

**IFLA Publications 161**

# **THE GREEN LIBRARY**

**The challenge of environmental sustainability**

# **DIE GRÜNE BIBLIOTHEK**

**Ökologische Nachhaltigkeit in der Praxis**

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**My Tree House**

World's first green library for kids

**DE GRUYTER  
SAUR**

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## My Tree House

### World's first green library for kids

**Abstract:** The National Library Board, Singapore (NLB) and City Developments Limited (CDL) plan to develop the world's first green library for children, named "My Tree House". This green library will be housed at the Central Public Library (CTPL) located within the National Library building in Singapore. Targeted for completion in mid 2013, "My Tree House" is driven by green principles in all facets from design, infrastructure and use of sustainable materials, to collection and programming. "My Tree House" is a unique green library purposefully conceptualized, constructed and operated with environmental sustainability in mind. CDL will provide green expertise from its vast experience of developing eco-friendly properties and integrate comprehensive sustainable practices to create a green prototype library for children. The library has been designed to create an enchanted forest ambience with fun spaces for hands-on learning and reflection.

**Zusammenfassung:** Die beiden Organisationen National Library Board, Singapore (NLB) und City Development Limited (CDL) planen die erste ‚grüne‘ Kinderbibliothek der Welt „My Tree House“. Das CDL brachte durch seine umfangreichen Erfahrungen in der Entwicklung umweltfreundlicher Immobilien einschlägige Erfahrungen ein. Sie integrierte umfassend nachhaltige Verfahren, um den Prototyp einer ‚grünen‘ Kinderbibliothek zu entwickeln. Diese grüne Bibliothek wird in die Central Public Library (CTPL) im Gebäude der National Library of Singapore integriert sein, die Fertigstellung soll Mitte 2013 erfolgen. „My Tree House“ lässt sich in allen Bereichen, vom Design, der Ausstattung und der Verwendung nachhaltigen Materials bis hin zu Sammlung und Programm, von grünen Grundsätzen leiten. „My Tree House“ ist eine einzigartige Bibliothek, die mit Blick auf ökologische Nachhaltigkeit zielgerichtet konzipiert und konstruiert wurde und entsprechend arbeitet. Die Bibliothek verbindet die Atmosphäre eines verzauberten Waldes mit Spaßflächen für spielerisches Lernen und Reflexion.

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# 1 Introduction

The National Library Board (NLB)<sup>1</sup> has embarked on a synergistic collaboration with City Developments Limited (CDL),<sup>2</sup> to build the world's first green library for children at the Central Public Library (CTPL). The objective of starting a children's green library is to inculcate from an early age a generation of green library users who will become environmentally literate adults.

CDL will be collaborating with NLB to renovate, retrofit and refurbish the Children's Section of CTPL, to be renamed "My Tree House". The target launch of "My Tree House" will be in mid 2013 to tie in with CDL's 50th anniversary as well as showcasing it at the International Federation of Library Associations and Institutions (IFLA) World Library and Information Congress to be held in Singapore in August 2013.

The team will take a holistic approach towards setting up a children's green library, encompassing infrastructure, services and programmes. Hence, this collaborated implementation of a children's green library between CDL and NLB will be a breakthrough; "My Tree House" will be the pioneer official green children's library in Singapore and the world. The library concept will stand as the first children's library to focus on environmental literacy with physical green features and will be a physical testament to the innovation of NLB and CDL.

"My Tree House" takes its name aptly from the centrepiece, which is a tree-house structure constructed with recyclable materials. It will evoke the feeling of a special place for children as featured in story books. The components will comprise, but not be limited to, aluminium cans, plastic bottles and some fibreglass content. Low VOC (which stands for Volatile Organic Compound) paints and adhesives will be used on the walls; the manufactured carpet tiles to be used will be greenhouse gas-free, and contain up to 70% recyclable materials with no

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1 [www.nlb.gov.sg/](http://www.nlb.gov.sg/). Accessed on 29 January 2013.

