibility for all including community members from all socio-economic backgrounds, local cultural and language groups, age groups, gender identities, and people with disabilities.

2. Consider the accessibility needs of the community in relation to collections, and avoid over-reliance on either print or digital-only resources to ensure equity and inclusivity.

3. Embed policy and procedure to promote and safeguard transparency and accountability

4. Integrate community involvement and decision making in the sharing of Indigenous Knowledges, including Indigenous green knowledge systems.

5. Give credit where cultural information is shared and ensure it is done with community consent.

6. Adhere to privacy regulation and best-practice policy and procedure, including the ethical use of user data.

7. Incorporate FAIR principles to ensure sustainable resources are findable, accessible, interoperable, and reusable,

8. Embed CARE principles to promote collective benefit, respect for authority to control, responsibility, and ethical considerations.

6.3 Useful Resources

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7 Monitoring and Evaluation

The Monitoring and Evaluation chapter provides actionable steps for libraries to track and assess their sustainability progress. The following checklist offers a framework for libraries to systematically measure their sustainability performance while considering their unique contexts and resources. The checklist includes flexible metrics and incremental goals to foster long-term improvement and adaptability.

7.1 Monitoring Framework

1. Establish clear sustainability metrics
    - Define specific environmental, social, and economic sustainability metrics that align with the library's goals (e.g., energy usage, waste reduction, community engagement).

- Consider using SMART goals that are specific, measurable, actionable, realistic and time-based.
- Metrics should be adaptable based on the library's size and available resources.

2. Track energy consumption
    - Regularly monitor electricity, heating, and cooling usage (monthly, quarterly, annually).
    - Use energy meters and smart systems to track consumption patterns and identify areas for improvement.

3. Measure carbon footprint
    - Calculate the library's carbon footprint annually, considering direct and indirect emissions (e.g., from electricity, heating, transportation).
    - Utilise carbon calculators like those from the Edinburgh Tool Library or Finnish Library Association to support the process.

4. Evaluate resource efficiency
    - Assess water usage, waste management practices, and recycling rates.
    - Conduct a waste audit to identify the types and volumes of materials being discarded, as this will inform focus areas for waste reduction campaigns.
    - Track material consumption, especially paper and other consumables.
    - Implement digital solutions to reduce physical resource usage.

5. Assess indoor environmental quality
    - Measure air quality (CO_2 levels, temperature, humidity) in library spaces.
    - Evaluate lighting quality and the use of energy-efficient systems.

6. Monitor community engagement
    - Track participation in sustainability initiatives, workshops, and outreach programmes.
    - Collect feedback from library patrons on sustainability efforts and their satisfaction with green library practices and initatives.

7. Evaluate collection sustainability
    - Monitor the sustainability of library materials (e.g., environmentally friendly publications, recycled paper usage).
    - Assess the sustainability of library suppliers and their environmental certifications.

7.2 Incremental Goals and Continuous Improvement

1. Set short-term and long-term goals
    - Define achievable, incremental sustainability goals (e.g., reduce energy consumption by 5% in the next year, or eliminate single-use plastics).

- Ensure that these goals are realistic given the library's resources and regularly reassess them based on progress.

2. Review and adjust strategies
    - Periodically review the effectiveness of implemented strategies, adjusting when needed.
    - Involve staff in the evaluation process to gather insights and ensure alignment with operational realities.

2. Benchmarking and comparison
    - Compare performance with similar libraries or industry standards using benchmarking tools (e.g., the Sustainable Libraries Initiative or ELSA Working Group's indicators for SDGs).
    - Share findings and learnings with other libraries to foster collaboration and knowledge-sharing.

7.3 Reporting and Communication

1. Transparent reporting
    - Create regular sustainability performance reports that outline goals, strategies, progress, and challenges.
    - Make these reports publicly available to stakeholders (e.g., library users, funders, local government) to maintain transparency.

2. Use digital tools for data visualisation
    - Leverage data visualisation tools (e.g., graphs, charts, dashboards) to make sustainability metrics more accessible and understandable to all stakeholders.
    - Use online platforms and calculators (like the library sustainability Checklist) to track and communicate progress.

3. Share success stories and lessons learned
    - Highlight successful sustainability initiatives and their impact on library operations and community well-being.
    - Share case studies and lessons learned with the wider library community and the public to inspire action and motivate continued improvement.

