

IFLA Publications 161

THE GREEN LIBRARY

The challenge of environmental sustainability

DIE GRÜNE BIBLIOTHEK

Ökologische Nachhaltigkeit in der Praxis

Edited on behalf of IFLA by
Petra Hauke, Karen Latimer and Klaus Ulrich Werner

Sirirat Tinarat

Loads of scraps become precious raw materials

The Kasetsart University Eco-Library in Bangkok, a prototype
for the next generation of sustainable buildings in Thailand

**DE GRUYTER
SAUR**

Sirirat Tinarat

Loads of scraps become precious raw materials

The Kasetsart University Eco-Library in Bangkok, a prototype for the next generation of sustainable buildings in Thailand

Abstract: Being famous for Agricultural Science, Kasetsart University is commonly known as “Green Campus”. As a part of the long-term project “Kasetsart Loves the Environment”, the idea for founding an eco-library was introduced in 2010. Two years later, the first Eco-Library of Thailand was successfully completed thanks to teamwork from two departments: the office of the University Library, which wants to provide a learning area that is open to the general public, and the Scrap Lab of the Architecture Faculty, which mainly works on developing eco-friendly products. Further sponsors are local furniture manufacturers and other institutions who regularly deliver their offcuts to the Scrap Lab “Factory”. Here, loads of scraps become precious “raw materials”, challenging the instructors and students to spark their creativity for new product design. The number of visitors and on-going projects indicate that the Eco-Library is not a superficial idea that pops up, lasts for a while and then fades away. Rather, it is growing and supporting the main library, which is actively participating in the BEAT 2010 – Building Energy Award of Thailand. Both organizations are moving forward, following their green concepts to strengthen the policy of the university – environmentalism.

Zusammenfassung: Die Kasetsart Universität ist nicht nur wegen ihrer Agrarwissenschaften bekannt, sondern auch für ihren „Grünen Campus“. Als Teil des langfristig angelegten Projekts „Kasetsart Loves the Environment“ wurden im Jahr 2010 die ersten Ideen zur Gründung einer Umweltbibliothek entwickelt. Zwei Jahre später wurde die erste Umweltbibliothek Thailands als Gemeinschaftsprojekt erfolgreich fertiggestellt. Beteiligt waren die Universitätsbibliothek, die einen Ort zum Lernen für die Allgemeinheit anbieten wollte, sowie das Scrap Lab der Fakultät für Architektur, das hauptsächlich daran arbeitet, umweltfreundliche Produkte zu entwickeln. Weitere Sponsoren und Förderer sind örtliche Möbelhersteller und andere Institutionen, die ihre Fabrikabfälle regelmäßig der Scrap Lab „Fabrik“ abliefern. Die Abfälle und Altstoffe werden hier zu wertvollen Werkstoffen. Hier ist nun die Kreativität der Studenten und Dozenten gefragt, um daraus neue Produkte zu entwickeln. Die Menge der Besucher und laufenden Projekte zeigt, dass die Umweltbibliothek keine oberflächliche Idee ist, die auf-

taucht, eine Weile besteht und wieder in der Versenkung verschwindet. Ganz im Gegenteil. Die Umweltbibliothek wächst weiter und unterstützt die Hauptbibliothek, die aktiv am BEAT 2010 – Building Energy Award of Thailand teilgenommen hat. Beide Bibliotheken streben weiter voran und verfolgen ihre grünen Konzepte, um die Strategie der Universität – den Umweltschutz – zu stärken.

Sirirat Tinarat: Goethe-Institut Thailand, Mail: sirirat.tinarat@bangkok.goethe.org

1 Introducing the green campus

Talking about books and reading culture is probably not something most of us living in Bangkok are used to. Similarly, trying to make environmental concerns part of our daily lives is not easy either. Lots of campaigns and projects promoting environmental awareness seem to be in contradiction to the real situation, with condominiums and shopping-malls still springing up like mushrooms. Nonetheless, the first Eco-Library of Thailand has been set up in Kasetsart University to promote both reading and environmental awareness. The project aims to encourage everyone to enjoy reading in a room where every piece of furniture and all the ideas are characterized by environmental friendliness and energysaving. But how were the ideas formed and a sustainable library successfully achieved? Let's take a tour to get to know this green library step by step.