2 As Singapore's property pioneer for almost five decades, CDL is a listed international property and hotel conglomerate. In Singapore, CDL holds a track record of some 22,000 luxurious and quality homes and is also one of the largest landlords. The company has been leading the development of green building in Singapore through innovation since the 1990s. As a green developer and Eco-Champion, CDL is well recognized locally and globally as a corporate beacon in sustainability. It is the first Singapore corporation to be listed on all three of the world's top sustainability benchmarks: FTSE4Good Index Series (since 2002), the global 100 most sustainable corporations in the world (three consecutive years since 2010) and the Dow Jones Sustainability Indexes (World & Asia Pacific – since 2011). In advocating Corporate Social Responsibility (CSR) and its commitment to environmental sustainability, CDL focuses on engaging its stakeholders and the wider community through various platforms – including cultivating social and environmental consciousness amongst the next generation.

glue required for its installation. LED lighting, which is more energy-efficient, enhances user comfort with less overhead glare, requires less maintenance and is a greener product to manufacture, will also be used throughout the library. The library will be home to 45,000 books. Existing bookshelves, where possible, will be re-used and revamped by adding some exciting forms and features using boards, also with recyclable content. About 30% of these books will focus on green topics such as animals, plants, nature, water resources, environment and climate change. NLB plans to work with other public agencies in developing the library's collection and in using the library for environmental education and outreach. A wide range of tailored activities like games, storytelling and craft-making to spur interest in children ages 4 to 12 are being planned.

## 2 Objective

The objectives of “My Tree House” in inculcating the green concept in children is in line with CTPL's vision of being a lifestyle library situated in the Arts and Heritage District of Singapore. Recognized for its well-established fiction collection, CTPL has continuously striven to promote the concepts of art and design in the hope of being able to provide to the public the experience of a lifestyle library. Faithfully, in line with this vision of CTPL, the development of “My Tree House” will create awareness and subsequently nurture children so that they develop into green teenagers and adults with a love, understanding and appreciation of the green lifestyle. In addition, when the momentum to learn about and be aware of the green concept starts from a young age, it builds the foundation for green concepts to be incorporated continuously by choice throughout a child's life. In addition, the library will have the latest architectural green features and sustainability technologies, which is in accordance with the arts and design theme of CTPL.

The most important objective of building a green children's library is the introduction of environmental literacy. Environmental literacy refers to knowledge of pro-environment practices and then the turning of these into behaviour. Measurable gains from environmental literacy education will be green practices such as recycling, energy conservation and nature preservation. In order to achieve this objective, a two-pronged approach will be adopted – the infrastructure “hardware” and service “software”. Through incorporating the green concept in both the “hardware” and “software”, “My Tree House” aims to inculcate a strong sense of awareness, understanding and appreciation in the children for the environment and the world around them.

The “hardware” refers to the infrastructure of the “CDL Green Children’s Library”. These are the physical things the children would get to see and interact with using their five senses. The key design features of “My Tree House” will enable the children to experience the environment through their different senses, while still being in the physical space of the library. This aims to educate and thus stimulate curiosity leading to self-directed learning of environmental issues. Hence, the physical structure of “My Tree House” will be planned meticulously with strong adherence to the objectives of this whole project. The library will be built with the main aim of being the only possible place for children to enjoy such sensuous experiences as information is made accessible easily and remotely via cyberspace.

The “software” refers to the sustainable collection, services and programmes which “My Tree House” will offer for the children. Efforts in developing the “software” of the green children’s library include developing a collection that will be in sync with, and promote the objectives and aims of, the green children’s library to the target audience, providing services and programmes curated to promote the green concept to children. Collaboration with schools and organizations that are enthusiastic about green efforts will also be discussed further in this article.

In addition to developing the “hardware” and “software”, there is also a need to consider the library environment. This will include air quality, lighting, humidity control and energy-efficiency features, as well as using green construction materials to make the physical space a real “green” space.

### 3 Theme

The theme of the library will be “Enchanted Forest in the City”. Forests, being the salient imagery related to the concept of green and eco-friendliness, are appropriate as the main pillar of the first green children’s library. Coupled with our region’s perennial battle with deforestation and forest fires, the concept of forests is more familiar to children than concepts of climate change, such as the La Niña Effect, that are more pronounced in regions with four distinct seasons.