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8 Case Studies and Best Practices

The wealth of examples awarded with the IFLA Green Library Award showcase a sample from the spectrum of possibilities. A selection of these projects and initatives are presented below. It is by no means expected that a green and sustainable library will offer the entire programme of options detailed in these Guidelines. Smaller libraries will typically choose a focal point with which they can justifiably position themselves as a “green and sustainable library”, e.g. “climate protection”, “health”, “nature and garden” or “sustainable consumption”; in each case with a designated focus on the goals of the United Nations' Agenda 2030.

8.1 Green Library/Large Scale Projects

1. Biology Library of the University of Salamanca, Spain: “Small, but Working Together it Works!” (2024). https://www.ifla.org/news/9th-ifla-green-library-award-2024-results/

   > “The Biology Library of the University of Salamanca features interdisciplinary collections in natural sciences and new media, engaging both academic and local communities. It fosters connections between university research and the broader community through activities like guided walks, conferences, and film series. Resources are shared with both the academic and local community, including equipment loans. The digital magazine “Bionoticias” shares global research on science and the environment. The Library is committed to a programme of public engagement about sustainability, partnering with environmental groups to help raise environmental awareness.”

2. Biblioteca EPM, Medellín, Colombia: Biblioteca EPM – Education for Sustainable Development (2023). https://www.ifla.org/news/8th-ifla-green-library-award-2023-results/

   > “This project truly deserves the IFLA Green Library Award, demonstrating that sustainability is at the heart of their strategy and embedded in all their activities: storytime programmes, lectures, robotics/new technology, and business

development. Through their sustainability education, they demonstrate that the goal of continuous improvement over time is what they value. A great initiative in a low-middle-income country."

3. Stadtbibliothek/City Library Paderborn, Germany: Eden – a Sustainable Library (2024). https://www.ifla.org/news/9th-ifla-green-library-award-2024-results/

   "The Stadtbibliothek Paderborn / Paderborn City Library renovated a 460-year-old building, and upcycled scrap by products for furniture. It emphasises the sharing economy with items like a seed library, food sharing programme, clothing exchange, and tool library. The Library listens to community needs, aiming incorporate their wishes into design and programming. With 80 partners, it used participatory design methods for the renovation. Programmes address food insecurity and waste, promoting sustainability across environmental, social, and economic aspects, fostering a connected, trust-based community."

8.2 Green Library Projects

1. Biblioteca Civica Villa Valle, Italy: The Seed Library (2023). https://www.ifla.org/news/8th-ifla-green-library-award-2023-results/

   "This project truly deserves to be awarded as the idea of the seed library takes on a new dimension. It influenced the city's decision to become more bee and butterfly friendly. By involving customers in decision-making processes, long-term effects on sustainable community engagement have been achieved. The programme can serve as a role model for other libraries around the world, no matter whether they are large or small."

2. Library at Priorka for Children, Kyiv, Ukraine: Ecological Space "Green Library": In Search of Eco-heroes and a Way out of the Ecological Crisis (2024). https://www.ifla.org/news/9th-ifla-green-library-award-2024-results/

   "The project excels in promoting environmental awareness among children and positions the Library as a key player in addressing the ecological crisis. It combines education, aesthetics, and practical action, creating an eco-friendly library space, based on environmentally conscious design and the use of recycled materials, and providing a diverse collection of ecological literature. Supported by charitable donations, it demonstrates grassroots commitment to sustainability. The initiative's expansion to other Ukrainian libraries highlights its broader impact. It educates, reduces environmental impact, and serves as a model for sustainable living and library management."

8.3 Special Recognition – Minimal Resources but a Big Impact

1. Colombia, Cali, Comuna 1 Cultural Center Public Library—"The Neighborhood Path" (2022). https://www.ifla.org/news/7th-ifla-green-library-award-2022-results/

   > "The Cultural Center Public Library is a fabulous project where community is the key for everything. The project includes many activities that connect people from different ages and takes care of environment, making sure that no harm will be done. Good spirit and true story telling elements can be seen from the submission. It is great to see how well people have adapted and applied the environmental aspects of this library's work. The library's commitment to offering classes to promote food security and providing alternative means of income is impressive. It has a clear mission to empower women and promote gender equality with solid connections to UN SDGs."

