



澳門大學
UNIVERSIDADE DE MACAU
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图书馆转型促进可持续发展教育：全球视角 Transforming Libraries for Education for Sustainable Development (ESD) : A Global Perspective

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2024 Forum on Future of
World Academic Libraries (WAL)

*The Future Library with Digital Intelligence,
Openness, and Connectivity*

June 24-27, 2024
Beijing·China



A.I. TURNS THIS SINGLE BULLET POINT INTO A LONG EMAIL I CAN PRETEND I WROTE.



A.I. MAKES A SINGLE BULLET POINT OUT OF THIS LONG EMAIL I CAN PRETEND I READ.



TOM
FISH
BURNE

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The Berlin Declaration on Education for Sustainable Development states:

Education for Sustainable Development (ESD), anchored in SDG 4.7 and as an enabler for all 17 SDGs, is the foundation for the required transformation, providing everyone with the knowledge, skills, values and attitudes to become change agents for sustainable development.



《可持续发展教育柏林宣言》指出：

可持续发展教育 (ESD) 以 SDG 4.7 为基础，是所有 17 个 SDG 的推动者，是所需转型的基础，为每个人提供知识、技能、价值观和态度，成为可持续发展的变革推动者。

UNESCO (2022). *Berlin Declaration on Education for Sustainable Development; Learn for our planet: act for sustainability.*

<https://unesdoc.unesco.org/ark:/48223/pf0000381228>

Education for Sustainable Development: Towards achieving the SDGs (ESD for 2030)

It is the global framework for implementation of ESD from 2020-2030

Strategic Objectives:

With special attention to

- a) individual transformation
- b) societal transformation
- c) technological advances

• Priorities Action Areas:

- 1) Advancing policies
- 2) Transforming learning environments
- 3) Building capacities of educators
- 4) Empowering and mobilizing youth
- 5) Accelerating local level actions

A. “2030年可持续发展教育” 框架单页摘要



愿景

“2030年可持续发展教育”旨在通过加强可持续发展教育和助力实现所有17项可持续发展目标，建设一个更加公正和可持续的世界

优先行动领域

- 1) 推进政策
- 2) 改变学习环境
- 3) 增强教育工作者的能力
- 4) 增强青年权能和动员青年
- 5) 加快地方层面行动

战略目标

促进可持续发展教育，将其作为优质教育的重要部分和实现所有17项可持续发展目标的重要推动力，特别关注 a) 个体变革，b) 社会变革，以及c) 技术进步。

目标群体

政策制定者、机构领导者、学习者、家长、教育工作者、青年和社区

UNESCO (2020). *Education for sustainable development: a roadmap*. <https://unesdoc.unesco.org/ark:/48223/pf0000374802.locale=en>

Sustainability is Libraries' Business

作为肩负社会使命的机构，图书馆自然会寻求解决当今的主要社会挑战，而可持续发展是最重要的挑战。

As institutions with a societal mission, it is natural for libraries to seek to address the major societal challenges of today – and there are fewer greater than sustainability.

<https://www.ifla.org/g/sustainable-development/sustainability-is-libraries-business-libraries-and-sustainable-development/>



Exemplars, Educators, Enablers: Libraries and Sustainability

How libraries contribute to sustainability, 25 September 2018

❖ 图书馆作为范例

The Library as Exemplar

Sustainable Buildings and Practices

❖ 图书馆作为教育者

The Library as Educator

Promoting Sustainability Literacy

❖ 图书馆作为推动者

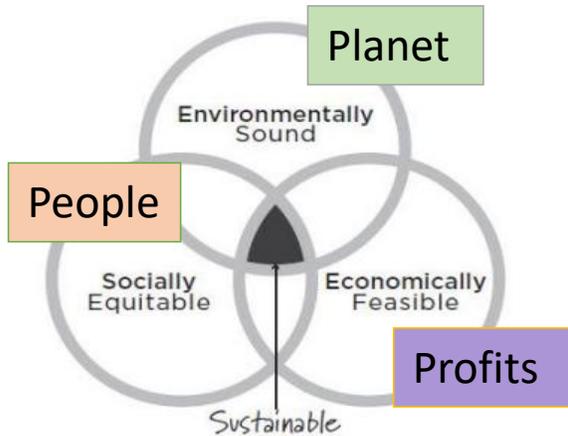
The Library as Enabler

Supporting Sustainability Research

绿色可持续图书馆

What is a green library?