Furthermore, the symbol of the enchanted forest appears frequently in children’s fairytales (e.g. “The Enchanted Wood”, “The Magic Faraway Tree” and “The Folk of the Faraway Tree” by Enid Blyton, “The Enchanted Forest” by Jodel Abrams), providing a cohesive link from books to real life, establishing the library’s role as knowledge and service provider. The pervasiveness of magic forests in children’s literature makes it easier to provide related services (e.g. thematic storytelling and book displays).

The proposed concept is a modern twist on the enchanted forest. Apart from being eco-friendly, it is more contemporary to be eco-chic. Being eco-chic also enables users to form a bridge between what is ideal (virgin forests) and what is current (city comfort). For our target users (children aged 4 to 12), the library will offer an experience that takes them outdoors while being indoors.

## 4 Infrastructure

CDL will sponsor the design and building of the “My Tree House” based on the agreed theme and concept provided to NLB. This includes engaging their architects, interior designers, engineers, consultants, with their vast experience, to retrofit the current Children’s Section within CTPL into a Green Library for Kids. The team will use recycled materials and look into ways to improve elements of the environment such as air quality, lighting, energy and utilities efficiency. They will also ensure that the library will have eco-friendly properties and integrate comprehensive sustainable practices to create a green prototype library. The eco-directive set for this innovative first-of-its-kind project will ensure that every detail from the holistic conceptual design and infrastructure, materials used in the construction, incorporation of innovative key features, are not only sustainable but proactively reinforce the overall green concept. As such, CDL has brought together green experts and other like-minded corporations, who are leading green players in their own fields, to lend their expertise and support in this ground-breaking initiative.

As announced on 9 May 2012, the development will be led by *ADDP Architects LLP*<sup>3</sup> as the design consultant headed by Mr Tang Kok Thye, who was awarded the accolade “Green Architect of the Year 2012” by the Building and Construction Authority (BCA) of Singapore, together with ADDP’s Principal Interior Designer, Elsie Chin.

In addition, CDL has brought in *Interface®*, the world’s largest manufacturer of sustainable carpet tiles, to provide the carpeting for this library. As the leader, Interface® is widely recognized as the pioneer in sustainability globally. Inter-

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**3** Founded in 1986, ADDP Architects is a Singapore-based multi-faceted architectural practice with accomplishments of an international profile that offers a comprehensive scope of services including architectural and interior design, project administration and master planning. It is one of the first architectural firms to be certified ISO 14001 – Environmental Management System in 2005 as the management is committed to green and sustainable building design. ADDP has been awarded the BCA Built Environment Leadership Award (Gold Class Award Winner) in 2011 and also the BCI Asia Top 10 architectural firms in Singapore for 2005 to 2012.

face's commitment to the environment is embedded within the company's philosophy based on recycling existing carpets and turning them into new products with green attributes and aesthetics. The carpets will be made with up to 70% recycled content. Interface uses Life Cycle Assessment (LCA) as a tool to evaluate and improve the environmental performance of its products. The LCA also forms the basis for sustainable carpet certifications such as NSF/ANSI 140.

*Royal Philips Electronics* will be the lighting consultant and supplier of energy-efficient lighting solutions and fittings for "My Tree House". The company is a market leader in energy-efficient lighting solutions and new lighting applications.

CDL is in the process of confirming other like-minded partners who share in this vision to join the project.

One of the pivotal reasons the green library will be housed at the Central Public Library located within the National Library Building is because the building first received the "Green Mark" Platinum Award in April 2005 and subsequently in March 2009. This is the highest honour for green buildings in Singapore bestowed by the BCA. In July 2007, it also won the first prize in the ASEAN Energy Efficiency Awards under the New and Existing Building category. In May 2007, the building was given the Silver Award in the Universal Design Award from BCA, for its wide spaces, good lighting, accessibility and clarity in wayfinding.

All the collaborators, together with NLB and CDL, will work hand-in-hand to create an enchanted forest ambience with fun spaces for hands-on learning and reflection in the library. As noted above "My Tree House" takes its name from the tree house that forms the centrepiece of the library.