The Eco-Library is located in a corner of the central library of Kasetsart University (KU), Bangkok. Since environmentalism is all-important, Kasetsart University is also commonly known as "Green Campus", while the name "Kasetsart" University itself can be translated to "University of Agriculture". Having lots of trees or using green as the university's main colour is not enough to claim to be a green campus. To achieve the goal, the university has been focusing on environmentally proactive management and promoting sustainable consumption and production among the employees and students. Different eco-friendly projects have been actively running and developing. To help reduce pollution, the university provides bike and minibus services using renewable energy for traveling within the campus. To use resources most effectively, there are stations for producing compost from biomass to fertilize the gardens. These examples show that the prefix "green" is not just a fashionable buzzword here. Together with the success of the new Eco-Library, the university finds itself on the right track to help environment and energy conservation efforts.



Fig. 12.1: The colourful hanging lamps have been crafted from pieces of curtain overrun trimmings and tiebacks. The big curtain is made from leftover curtains. © R. Prommajan.

2 How did the first Eco-Library of Thailand “prosper” among the skyscrapers in Bangkok?

The Eco-Library is part of the long-term project “Kasetsart Loves/Preserves Environment” that began in 2009. The idea started from the last pieces of wooden furniture sorted out due to the renovation of the main library. Dr Aree Thunkijjanukij, who was at that time appointed as the new director, wished to adapt the old furniture to be new, usable furniture. This idea was later on realized by two main sections: the office of the University Library itself, and Scrap Lab of the Faculty of Architecture.

Scrap Lab, under the supervision of Ass. Prof. Dr Singh Intrachotoo, head of the Creative Centre for Eco-Design, mainly works with re-usable scraps, rubbish and waste. Briefly, they are interested in what people overlook and throw away. This research centre of scraps is busy bringing factories’ offcuts and re-usable waste materials back to “life”. With a PhD in Design Technology from Massachusetts Institute of Technology (MIT), Singh has been focusing on sustainable product design and architecture, and is considered one of the pioneers of ecological

designs in the country. He and his students don't only transform scraps into new products that meet functional requirements, but also blend an overall aesthetic into every piece of them. Also, they have to make sure that the process won't cause even more waste.

For the main library, it is challenging to promote reading in a new way. Students are, of course, their primary users. But what the library wanted to do was to encourage the general public to read, or at least to come into the library. This led to a brainstorming session between the head of Scrap Lab Ass. Prof. Dr Singh Intrachooto and the library director Dr Aree Thunkijjanukij. They agreed to open a new library that differed from other university libraries. The new library should meet the needs and interests of the public, be open to everyone and welcome the users with a warm cosy atmosphere. But above of all, it should be a learning centre in preserving the environment that invites people to "make friends" with our surroundings and know how to embrace them. The library has given its former storeroom on the first floor to Scrap Lab. The space of 250 m² has become a new "playground" where Scrap Lab can exercise its creativities in eco-design. The renovation began in May 2011 under the supervision of Singh. Almost a year later, the new and first Eco-Library of Thailand was successfully established, followed by the opening ceremony on 21 January 2012. They attracted public attention with a colourful fashion show supported by the Department of Environmental Quality Promotion. The models, in fact KU's students, were wearing glamorous feather-like dresses, neatly remade from scraps like plastic bottles and rubber wheels, while the Head Librarian appeared in a black dress, almost undetectably made from old inner tyres. Other eco-activities such as eco-talks were also held on that day. Both the Eco-Library and Scrap Lab are listed as top highlighted projects of the university, together with the ongoing "Green Library" and the forthcoming "Library in the Garden".

3 Stairway to the Eco-Library

Being supported by the university and demonstrating themselves to be an example of the active collaboration of two university sections is a promising start for the project. Still, Rome wasn't built in a day, just like the Eco-Library. Before the renovation had begun, the very first step was to outline some new concepts. Green concepts should play a big part in the construction, sociological and psychological aspects of the project. The ideal library would be decorated by re-used and recycled materials from the campus, or donated by others, to reduce the consumption of new raw materials and energy usage. Singh had made it clear at the



Fig. 12.2: Sponsored bank employees' uniforms that have to be changed from time to time have now turned into comfortable sofas. © R. Prommajan.