Definition from the IFLA ENSULIB Section
<https://www.ifla.org/ifla-green-library-definition/>



绿色可持续图书馆是一个考虑到环境、经济和社会可持续性的图书馆。绿色可持续图书馆可以是任何规模，但它们应该有一个明确的可持续发展纲领。

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.

- 绿色建筑和设备 *Green buildings and equipment*
- 绿色办公室原则 *Green office principles*
- 可持续的图书馆服务 *Sustainable library services*
- 可持续的经济 *Sustainable economy*
- 社会可持续性 *Social sustainability*
- 环境管理 *Environmental management*
- 对总体环境目标和计划的承诺 *Commitment to general environmental goals and programmes:*



澳門大學伍宜孫圖書館

“我們正在邁向
綠色圖書館體系!”



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The central diagram is a circular chart with 12 segments, each representing a sustainability pillar. The outer ring is divided into four quadrants: Environmental management, Sustainable economy, Social sustainability, and Green office principles. The inner ring contains 12 individual segments. Surrounding the chart are various images and text boxes illustrating library practices:

- ISO 14001 環境管理系統 (Environmental Management System)
- 環境管理計劃 (Environmental Management Plan)
- 共享媒體實驗室及朗讀亭 (Shared Media Lab and Reading Nook)
- 好書交換活動 (Good Book Exchange Activity)
- 澳門環校跑 (Macau Campus Run)
- 澳門圖書館周 (Macau Library Week)
- 飲用水補給 (Drinking Water Refill)
- 澳大圖書館向公眾開放 (Macau University Library Open to the Public)
- “數字優先”圖書館館藏 (Digital First Library Collection)
- 購買環保產品 (Purchase Eco-friendly Products)
- 回收計劃 (電池, 鋁罐, 紙張等) (Recycling Program (Batteries, Aluminum Cans, Paper, etc.))
- 利用自然照明減少能源消耗 (Use Natural Light to Reduce Energy Consumption)
- 中式古董家具再利用 (Reuse of Chinese Antiques)



图书馆如何推动ESD转型?

How libraries drive transformation for ESD?

关注个人变革、社区变革及技术进步

With special attention to individual transformation, societal transformation and technological advances.

国际图联绿色图书馆奖 IFLA Green Library Award



IFLA Section
Environment,
Sustainability and Libraries

由国际图联环境、可持续性及其图书馆专业组于2016年创立
Founded in 2016 by IFLA ENSULIB

- Category 1: Best Green Library / Grand Scale Project
- Category 2: Best Green Library Project
- Special Recognition – With minimum Resources but a big impact

Objectives 目的:

- 奖励最能传达其对环境可持续性承诺的绿色图书馆/绿色图书馆项目
To reward Green Libraries / Green Library Projects that best communicate their commitment to environmental sustainability
- 提高图书馆的社会责任意识 and 环境教育领导力 To create awareness of libraries' social responsibility and leadership in environmental education
- 促进本地、区域和全球绿色图书馆计划的发展 To promote the development of green library initiatives locally, regionally and worldwide

You are here: Home > Environment, Sustainability and Libraries Section > IFLA Green Library Award

ENSULIB	
Get involved	
Projects	
Conferences	
IFLA Green Library Award	
Standing Committee Members	
NEWS	➔
EVENTS	➔
RESOURCES	➔

FOLLOW US



IFLA Green Library Award



Sponsored by De Gruyter



IFLA GREEN LIBRARY AWARD



Generously sponsored by De Gruyter Publishing, the IFLA Green Library Award is given to libraries and projects that best communicate their commitment to environmental sustainability.