The design concept is based on roots: reading, observing, optimizing interactive space and senses, teaching and sustainability. The concept of roots symbolizes a deep-rooted foundation which reflects the structure of a growing young mind shooting to its maximum potential growth. This was inspired by the developmental growth of trees, which must take root in a solid foundation. The seed sprouts into a fragile shoot that must be well nurtured in order for it to mature into a fully-grown tree. This figuratively symbolizes the development of a child's brain which holds the key to the child's future and brain stimulation is critical to help a child develop and nourish his or her potential. With these in mind, re-vamping the NLB's Children's section into a green education centre is a perfect medium to get the environmental message across to children and adults alike. The main intent of the design concept is to create an enchanting and magical green space, to entice the children and make reading and learning about the environment fun, interactive and enjoyable.

Aptly named "My Tree House", there are two key features in the library. The first will be the "enchanted forest entrance" where it feels like you are entering



**Fig. 18.1:** An enchanting and magical entrance to “My Tree House”. © ADDP Architects LLP.

into a magical forest (Figure 18.1). The second focal point will be the “Tree House” itself that is strategically located at the centre of the area.

The tree house will have a mezzanine level constructed in the middle as the highlight. The tree house will be the centrepiece of the library and the “tree’s crown” will comprise an array of recycled items such as aluminium cans and plastic bottles.

“My Tree House”, from ceiling to floor, will be created using eco-friendly materials. LED lighting, which is more energy-efficient, enhances user comfort with less overhead glare, requires less maintenance and is a greener product to manufacture, will also be used throughout the library. This will be provided by Royal Philips Electronics. Existing bookshelves, where possible, will be re-used and revamped by adding some exciting forms and features using boards, also with recyclable content. The carpet, to be provided by Interface®, has been specially chosen because of its green properties. The manufactured carpet tile is greenhouse gas-free, composed of up to 70% recyclable materials. Furthermore, no glue is required for its installation. Other eco-friendly building materials such as eco-resins, recycled plastics, fibreglass will be further explored over the design development stage to achieve a holistic green approach in the creation of the green library. A glimpse of the design can be seen in figure 18.2.

The library will be divided into “active” and “passive” zones. The Active Zone will contain interactive features such as Green Activity Areas, the stage, Handicrafts



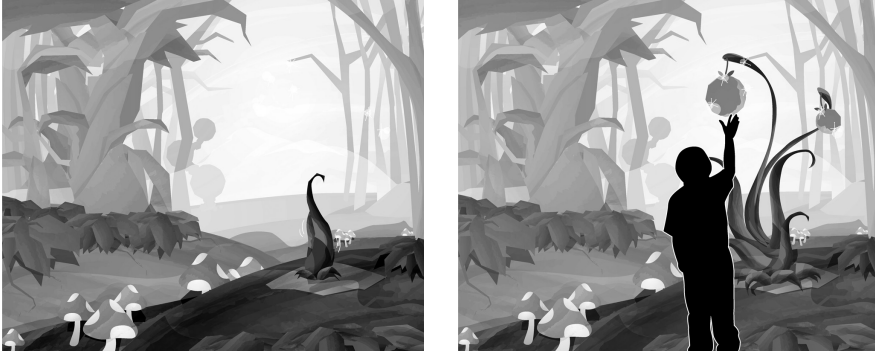


**Fig. 18.2:** Interior of “My Tree House” – An integrated green design concept.  
© ADDP Architects LLP.

Display and the Shadow Play Wall. The Passive Zone will contain primarily the collection for quiet reading, e-reading kiosks and section. The Green Activity Areas will be a space with modular furniture to allow flexibility of usage for librarians and partners to organize specific programmes such as handicrafts and science experiments. Their products or results could then be displayed in the Handicraft Display Section. The stage would be used for storytelling, performances and events for children by children.