beginning that this library had to be different and not just in its architecture. It must offer a casual, home-like feeling for everyone, especially for children and young readers. The overall impression should be relaxing so that the visitors don't feel as if they are being watched by the "guardians" of the books, the librarians. Talking in a low voice is allowed as long as it is not too loud and doesn't bother other readers. This doesn't tend to turn a traditional library into an amusement park, but rather into a living space. For those who need high levels of concentration, many rooms in the main library are still available. Furthermore, the library should be accessible to general public and free of charge, even though it is a university library. With this concept, Singh aimed to make the Eco-Library a place where everyone can get involved, particularly children living in areas nearby the university. At first, the library staff couldn't agree with this. It was impossible to run the place without any security measures. But from the architect's view, there was no point in putting an effort into renovating the place if it would still offer an atmosphere like in other libraries. An acceptable solution for both the librarians' and the architects' teams was to install the RFID spot at the exit. Finally, Singh could work on the next step: gathering possibly reusable materials.

4 Sustainable designs began by looking back at “waste”

After having completed the concepts and the layout of the floor plans, the next stage was the practical part, which lasted around one year. This began by sourcing possibilities. Shortly before the idea of the Eco-Library was brought up, the library had just sold a large number of desks and tables made of fine-quality wood that could be transformed into various new products. It took some months to re-collect, or perhaps better to say re-buy, them. Anyhow, sustainable designs can't be put into practice without external sponsors. Every year, tons of offcuts are discarded by local construction sites, manufacturers, and local communities. The more they produce, the more wasted materials will be left over. Scrap Lab, however, sees and treats these things differently. “The more worthless it is, the more conceivable it becomes”, that's what Singh has said – short but to the point. That is why unwanted offcuts become “precious materials” when they meet Scrap Lab. Further sponsors for the green construction of the Eco-Library are the sources mentioned earlier. Besides the woods they have bought back, Scrap Lab has also gathered materials from the “providers” they have been working with since the founding of the lab. The manufacturer and distributor of furniture *Modern Form Group*,¹ *BSG Glass*,² the *Siam Commercial Bank*³ and the *OSISU*⁴ brand are only some examples of companies who have been sharing the idea of going green. Their partnership began when they asked Scrap Lab, as consultants, to advise them how to reduce the mountains of unwanted materials they caused. They had never known that what they considered to be waste and rubbish would return in another form after Scrap Lab has “cast a spell” on them. Nowadays, many factories and institutions are supporting Scrap Lab by donating their offcuts free of charge as well as helping with the recycling process if they can. Scrap Lab now has more “friends”, who are also aware of environmental issues and willing to make friends with the environment.

1 Modernform Group Public Company Ltd. www.modernform.co.th/. Accessed on 20 January 2013.

2 www.thaitechnoglass.com/. Accessed on 20 January 2013.

3 www.scb.co.th/en/. Accessed on 20 January 2013.

4 www.osisu.com. Accessed on 20 January 2013.

5 Let's get furnished! Let it be green!

Before discussing the green furniture, let us have a quick look at the windows. In sustainable building design, windows also play a part – both the position and materials. The locations of windows can affect the room temperature. When the space was still a storeroom, the windows were coated with dark film. Now the film has been removed to allow more natural light to pass through. However, regular energy-saving light bulbs are still needed for the reading areas. It is true that the library is not 100% eco yet, but for now it has been doing well as a prototype for the next generation of eco-friendly buildings in Thailand.

For the furnishings, Scrap Lab always keeps in mind that not everything can be re-used, recycled or reclaimed. To create a new set of accessories for the Eco-Library, they had to have a clear plan first. Just as usual, they need to know what choice of materials they are working with and that less energy will be used during the “re-production”. Sorting out the materials seems easy but this basic process is still important – it raises ideas! According to Singh, it's not just how to re-use but it's the “art of re-use”. It is about creating environmentally responsible products that are functional but also look artistically appealing so that people want to use them. While going through the sorting-out process, the Scrap Lab team can have a closer look at each kind of waste materials, see how they have been formed and decide how they should be “reborn”. Creativity is now needed. After that, it is time for carrying out some practical experiments and considering the applications of ideas. Next, they will draw up the design and make some models. The models will be remade and adjusted until the designers are sure that their final products will meet the need and function properly. For the Eco-Library, they have produced “new” furniture from offcut materials taken from several sources. The Eco-Library and the main library welcome visitors with an automatic door made by glass offcuts taken from BSG Thai Techno Glass. To add some additional interest, the glass door was printed with green and orange colours. When somebody walks by, the shades of colours will interact and make it livelier. The earth-toned bookshelves and other wooden furniture were supported by Modern Form Group. As a manufacturer and distributor of different kinds of furniture, Modern Form Group has piles of discarded wood. Some are offcuts, some are too small to be used, but none is useless for Scrap Lab. Many colourful hanging lamps have been crafted by using pieces of curtain overrun trimmings and tiebacks given by the *Bangkok retailer Grandness Co.* Some starfruit-shaped beanbags and the big curtain on the right side were made from leftover curtains.