Objectives of the IFLA Green Library Award

- To reward Green Libraries / Green Library Projects that best communicate their commitment to environmental sustainability
- To create awareness of libraries' social responsibility and leadership in environmental education
- To support the worldwide green library movement, concerned with

国际图联绿色图书馆奖 IFLA Green Library Award



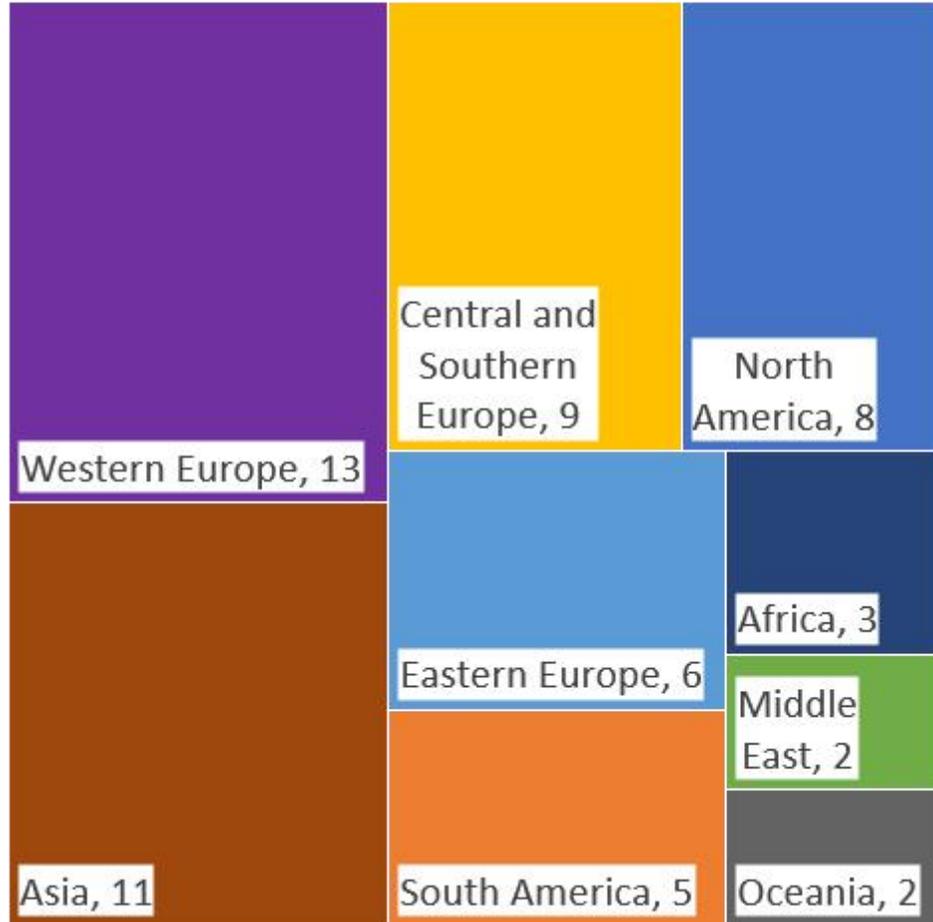
- 自2016年以来，已有收到来自全球超过300份的申请。
Since 2016, more than 300 applications have been received from around the world.
- 截至2024年6月，有59份申请获奖或进入短名单。
As of June 2024, approximately 60 applications have been awarded or shortlisted.
- 按实体建筑、空间设计、项目/服务 以及社区层面行动 探讨转型趋势
To explore the trends of transformation by *physical buildings, space design, projects and services, as well as local level actions.*

国际图联绿色图书馆奖 IFLA Green Library Award

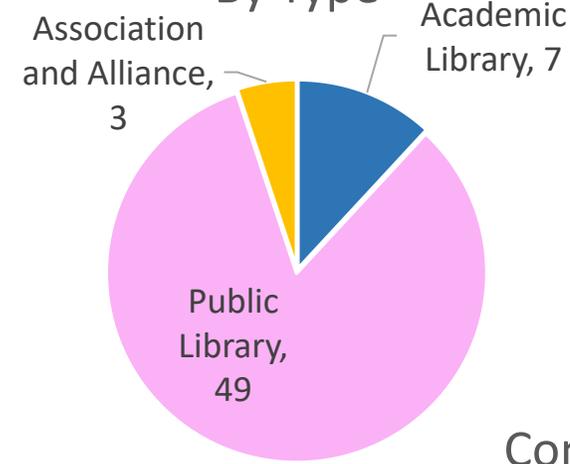
(59 winners and shortlisted submissions, 2016-2024)