2. Asociación Cubana de Bibliotecarios, Villa Clara Branch, Cuba, Santa Clara, V.C.: "BiblioVerde, un espacio para compartir y aprender en armonía con la naturaleza/BiblioVerde, a space for sharing and learning in harmony with nature" (2021). https://www.ifla.org/news/6th-ifla-green-library-award-2021-results/

   > "This report presents the Biblioverde project's characterisation, a space developed by the Cuban Association of Librarians, Villa Clara Branch, where the population, in a general sense, can acquire information, skills, and knowledge about horticulture and sustainable gardening through talks, workshops, and conversations. This project was carried out with minimal resources but has a big impact."

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9 Conclusion

The IFLA Guidelines for Green and Sustainable Libraries present a roadmap for libraries around the world to adopt sustainable practices that support both environmental and social responsibility. Through the exploration of key principles, from planning and design to staff development and sustainability monitoring, the Guidelines offer libraries practical steps to reduce their ecological footprint and enhance their contribution to the global sustainability movement.

It is essential to recognise that no library is too small, too large, or too resource constrained to become a green and sustainable library. The process begins with intentional decision-making and prioritisation, acknowledging that even small changes can lead to great environmental benefits over time. Libraries of all types and sizes can make a difference, whether by embracing energy-efficient technologies, implementing eco-friendly operational practices, or fostering sustainable behaviors among their stakeholders.

As the global call to action for sustainability intensifies, libraries have an important role to play. They are uniquely positioned to model sustainable practices within their communities and act as advocates for environmental stewardship. By participating in international networks and forums, libraries can share knowledge, collaborate on solutions, and build a supportive global community dedicated to green initiatives.

Ultimately, the IFLA Guidelines for Green and Sustainable Libraries are not just a set of recommendations; they are a call to action for libraries worldwide to take responsibility and contribute to a greener, more sustainable future. By integrating these Guidelines into their operations, libraries will not only benefit from reduced environmental impact but also inspire future generations to continue the work of building a more sustainable world.

Through commitment, collaboration, and continuous improvement, libraries can lead by example and make meaningful strides towards encouraging a more sustainable, eco-conscious society. The journey toward becoming a green and sustainable library is not about reaching an end-state but about continuous improvement—one decision, one action, and one library at a time.

Appendix

A.1 Green Library Networks

1. International

    - Seed Library Network. https://www.seedlibrarynetwork.org/

2. Asia-Oceania

    - ALIA Green. Australian Library and Information Association. https://green.alia.org.au/

    - Guangdong-Hong Kong-Macau University Library Alliance. Open Science Special Interest Group. https://library.um.edu.mo/ghmula/index.html

    - LIANZA (Library and Information Association of New Zealand) Standing Committee on Climate Action. https://www.lianza.org.nz/about/what-we-do/advocacy/lianza-standing-committee-on-climate-action/

    - Public Libraries Victoria: Sustainability Special Interest Group. https://www.plv.org.au/sustainability-home/

3. Europe

    - France: Commission Bibliothèques vertes de l'Association des bibliothécaires de France Green Libraires Committee of the Association of Librarians of France. https://abf.asso.fr/4/210/981/ABF/bibliotheques-vertes et https://bib.vertes.abf.asso.fr

    - Germany: Netzwerk Grüne Bibliothek/Green Library Network. https://www.netzwerk-gruene-bibliothek.de/

    - Spain: RECIDA. https://recida.net/

    - Sweden: Svensk biblioteksförening/Swedish Library Association. Expertnätverket för bibliotekens arbete med miljö och klimat/The Expert Network for Libraries' Work with the Environment and Climate. https://www.biblioteksforeningen.se/expertnatverk/expertnatverket-for-bibliotekens-arbete-med-miljo-och-klimat/

    - Ukraine: Благодійний фонд «Бібліотечна країна»/Charitable Foundation ‘Library Country’. http://livelibrary.com.ua/

- United Kingdom: Green Libraries Network. CILIP, The library and information association. https://www.cilip.org.uk/page/greenlibraries

4. Latin America and the Caribbean

   - — [Placeholder to be used for further entries, if any]

5. Middle East and North Africa

   - — [Placeholder to be used for further entries, if any]

6. North America

   - Blue Marble Librarians in Massachusetts USA. https://guides.masslibsystem.org/ClimatePrepWeek/BlueMarbleLibrarians

   - British Columbia Library Association (BCLA). Climate Action Committee. https://bclaconnect.ca/cag/

   - Canadian Federation of Library Associations (CFLA). Climate Action Committee. https://cfla-fcab.ca/en/about/committees/cac-committee/