An exciting feature of the Active Zone is one of the two key innovative installations, namely the Shadow Play Wall. The installation is an interactive projection where children interact by touching the image with their shadows. The wall projection creates a dynamic image of a mystical forest, which from time to time, sprouts new plants and fruits. By touching the fruits, the children will be asked a simple question. If they answer it correctly, the plant will grow, otherwise it will wilt. The projection programme is meant to be ambient in nature, enhancing the environment of the reading room, while subtly providing an interactive and educational eco-experience. The installation will be implemented by having an overhead projection fixed with an IR camera at the designated Shadow Play Wall. Figure 18.3 shows the artist’s impression of the service.

Besides the Shadow Play Wall, the other key innovative installation is the dendrochronology installation. The dendrochronology installation is a concept based on the scientific method of determining the age of a tree. The concept is to have an interactive installation of the “age-rings” of a tree. These rings are formed in reaction to the environment of the room, for instance, the temperature,



**Fig. 18.3a and 18.3b:** Shadow Play Wall. © Multimedia People.

humidity and so on. Each minute of human activity is recorded in this dendro-graphic ring in real time. Dendrochronology helps to deliver the eco-message and serves as a constant reminder that whatever we do, there is an environmental impact which is faithfully recorded by nature. This installation will be implemented through a projection within the “Tree of Life” area on a tree-stump. The tree-stump can be a seating area for story-tellers during events (see figure 18.4). Environmental data will be collected with devices in real-time. This tree-stump will be under the “Tree House” in between the Active and Passive Zone.



**Fig. 18.4:** Dendrochronology. © Multimedia People.

## 5 Collection

The existing children’s collection at CTPL comprises only fiction books in line with CTPL’s service concept of a lifestyle library with special focus on the literary arts. The existing collection size of 70,000 books will be scaled down to 45,000 in order to enable the re-design of the space to have more flexible space usage and also because of the emerging trend of more e-books and digital resources.

In order to complement the branding as a Green Library for Kids, non-fiction material related to the environment, nature, weather and climate change, recycling and plants needs to be incorporated into the collection. It is proposed that these books comprise 30% of the total children’s collection, with equal proportions of J(Junior) and JP (Junior Pictures) books. The collection will comprise approximately non-fiction (15,000) and fiction (30,000) books in all four languages for children aged 0–12. The breakdown is as shown in Table 18.1.

**Table 18.1:** Collection breakdown.

	English	Chinese	Malay	Tamil	Total
J Fiction	6,000	3,000	600	450	10,050
J Non-fiction	4,500	2,500	300	250	7,550
JS Fiction	9,000	0	0	0	9,000
JP Fiction	3,900	6,000	600	450	10,950
JP Non-fiction	4,500	2,500	300	250	7,550
	<b>27,900</b>	<b>14,000</b>	<b>1,800</b>	<b>1,400</b>	<b>45,100</b>

Based on the Dewey Decimal Classification (DDC), non-fiction books will be selected from the categories and corresponding DDC numbers shown in Table 18.2.

**Table 18.2:** Subject breakdown based on DDC.

Animals	597.8-636
Environment	333.7
Plants	581
Pollution	363.73, 574.52, 615.902
Recycling	363.72
Water	553
Weather	551.6

The collection will be established by amalgamating existing books from the other 22 public library branches in Singapore that have children's collections. Subsequently, the refreshing of this collection will be incorporated into CTPL's Fiscal Year 13 consolidated Collection Requirements to the Resource Discovery Management Department of NLB.

The collection will comprise children's fiction with a special focus on fairytale and folklore, as these are closely related to the fantastical element of an enchanted forest, as well as books related to animals, plants and the environment. Examples of these titles will include *The Barefoot Book of Earth Tales* by Dawn Casey, *Michael Recycle* by Ellie Bethel, and *The Last Polar Bear* by Jean Craighead George.

## 6 Services

Three new services will be pioneered along with the library interior design and features. They are the InfoBits Packages, Customized Library Tour, and Eco e-reading.