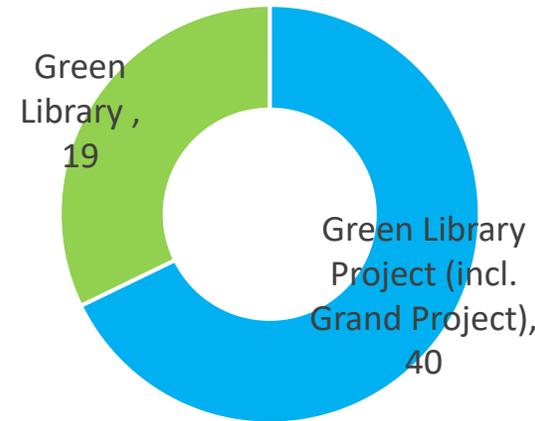
By Region



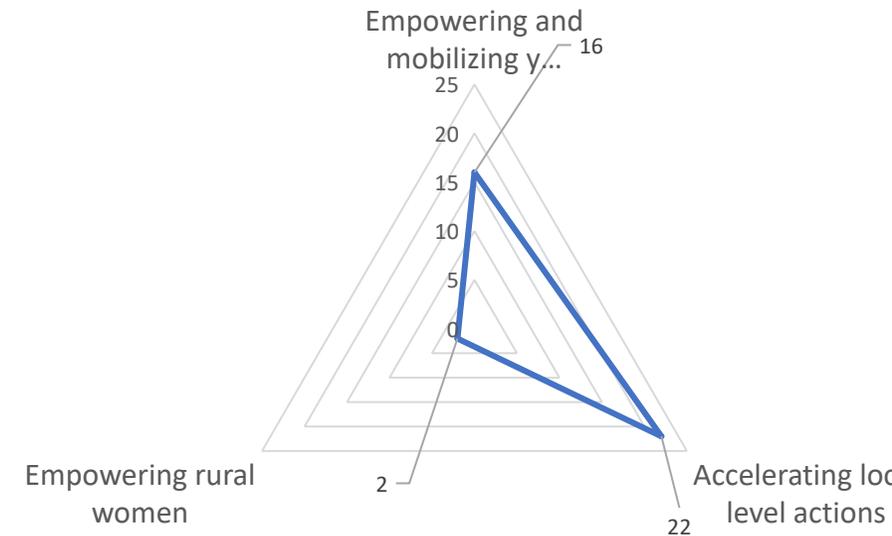
By Type



By Category



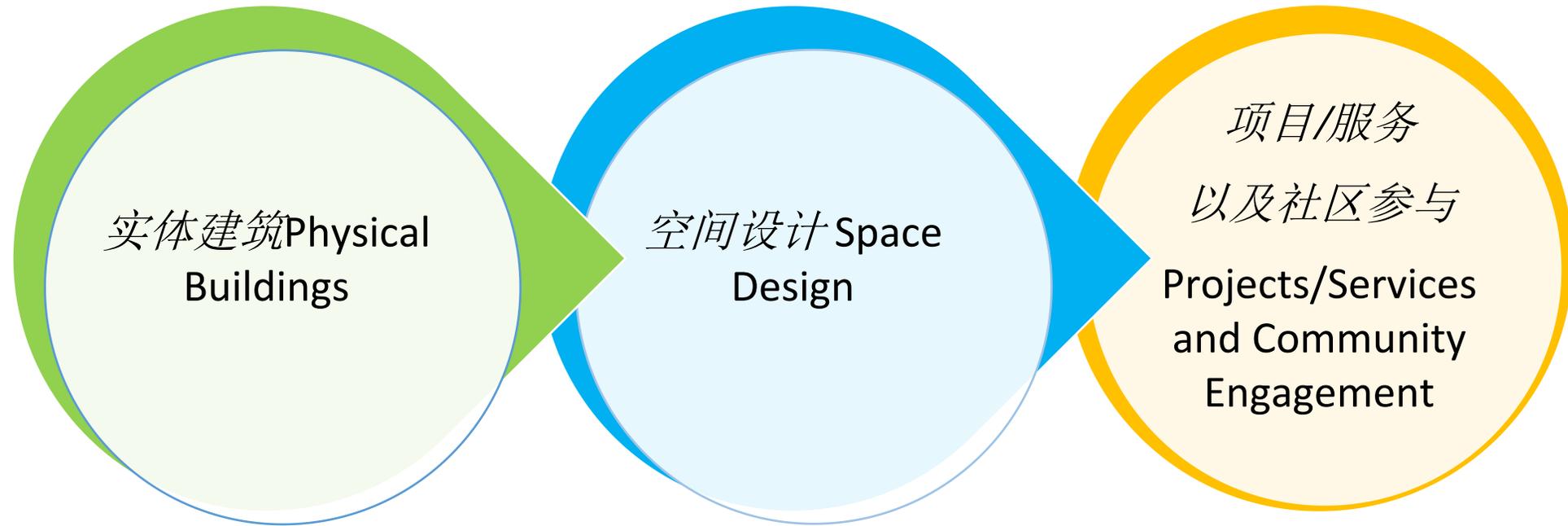
Community Engagement



国际图联绿色图书馆奖 IFLA Green Library Award



- 改变学习环境 Transforming learning environments



实体建筑 Physical Buildings

Best Practice: Canada, Edmonton, The Edmonton Public Library

EDUCATION

LEED Tours

To help educate the public on EPL's sustainability and green practices we developed an in-person and virtual tour of the Milner Library in collaboration with our architects and construction team. Customers can also access epl.ca to learn about sustainable practices and book staff-guided tours in any of our LEED facilities.

[Link to Sustainability at EPL](#)

Sustainability at EPL

Green Goals