   - Canadian Association of Professional Academic Librarians (CAPAL). Climate Action Committee. https://capalibrarians.org/communities-of-practice/climate-action/

   - Ontario Library Association (OLA). Climate Action Committee. https://accessola.com/ola-climate-action-committee/

   - Sustainable Libraries Initiative. https://www.sustainablelibrariesinitiative.org/

   - Sustainability Round Table (SustainRT). American Library Association. https://www.ala.org/sustainrt

7. Sub-Saharan Africa

   - — [Placeholder to be used for further entries, if any]

A.2 Funding Opportunities, Grants

1. International

   - Green Crowdfunding Platforms. Crowdfunding with a focus on making an impact through sustainable initiatives. https://habitatpoint.com/green-crowdfunding-platforms/

- International Federation of Library Associations and Institutions (IFLA). “High-Impact Initiatives for the Sustainable Development Goals: Opportunities for Libraries.” https://www.ifla.org/news/high-impact-initiatives-for-the-sustainable-development-goals-opportunities-for-libraries/

- International Federation of Library Associations and Institutions (IFLA). Environment, Sustainability and Libraries Section (ENSULIB). “IFLA Green Library Award.” https://www.ifla.org/g/environment-sustainability-and-libraries/ifla-green-library-award/

2. Asia-Oceania

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3. Europe

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   - European Bureau of Library, Information and Documentation Associations (EBLIDA). 2020. *The European Structural and Investment Funds 2021–2027: Funding Opportunities for Libraries: Draft 2020.* Den Haag. https://www.eblida.org/Documents/The-European-Structural-and-Investment-Funds_%202021-2027.pdf

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- Germany: EcoCrowd. Die Crowdfunding Plattform für nachhaltige Projekte. https://www.crowdfunding.de/plattformen/ecocrowd/

- Sweden: Svensk biblioteksförening/Swedish Library Association. "Utvecklingsstödet/Development support." https://www.ecologie.gouv.fr/fonds-rt

- United Kingdom: CILIP, The library and informations association. "Green Libraries Grants." https://www.cilip.org.uk/page/GreenLibrariesGrants

- United Kingdom: CILIPS, Scotland's library and information professionals. "Green Libraries Scotland Grant Fund." https://www.cilips.org.uk/gl-grant/

4. North America

    - United States of America: CA State Library. "2024-25 Sustainable California Libraries." https://www.grants.ca.gov/grants/2024-25-sustainable-california-libraries/

    - United States of America: American Library Association (ALA)/Sustainable Libraries Initiative. "Sustainable Libraries Certification Program." https://www.sustainablelibrariesinitiative.org/about-us/program-faq

5. Latin America and the Caribbean

    - — [Placeholder to be used for further entries, if any]

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A.3 Green Library Initiatives

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2. Asia-Oceania

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3. Europe

    - Finland: Libraries.fi. “Green Library.” [These sites promotes sustainable development and environmental work in Finnish public libraries.] https://www.libraries.fi/greenlibrary?language_content_entity=en

    - Italy : Osservatorio biblioteche e sviluppo sostenibile (OBISS). https://www.aib.it/struttura/obiss/

    - Switzerland: Bibliosuisse. “Kampagne Biblio2030.” https://www.bibliosuisse.ch/aktivitaten/kampagnebiblio2030

    - Switzerland: Bibliosuissse. “Lilu’s Library. Bring die Bibliothek nachhaltig zum Leuchten - Faites briller la bibliothèque durablement - Fai brillare la biblioteca in modo sostenibile.” https://liluslibrary.ch/

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A.5 Glossary of Terms

Acidic papers: Papers that contain high levels of acid, which can cause them to deteriorate and yellow over time.

AI: Artificial Intelligence means the simulation of human intelligence in machines that are programmed to learn, and perform tasks such as problem-solving, decision-making, and language processing.

Biophilic design: Architecture and interior design that incorporates natural elements, such as plants, light, and natural materials, to enhance well-being and connect people with nature.

Carbon footprint: A negative carbon footprint of a library refers to the net reduction of greenhouse gas emissions, achieved through sustainable practices such as energy efficiency, renewable energy use, and carbon offset initiatives that exceed the library's own emissions.

Carbon handprint: A positive carbon handprint of a library refers to the measurable environmental benefits the library creates, such as reducing carbon emissions through sustainable practices, promoting green initiatives, and educating the community on sustainability.

Citizen science: A programme that engages community members in scientific research and data collection, often focusing on environmental monitoring, biodiversity, and sustainability projects to promote hands-on learning and collective action.