### 6.1 InfoBits Packages

To promote non-linear learning, information bits (InfoBits) relating to all things green and the environment will be displayed in the library in both an interactive and static manner. For the interactive, Infobits will be incorporated into the digital features – the Shadow Play Wall and the dendrochronology feature. In these digital features, the children can pick up information on green living and the environment through play and interaction. For the static, Infobits will also be displayed on static furnishing in the library as a permanent reminder to the children on the environmental cost of urban comfort. For example, on a wooden chair, information such as “timber from one tree is required to make two of these chairs” can be displayed. Along with static displays, special collaterals for the library will be developed. These take-home information packages will include the tips that were featured in the interactive features, as well as simple games (e.g. crossword puzzles) to enhance learning. The development of a continuous series is proposed and it will be updated every quarter. This take-home Infobit package will tie in with the Earth Hero programme that will be discussed later.

## 6.2 Customized Library Tours

Due to the multitude of new features in the library, customized library tour sessions will be designed for school visits and regular public visits. The special tour sessions will include an introduction to the key features of the library, tips on environmentally friendly practices and short activity sessions based on the abovementioned take-home information packages. For school visits, additional storytelling sessions will be included.

## 6.3 Eco e-reading

The Eco e-reading service encompasses, firstly, providing e-book content in the library and, secondly, promoting e-reading as an eco-friendly practice.

The target audience will be digital natives who will probably prefer interaction with an electronic device over books. By providing digital devices for e-reading in the Children's Library, we will attract this group of users to visit the library, and also promote the library's digital collection. Permanent e-reading kiosks are proposed to be part of the design of the Children's Library, rather than the loaning of e-devices. Sponsorship will be sought for e-devices from potential e-book vendor to sponsor digital tablets suited for their content. These vendors hold interactive read-along e-books for younger children as well as e-books for older children. Books with themes suited to the library will be selected from NLB's existing holdings for these tablets.

E-reading will be promoted as an eco-friendly practice, particularly with the sharing of e-devices and high volume of use of our e-books.

# 7 Programmes

The main programme highlights for the Green Library for Kids are user education and hands-on activities.

Special storytelling sessions will be held once a month (every second Saturday), alternating venues between the Bamboo Garden and under the tree at the library (weather permitting). After the half-hour storytelling session, a craft or hands-on session using recycled material will follow. These sessions will be designed and conducted by librarians.

NLB plans to work with other public agencies such as the Ministry of the Environment and Water Resources, National Climate Change Secretariat, National

Environment Agency, National Parks Board and PUB, Singapore's national water agency in developing the library's collection and on using the library for environmental education and outreach.

To sustain the attendance at such programmes, it is proposed to partner media such as *StarHub*, the television channel *okto* or *Singapore Press Holdings* for long-term collaboration. This will include featuring snapshots or programme highlights in the TV programmes or children's newspapers, and doing related book reviews on green topics.

To encourage return visits and participation in our programmes and services, an overarching loyalty programme has been designed, called the "Earth Hero" programme. For children aged 8–12 years old, the programme aims to engage these children through a variety of activities including attending green-themed programmes, attending stories and crafts sessions, contributing artwork and book reviews, and demonstrating environmental awareness. Upon completion of the programme, participant children will be awarded the title of "Earth Hero". "Earth Heroes" will ideally be ambassadors of the environment and be environmentally literate.

## 8 Launch programme and IFLA 2013

A launch party will be held to open the Children's Library in mid-2013. To reach out to all children, it would be important to target directly all 250 primary schools in Singapore, as well as through media engagement. It is proposed that a voting campaign with great prizes be held to entice participation from all primary school children.

A pre-launch Green Mascot Design Campaign will be open to all primary schools in Singapore, inviting students to vote for their favourite mascot for the children's library to be used for promotional and communication purposes. The voting will be held in February 2013, with the mascot announced at the official launch party in mid 2013.

The mascot campaign is not only an opportunity to engage our target audience, but also to increase awareness of the library services and programmes that will be offered. The list of services and programmes will be communicated to the schools, and teachers will be invited to pre-book guided tours and storytelling sessions for the students.

This world's first green children's library at CTPL will be showcased and marketed to all international libraries at the International Federation of Library Associations (IFLA) General Conference 2013 held in Singapore. IFLA 2013 provides

a golden opportunity to showcase the world's first green library for children on the international stage.