EPL's at the forefront of the green scene. We aim to be as efficient as possible by conserving resources while building and operating our branches.

We partner with the City of Edmonton to reach Leadership in Energy and Environmental Design (LEED) Certification goals outlined in [The Way We Green Environmental Strategic Plan - PDF](#). The plan's innovative programs and initiatives help us adopt new technologies and keep us at the front of the pack when it comes to operating sustainably and responsibly.

Sharing is a fundamental part of our identity, and if there's anything we all truly share, it's our environment.

LEED Certified Buildings [Book a Tour](#)

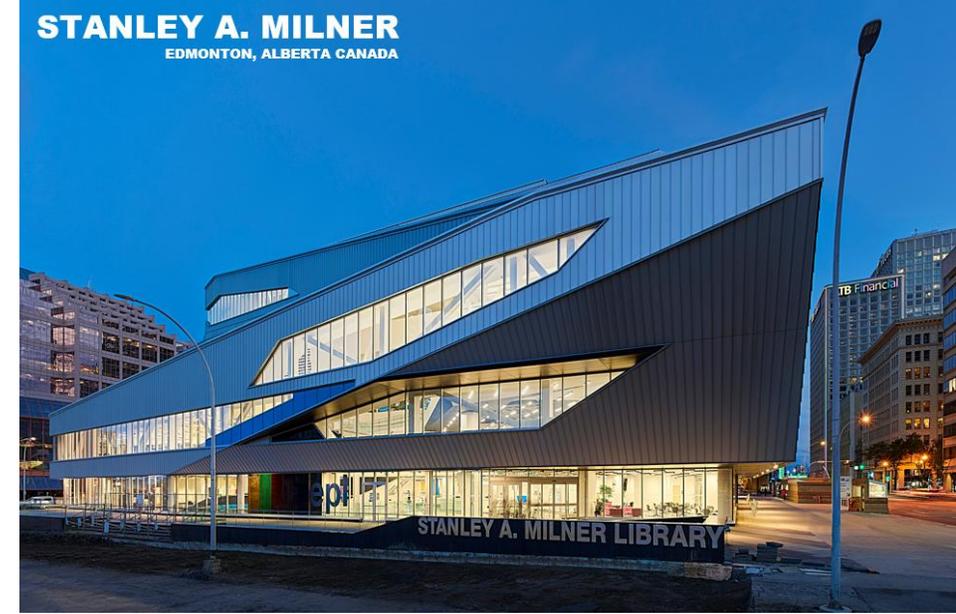
- Calder Branch
- Capilano Branch
- Highlands Branch
- Jasper Place Branch
- Lois Hole Library
- Mill Woods Branch