The Siam Commercial Bank was also a big sponsor. The bank donated their employees' uniforms that have to be changed from time to time to Scrap Lab. The



Fig. 12.3: It's not just how to re-use but it's the "art of re-use". © R. Prommajan.

purple uniforms have now turned into comfortable sofas, waiting for readers to sit on. Mini stools were recycled from old tyres. The reception desk is one of the highlights. Hardly anyone would know that this robust desk with small glittery pieces shimmering on the surface was once many tiny pieces of button offcuts. As they realize that these products are actually not brand new, some might question their durability. When asked about the products' longevity in comparison with brand new ones, Singh replied with no hesitation: "They last 400–500 years, do you consider that long?" With this answer, he encouraged us to think about what happens to other large amounts of the same kinds of materials that are discarded. Why do we continue producing new mass products and overly consume raw materials taken from natural resources while there are still ways to profit from the existing ones?

Because some pieces like desks, doors, tables and chairs are not small, it's hard to imagine how Scrap Lab can re-manufacture them all. Fortunately, Scrap Lab's staff doesn't have to do everything themselves. Difficult tasks like cutting glass and wood and re-forming pieces of buttons will be carried out at the factories where the materials originally come from. They have the appropriate tools and enough manpower – but on top of that, they are willing to help. Scrap Lab does its part by consulting with them and guiding them on how to run their business according to green principles. One example, for instance, is in devising ways to adapt the machinery so there is less waste. However, Scrap Lab doesn't work with only SML⁵ manufacturers or companies, but also with craftspeople in local communities. The people get work and an income and the lab gets the products in return. However, Scrap Lab admits that not all items are made to professionally perfect standard, because they're woven by amateurs. But there is the goodwill factor to be taken into account in the background while the idea of sustainable living is brought to the fore. So far, two of the three main concepts discussed above – namely construction and sociology – have been achieved.

6 Into the Green

Bringing the Eco-Library to life is like writing a good book. The author will outline the plot, create stories, add some codes and see if and how readers can decode and understand the meaning behind. The supervising architect of the Eco-Library was probably doing the same. The library is not a showroom to display eco-products but was decorated with the intention of developing environmental

⁵ Small, medium, and large.

awareness and knowledge. To meet its targets, the space is divided into three main spaces: the common reading space for the general public, the kids' reading space and the alumni space for former students.



Fig. 12.4: One of the highlights: The robust reception desk with small glittery pieces shimmering on the surface was once many tiny pieces of button offcuts. © R. Prommajan.

The common reading space is a front room and is the biggest of the three spaces. A brief “biography” of the nature-friendly library is located at the entrance, surprising many people, especially those who never had any idea about eco-design before. The space is made up of three main parts; “Trees of Knowledge” in the middle, “Waterfall of Intelligence” on the right side and “Canyon of Discovery” on the left. The names don’t only sound creatively chic, but also imply the connection between learning and nature. In this room, “Trees of Knowledge” are the most eye-catching ones. There are two big bookshelves made from many pieces of unwanted MDF left by factories. Both “trees” (though some think they look rather like a honeycomb) are full of books on different topics, mostly on environment. People can select books from outside, go inside the trees or climb up for books on higher shelves. But being inside the trees seemed to be more comfortable, and so many people liked to sit and read in there that the staff had to put up a sign asking

users not to remain in the space because other users wanted to select and check out the books located in the trees.

Trees are a main source of water; hence the “Waterfall of Intelligence”, a big piece of curtain hung on the glass wall that separates the eco reading space from the main library’s space. On the one hand, the curtain is for decorative purposes and, on the other hand, it helps reduce echo and noise from outside. In addition, the curtain is used as a magazine holder. Magazines are inserted in parts of the curtain, inviting people sitting nearby to use them. With such creativity, grabbing a book to read can be more fun and practical.