Cloud computing: Delivery of computing services—such as storage, processing, and software—over the internet, allowing on-demand access to data and applications without the need for local infrastructure.

CO_2 compensation: Options for traveling librarians refer to methods, such as purchasing carbon offsets or supporting environmental projects, to neutralise the carbon emissions generated by their travel activities.

DEI (diversity, equity and inclusivity): DEI in libraries means promoting diversity, ensuring equitable access to resources, and fostering an inclusive environment. It supports a sustainable future by empowering all communities and encouraging fair representation and equal opportunities.

Digital rights management: DRM refers to technology used to protect digital content from unauthorised use, copying, or distribution.

Education for sustainable development: ESD in a library context involves offering programmes, resources, and services that promote environmental awareness, social responsibility, and sustainable practices to empower individuals and communities.

Fair trade: System that ensures producers in developing countries receive fair wages, work under safe conditions, and practice sustainable methods, promoting economic equity and ethical consumption.

Fat building: Sustainable architectural design that emphasises energy efficiency, resource conservation, and adaptability, often featuring thick insulation, passive solar design, and minimal environmental impact.

Friends of the library: A group of volunteers or supporters who raise funds, advocate, and assist in promoting library services and programmes.

Global action days: Specific days designated to raise awareness and encourage collective action on global issues, such as environmental or social causes.

Green wall: Garden or plant installation that improves air quality, aesthetics, and provides natural insulation.

Hot desking: Flexible workspace arrangement where employees or users do not have assigned desks, but instead choose available workstations as needed.

HVAC: Heating, ventilation, and air conditioning, referring to systems that control the temperature, airflow, and air quality in a building.

Intelligent design: Thoughtful, data-driven approach to architecture that optimises functionality, user experience, and sustainability through advanced technology and efficient use of space.

Library of things: A collection in a library where people can borrow items beyond books, such as tools, equipment, or electronics, promoting resource sharing and sustainability.

Life cycle assessment: LCA is a systematic method for evaluating the environmental impacts of a product or service throughout its entire life cycle, from raw material extraction to disposal.

Maker space: A maker space in libraries is a creative, hands-on environment where individuals can access tools and resources to design, build, and experiment. It fosters innovation, collaboration, and learning, empowering people to develop new skills and ideas.

OCR: Optical Character Recognition is technology that converts printed or handwritten text into machine-readable digital data.

OER: Open Educational Resources are freely accessible, openly licensed materials, such as textbooks, videos, and lesson plans, that can be used, adapted, and shared to support teaching and learning.

Participatory design: Involves engaging the community and end-users in the design process, ensuring the space meets their needs while incorporating sustainable practices and fostering a sense of ownership.

Repair café: Community-driven event where people can bring broken items to be repaired, promoting sustainability, reducing waste, and fostering resourcefulness.

Sustainable Development Goals: SDGs refer to the global objectives the library supports, such as promoting environmental sustainability, education, and social equity through programmes and resources that align with the UN's 17 goals.

Sharing economy: Communal exchange of resources like books, tools, and seeds, promoting sustainability, reducing consumption, and fostering a culture of collaborative, eco-friendly living.

Sick building syndrome: A situation where poor indoor air quality, inadequate ventilation, or harmful building materials cause discomfort or health issues for occupants, such as headaches, fatigue, or respiratory problems.

Seed exchange: Event in the library where participants trade or share seeds to promote gardening, sustainability, and biodiversity.

Seed library: Collection of seeds available for borrowing and sharing, promoting sustainability, biodiversity, and local food security as part of the library's environmental and educational mission.

STEM: Programme that focuses on science, technology, engineering, and mathematics education, with an emphasis on sustainability, environmental stewardship, and innovative solutions to green challenges.

Thermal paper: Type of paper coated with a heat-sensitive material that changes color when exposed to heat, used in printers like receipt or label printers.

Thin clients: Lightweight computers that rely on a central server for processing and storage, with minimal local resources.

Universal design: Creating spaces that are accessible and usable by people of all abilities, promoting inclusivity while also incorporating environmentally sustainable features.

Urban gardening: Using limited city space to grow plants, vegetables, or herbs, supporting sustainability, food security, and environmental education within the community.

Zoning areas: Strategic division of space based on energy efficiency and functional needs, such as separating areas for natural light, heating, cooling, or specific activities to minimise energy use and enhance sustainability.