Jasper Place Branch



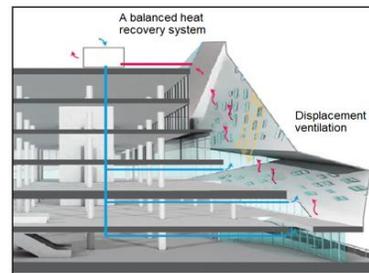
Lois Hole Library



DESIGN

Building Design

- An additional 450 windows/skylights were installed to bring in as much natural light as possible
- All new energy efficient lighting systems and HVAC/R
- The floorplan was designed to provide adaptive and versatile spaces
- Low emitting materials were selected for construction including paints, flooring, wood, adhesives, and sealants
- High albedo exterior materials were used to reduce heat island effect including Azengar Zinc exterior (Solar Reflectance Index of 39)
- A balanced heat recovery system
- HVAC systems and building envelope designed to comply with ASHRAE Standards to achieve a high level of thermal comfort for human occupancy
- Occupational wellbeing has been achieved through accessibility, acoustics, and air quality.



SW corner of the library - window quantities along with overall window sizes were dramatically increased.

ENERGY & EFFICIENCIES

By installing new highly efficient equipment, controls and building envelope, EPL was able to reduce overall consumption of utilities when compared to our previous building

Energy and Atmosphere

- Enhanced refrigerant management for HVAC/R equipment
- Energy efficient design provides an estimated 19% annual electrical savings in overall power consumption
- Energy-efficient heating system provides an estimated 25% annual natural gas use
- Light pollution reduction
- LED lighting systems installed in the public spaces and office areas
- Building controls installed throughout the facility to manage HVAC equipment and lighting systems

Water Efficiency

- Low flow fixtures deliver an estimated 32% in water use savings
- Motion activated washrooms and sinks installed



空间设计 Space Design

Best Practice: Singapore, National Library Board Singapore—[“Revamp of Choa Chu Kang Public Library”](#)

PROJECT DESCRIPTION

Approach to the Spatial Design

Themed **(Re)Connect with Nature**, the design approach sought to create an interactive space that nurture learning, discovery and sharing of Choa Chu Kang’s rich agriculture, biodiversity heritage and sustainable living.



© National Library Board Singapore
Main entrance with gated entry, lobby and Nature Walls



© National Library Board Singapore
Adult Zone and the Hydroponic Showcase



© National Library Board Singapore
Adult Zone

Featured Spaces: Lobby, Exhibition Area, Adult Zone

- Entry through the main entrance at Level 4, customers arrive at the *lobby* where self-service facilities, such as books return, reservation lockers are available during and beyond opening hours
- The gated entry allows customers to enter the *Extended Hours Service* and access library’s space beyond opening hours

- The *Nature Walls* acts as visual guide, leading customers into the different spaces while maintaining visibility between different spatial zones. The porous design of the *Nature Walls* integrates resin panels with imageries of flora and fauna extracted from the National Library’s extensive collection
- Art installations with sustainability themes, to raise awareness are placed at the lobby and exhibition area (Adult Zone).

空间设计 Space Design

Best Practice: Singapore, National Library Board Singapore—[“Revamp of Choa Chu Kang Public Library”](#)

PROJECT DESCRIPTION

Approach to the Spatial Design



Features Highlight: Design Language

- The revamped library is designed to utilize all the windows and skylights within the spaces, to allow natural light to filter through the library. Reading and study spaces are set up along the perimeter of the windows, where nature light is the most prevalent [B, C]
- The design elements are chosen to reflect the nature theme, such as leafy parasol lamp-shade [A], artificial garden lightbox [A], tree book display [D], vegetable-cart bookshelves [E], terrarium-like display [F] and mushroom lamps [G].

Features Highlight: Shared Spaces and Facilities

- The *Live-statistic Display* [H] is located at the entrance of the library, provides information on top-loans items at the library, peak period at the library, videos produced by NLB, real-time public transport information at the Mall and news updates
- Throughout the library, ample reading, study, eating areas and multimedia stations are set-up to cater for customers' usage.

项目/服务以及社区参与

Projects/Services and Community Engagement

Best practice: Slovenia, “Šentvid Library – the Green Library, Ljubljana City Library”

- In 2015 we started a test project »The Šentvid Library – green library: eco-week, each third week in a month«, which in 2017 turned into a permanent activity /became a permanent fixture on the library calendar.
- Cyclical eco-activities for children and adults have been developed to support our desire that nature protection lives with the green library all the time and is ever present.
- The library has become a green teacher.