Besides “trees” and “waterfalls”, there is also a “canyon” on the other side of the wall. The “Canyon of Discovery” has been placed under the windows where natural light shines in. Low bookshelves in different sizes and forms were used instead of identical ones in order to achieve a canyon-like effect, just in the way rivers erode the landscapes and form unpredictable shapes of canyons.

To expand their target groups, the library created two more smaller rooms which were attractively done up for children and alumni. The kids’ reading space is popular among young and adult readers. It’s always full of school students especially during the semesters. Starfruit-shaped cushions were selected instead of sofas and stools to create a playful look, and the young can lie down comfortably. Bookends were made with textiles in order to be child-friendly and soften the overall impression. In contrast, minimal decoration is preferred in the alumni space. A couple of accessories with unique designs are enough to serve its function. Information about higher education, studying abroad and careers is provided here. It is intended to be a meeting place for alumni, where they can keep in touch with each other and the university.

7 Smells like “Green Spirits”

The architects have done their best with their part of the project but to complete the overall mission, they need the participation of the main library. The library staff are responsible for services, books selection and general administration. With their services, the library wants to achieve three things.

Firstly, it aims to support long-term reading behaviour in schools, universities, families and the general public. Sometimes, Singh brings his students here and the common reading room is occasionally used as a Scrap Lab learning centre. But in particular, the library provides an opportunity for children and youths in run-down areas nearby to read and learn in a place without feeling discriminated against. Through the automatic glass door at the main entrance, people



Fig. 12.5: The “Canyon of Discovery” – Low bookshelves in different sizes and forms were used in order to achieve a canyon-like effect, just in the way rivers erode the landscapes and form unpredictable shapes of canyons. © R. Prommajan.

can either go into the main library or turn left into the nature-friendly space of the Eco-Library. The usual set-up can be seen at the main entrance: a librarian sitting behind the counter. Students and members have to scan their member cards before they enter while non-members have to pay a fee first. Meanwhile, the Eco-Library greets its visitors with a vintage off-white library card cabinet that younger people nowadays hardly recognize. Above the cabinet was placed the word “eco-library”, each of the letters was carved by wood cut-offs. The cabinet has no door, no librarian will keep her eyes on you with a suspicious look, no security guard or staff will check your bags and you won’t be asked to leave them in lockers either. One or two librarians can be found near the exit to help people with inquiries or the self-issue machine.

Secondly, the Eco-Library wants to help improve the quality of life, and grow and strengthen environmental consciousness. The library stocks approximately 20,000 volumes. Books on ecology, environment, catastrophe management etc. are the main collection and have been marked by green stickers. To meet the public interest, general collections have been removed from the main library and are being kept here instead. Textbooks are still at the main building while children’s books, comics, illustrated books, children’s and youth literature, novels and prize-winning titles amongst others can be found in the eco zone. The Eco-Library always keeps itself up-to-date and utilizes new technologies. Lately, they have just launched a new series of eco-novels online. Besides basic services like lending books, eco-activities are held regularly. Scrap Lab produces re-used and recycled things, so does the Eco-Library. The difference is just that the Eco-Library will do smaller tasks that everyone can participate in. They don’t gather materials from factories but from home or everyday life. Every month, the library’s manager will come up with a new idea for DIY (Do It Yourself). The activities are led by the library staff, who qualify by being eco-minded. Sometimes, they can even sell products from the craft activities such as coasters and bookmarks made from used plastic straws, toy puppies made from used socks and handmade notebooks decorated by old New Year cards. They once had an eco-essay competition and a book discussion. The library always changes and presents itself as a living library. It’s still trying new things and looking for possible ways to bring people closer to environmental friendliness.

Lastly, the Eco-Library focuses on being technologically independent while being environmentally benign. The library is now using a catalogue called “Jindamanee” which has been developed from Koha, a free open-source system.⁶ Jindamanee was used for the first time in 2005 by the library of the Agriculture Knowledge Centre. The research team has been continuously developing the soft-

⁶ www.koha.org. Accessed on 25 March 2013.



Fig. 12.6: Through the automatic glass door at the main entrance, people can either go into the main library or turn left into the nature-friendly space of the Eco-Library. © R. Prommajan.

ware to decrease errors. In the future, Jindamanee should be able to operate with Thai language more properly. Because the system has been functioning efficiently so far, the main library decided to try this with the Eco-Library. Every year, the maintenance of the foreign library system they are using at the moment costs the office of the university library an unnecessary amount of money and time. With Jindamanee, they can reduce the cost and solve problems better and faster because the programmers are also on the campus. The system is being piloted at the Eco-Library first before being applied with the larger system of the main library. The Eco-Library staff also help library users to become more independent by encouraging them to use the automatic self-issue machine and to renew their books online, so that they don't have to depend on the librarians all the time. We know such technologies are available and should begin to feel familiar with them. This leads to self-discipline and self-responsibility.