EKO TEDEN
vsak tretji teden v mesecu



Eco-week each third week in a month



Dario Cortese, an expert on wild food and diet, presents the spring selection.

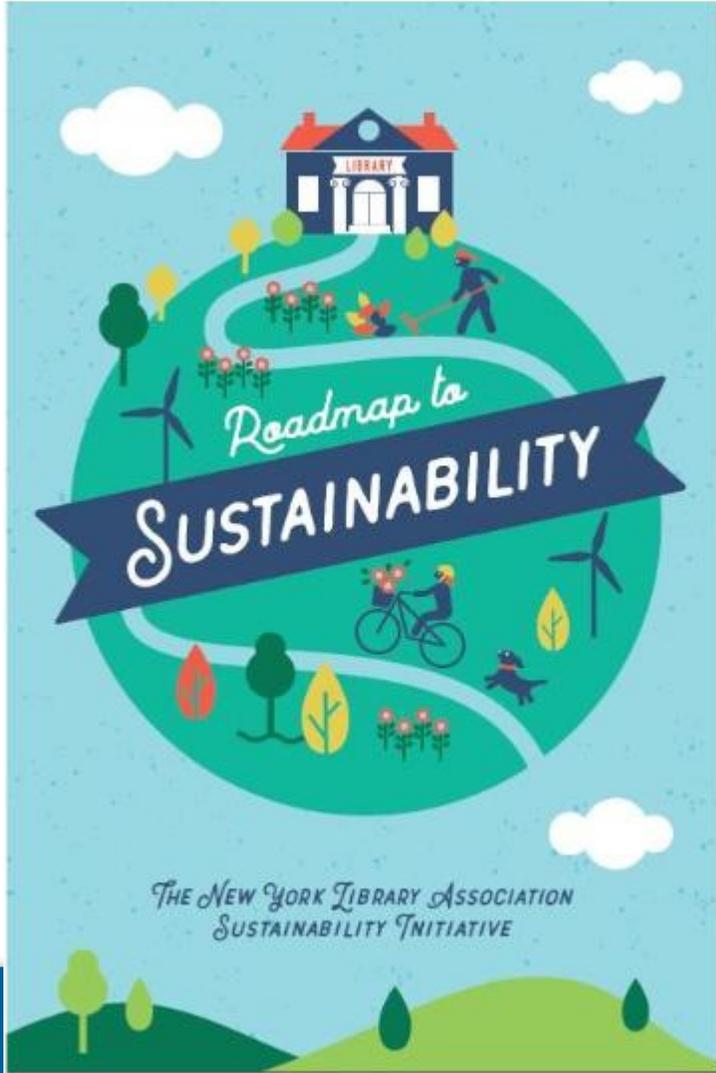


Our colleague Maša Uran explains to the children the process of planting seedlings.

项目/服务以及社区参与

Projects/Services and Community Engagement

Best practice: New York: “Sustainability Initiative of the New York Library Association”



The Roadmap to Sustainability, the first official publication from NYLA-SI, is a booklet as well as a mobile app developed for library professionals and has been used all over the world - from the New York Library Association Conference to the American Library Association Conference to Next Library in Berlin, Germany last year - to help workshop attendees capture their evolving thinking on the 3 topic of sustainability in the context of libraries...

The mobile app was developed free of charge by our partner Capira, a New York based company that donated the development time so that we can offer the app for free for iOS and Android devices.

项目/服务以及社区参与

Projects/Services and Community Engagement

Best practice: China, Hangzhou, “Our Green Mission Defend the City: Hangzhou Public Library’s Approach by Establishing Environment Branch to Get Involved”

OPERATION SCHEME

“If you have idle books or magazines on environmental protection, literature, tourism, culture and nature, we welcome you in the Environment Branch to donate them making them useful.” The Environment Branch has launched a long-term “Book Crowd-Funding” program encouraging the public to turn the “idle books at home” into the “collection in the library”. The invitation received a positive response from Hangzhou citizens. So far 3000 books has been selected out of tens of thousands and put in the “Book Crowd-Funding” shelves in the branch.



项目/服务以及社区参与

Projects/Services and Community Engagement

Best practice: Sri Lanka, Battaramulla, National Environmental Information Centre – “Protect Environment Through the Information”

• Environmental Libraries

NEIC established 25 environmental libraries in schools within the period of 2015 – 2019. Build a environmental friendly future generation is the main objective in this project. 25 Rural area district libraries selected for this programme and provided all environmental sources, materials for their school libraries.



项目/服务以及社区参与

Projects/Services and Community Engagement

Best practice: Ireland, Dublin: UCD Library, James Joyce Building, "Beyond the Lifecycle: Libraries Supporting the Circular Economy"



2023 Values in Action Award to the Library Team by UCD President, Prof Orla Feely⁴

- In line with this focus on sustainability, UCD Library, sought to **up-cycle** as much of the old furniture as possible, offering it to local communities, helping to divert it from landfill, and reducing the overall carbon footprint of the project.
- This important UCD's community engagement initiative, also helped to build and enhance UCD relationships with community-based organisations.
- The majority of the upcycled study desks and chairs, were original to the Library when it was build in the 1970's.

项目/服务以及社区参与

Projects/Services and Community Engagement

•Best practice: China, Foshan City: Foshan Library, “Reading in Green: the intelligent book stacks project”

Project Background



WHY

Why did the Foshan Library decide to launch the “Reading in Green” project ?

Saving library costs

As library resources increase year by year, many cities throughout the world are planning to build second or storage libraries to expand their space for archives and services. Nevertheless, those resource-limited cities cannot afford the expensive costs and huge resource consumption. Hence, space rental and service purchasing, coupled with intelligent technology, can serve as an alternative solution for the reduction of energy consumption as well as construction, management and labor costs.

Reducing Energy Consumption

As people who live in the countryside or far away from the public library need to drive frequently or take a bus to borrow books from the library, the use of technology allows readers to select books online and receive books by express delivery. Less travel means less carbon emissions.

Maintaining Social Fairness

According to official statistics, around 1 million people in Foshan are at the age of 60 or above, among which 700,000 are at the age of 65 or above. The number of people with a disability has surpassed 500,000. With the “Reading in Green” project, these vulnerable groups can have access to library books without leaving home.

项目/服务以及社区参与

Projects/Services and Community Engagement

•Best practice: China, Foshan City: Foshan Library, "Reading in Green: the intelligent book stacks project"

Project Implementation

» UN SDGs: 13 Climate Action



HOW

1. Automatic, energy-saving and efficient intelligent book stacks

- Saving storage space

The 4-meter space of intelligent book stacks covers an area of **1,400** m² and houses a maximum of **600,000** books.

- Reducing energy consumption

The stacks are lit by natural light and equipped with energy-saving lighting and machines to reduce the energy consumption of the building.

- Creating an ideal environment for book collection

The storage method can make the books free from dust, air pollution and catalytic oxidation of light, and prevent the occurrence of fire.



展望与挑战 Outlook and Challenges



图书馆作为提供学习环境的机构，应推进本国可持续发展教育的相关政策及举措。 Libraries as providers of leaning environment advance policies of the ESD for 2030 of your country initiatives.

图书馆作为范例，创建或转型成为绿色可持续的建筑，一般在前期阶段需要额外的经费支持，这不是所有图书馆都可以承担的。 Libraries serve as examples, creating or transforming into green and sustainable buildings generally requires additional financial support in the early stages, which not all libraries can afford.

综观前述各馆的实践，较少涉及提升教育者相关能力的案例，对馆员的相关培训及教育至关重要。 Looking at the examples and practices of the aforementioned libraries, there are few cases involving *Building Capacities of Educators*. The relevant training and education of the library staff is crucial.

绿色可持续的图书馆在全球范围的发展来看，似乎公共图书馆较其他类型图书馆更为积极。近年，高校在SDGs相关领域的科研已受到关注及重视，高校图书馆在ESD及市民科学等领域将发挥更多的效用。 Viewing from the development of green and sustainable libraries on a global scale, it seems that public libraries are more active than other types of libraries. In recent years, scientific research in SDGs-related fields in universities has received attention and importance, and academic libraries will play more effective roles in fields such as ESD and citizen science.

“教育将空虚的思想转变为开放的思想。它将信息转化为行为转变。”

“Education turns an empty mind into an open mind. It turns information into behavioural transformation.”

— Shiv Khera, an Indian author



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谢谢各位
Thank you.

Email:
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