There are just a few conditions for using library services. Reading books within the library is free of charge but a membership card is needed if you want to borrow them. It costs 200 Baht (around €4) a year and the money will help other public libraries across the country. Unlike other places, there is one collection of books that anyone can borrow without a membership card or deposit.

Borrowers only have to write down their names and the books' titles on the list whenever they borrow and return them. Actually, what they only need is honesty. But haven't all books gone at once? According to the library's manager, this is not the case. Indeed the result is quite satisfying since over 95% of the books have been returned to the shelves and so this service will continue. With the services, the Eco-Library has realized the last concept Singh planned – the psychological aspect.

Up to now, the average number of visitors per month is 19,970. Both Scrap Lab and the library are satisfied with this significant statistic. This indicates the success of the Eco-Library and motivates the two founders to make the library even better.

8 The green roads lead from here

Covering only 250 m², the Eco-Library is not considered large, but its impact should not be underestimated. The Eco-Library is now a “role model”, inspiring the Department of Environmental Quality Promotion to renovate their library in the same way. The university library is also following the green paths the Eco-Library has paved. For the bigger area, they have to take steps little by little, one at a time. As in the Eco-Library, they first started to implant the ideas of energy saving into internal staff. The office of the director, librarians, receptionists, students, housekeepers, security guards – all get involved. With 15 projects for the construction improvement plan, they estimate to reduce around 648,000 units of energy usage, 335 tons of carbon dioxide and save about 2,200,000 Baht (€55,000) per year. What is immediately obvious is the re-installation of the lighting system. Regular bulbs and over a 100 halogen bulbs of 50 watts have been removed and replaced with energy-saving bulbs and 7-watt LEDs. In the library's offices, each member of staff is responsible for switching off a lamp over his/her work desk by just pulling a cord. Many light bulbs are not controlled by only one switch anymore. Besides the investment in the main building, a “Library in the Garden” is in progress too.

The library also expanded its green walkways to other places. Unavoidably, there was a big pile of rubbish last year, caused by the unexpectedly severe flood in Bangkok. Lots of books stayed under water for a couple of weeks, were “in coma”, which means that they are in a severe condition, and beyond rescue. Therefore, the library started another project to give new life and added value to those damaged books. In collaboration with the Faculty of Forestry the wet books were made into tables and chairs and donated to municipal libraries. As we see,

they still work with and for local communities and try to keep the circle even tighter. As for the flooding, it rarely happens that such massive amounts of water could reach Bangkok. The last time was over 15 years ago. It could be a sign that the environment was asking us to take note. That's what Scrap Lab and the Green Campus are always aware of.

9 Forever young – forever green?

Thanks to the green concepts in which the eco-library is included, the library was rewarded on the 8 March 2012 by the Building Energy Award or BEAT2010 for having reduced energy consumption by 25%. After almost a year, the numbers of visitors and the measure of energy saving have proved that the Eco-Library of Kasetsart University is not just a superficial eco-project hyped by mass media. Instead, the sustainability of the library is complementing the environmental friendliness. For Scrap Lab's staff, their mission with the Eco-Library is not over yet. They still take care of its interior and exterior architecture and plan to replace some furniture there to give it a new look, while the library staff regularly improve their services. The Eco-Library shows how sustainable design can go hand in hand with a knowledge centre like a library. We see how someone's waste can provide another's needs, how old things can become new products and decrease factories' unusable materials in order to increase opportunities for people in local communities. Eco-chains are all around us. We just have to open up our minds and let the environmentally friendly lifestyle get in. To do this, we should be responsible and care about the world we live in. That's the message the Eco-Library and its team would like to pass to everyone.

References

- Intrachooto, S. (2007). *Re-use, the art of reclamation*. Bangkok: PBM Publ. [Thai language.]
 Thunkijjanukij, A. (2011). "KU green library." [Thai language.] <http://kulc.lib.ku.ac.th/beat2010/>.
 Accessed on 24 February 2013.