



Sustainable strategies for making green image in University Libraries in Seven-Sister States, India: a study

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Abstract:

The study deals with the University Libraries in North-East Indian states (seven-sister states). The problem of the study is to find how far University Libraries in the area are practising environment safety measures to keep a green environment in the library interior and exterior premises. Study population is eight Central University Libraries and six State University Libraries in North-East India. Survey is done through a structured questionnaire based on IFLA green library guidelines as available in the book- The Green Library: the challenge of environmental sustainability edited by Petra Hauke, Karen Latimer and Klaus Ulrich Werner. The study finds some initiatives taken by these university libraries towards environmental sustainability.

Keywords: Environmental Sustainability, Green Libraries, University Libraries, North-East India, India

1. Introduction

Sustainable strategies mean planning of development through sustainable way. The present study deals with the planning of making green images in University Libraries of Seven-Sister States in North-East India. The Oxford English Dictionary defines the word 'Green' as "pertaining to, or supporting environmentalism" (Simson & Weiner, 1989).

2. Statement of the Problem

‘A green image is a good image’, the phrase expresses the significance of going green. Actually green images are nothing but an image of sustainability of environment globally. This paper focuses on the present status of sustainable environmental strategies applied in the University libraries in the seven-sister states in North-East India.

3. Survey of Literature on Green Libraries

Jackson (2012) elucidated a bibliometric analysis on green building Literature. Authors like Harrigan (2004), Latimer and Niegaard (2007), Chance (2010), Hauke and Werner (2012), Khaemba (2013), Malode (2014), Vancheswaran (2015), Latimer and Sommer (2015); Osama Ahmed Ibrahim Masood and Ahmed Khamies Mohamed Ali (2017) have described the features of sustainable building in their paper. Partidario and Belchior (2010), Lister (2011), Sahavirta (2012), Martinelli-Lee (2012) Hauke, Latimer and Werner (2013) and Park (2015) highlighted on sustainability in their studies. Trotter (2008), Vijayalakshmi (2012), Agashe (2013), Chakraborty (2013), Anglada (2014), Ochoa and Pinto (2014), Townsend (2014), Chaudhuri (2015), and Bhattacharya (2017) have emphasized on how sustainable libraries work for sustainable development. Cardoso and Machado (2015), Kumar and K.D (2014) elaborated on several aspects of green environment. Becker (2007), Abbey (2012), McAllister (2012), Shah, Kumar and Shah (2015), Dysart (2014) focused on the practices of green initiatives in the academic and other institutions. Salikuddin (2013), Siew and Carmichael (2013), Meher and Parabhoi (2017) mentioned uses of different Sustainability Reporting Tools or SRTs (like LEED for sustainable development) in different work places. Donikini (2013) defined different concepts of green marketing, green products, consumer behavior, consumer theory, eco-friendly business and green consumerism. Bruce (1995), Lennerfors, Fors and Rooijen (2015), Paul et al (2016), Radu and Laura (2017) narrated many environment friendly ICT strategies for sustainable development.

4. Objectives of the study

The main objectives of the study are

1. To find out how green images are effective in the context of environmental sustainability.
2. To find out what are the sustainable strategies planned by the library personnel and how far green images are being practiced in the University Libraries of seven-sister states in North-East India.

5. Methodology including scope and coverage

The study questionnaire has followed IFLA guidelines available in an IFLA publication entitled ‘**The Green Library: the challenge of environmental sustainability**’ edited by Petra Hauke, Karen Latimer and Klaus Ulrich Werner (Hauke, and others 2013). Modifications have been made in the original IFLA guidelines to suit the local variations. Some of the chosen parameters are wide accessibility, energy consumption, safety, flexible service, uses of acoustic insulation and recycling materials, among others. Data for the questionnaire has been collected through interview and observation by visiting the University

Libraries and by discussing with the library professionals about their policy and practices to create environmentally sustainable library.

Data on these parameters has been statistically analyzed using tabular and point score format to draw conclusions and patterns. Results, findings and interpretations have been presented using graphical/textual and other suitable formats. This paper presents only a sub-set of the results found for a doctoral (PhD) study done on the same subject. References are cited as per American Psychological Association style.

Scope and coverage

The study population is nine Central University Libraries and six State University Libraries (UGC, 2016).

6. Results and Findings

Table 1: General Information

l. No.	State	Name of the University	Name of the University Library	Library begins in	Name of the University Librarian/LIC
	Arunachal Pradesh	Rajib Gandhi University (RGU)	The Central Library	4 th December ,1998	Dr. M. Maltesh
	Assam	Assam University (AU)	Rabindra Library	21 st January 2005	Dr. Apurba Jyoti Majumder
		Tezpur University(T ZU)	Central Library	21 st November 2009	Dr. Mukesh Saikia
	Manipur	Manipur University (MU)	Manipur University Library	14 th May, 1988	Dr Th. Madhuri Devi
	Meghalaya	North-Eastern Hill University (NEHU)	NEHU Central Library	20 th September, 2000	Dr.F.R.Sumer
	Mizoram	Mizoram University (MZU)	Mizoram University Central Library	8 th January, 2008	Dr.Lalremsiami
	Nagaland	Nagaland University (NU)	Nagaland University Central Library	3 rd January 2010	Dr. T. Temjen
	Sikkim	Sikkim University (SU)	Teesta-Indus Library	24 th September, 2012	Ms. Sarbada Pradhan
	Tripura	Tripura University (TU)	Central Library	21 st November, 2009	Dr. B. Sanjay
0	Assam	Assam Agricultural University (AAU)	Rev. B.M.Pugh Library	1969	Dr. (Mrs.) S.R. Baruah

1	Assam	Bodoland University (BU)	PadmashreeModara m Brahma Central Library	2009	Mr. Khagen Kalita
2		Dibrugarh University (DU)	LakshminathBezbaroa Library	1967	Dr. Utpal Das
3		Gauhati University (GU)	K.K. Handiqui Library	1948	Mr. Wooma Sankar Dev Nath
4		Krishna Kanta Handique State Open University (KKHSOU)	Central Library	2013	Dr. Gautam Kr. Sarma
5		National Law University andJudicial Academy (NLUJA)	Library of National Law University	2017	Dr. Kankana Baishya

There are fifteen university libraries in seven-sister states in North-East India. Among these fifteen, nine are central and six are state university. Among all University Libraries, Gauhati University Library is the oldest which was established in 1948 and the newest Library is the National Law University which was established in 2017.

Table 2: Green Building Measure

Sl. No.	Name of the University	Separate Library Building	Rented building	Building Area (Sq.m.)
1	RGU	✓	X	2500 sq.m
2	AU	✓	X	2575 sq.m.
3	TZU	✓	X	4734 sq. m.
4	MU	✓	X	3200 sq. m.
5	NEHU	✓	X	5625 sq.m.
6	MZU	✓	X	4,496.62 sq.m
7	NU	✓	X	1662 sq.m.
8	SU	X	✓	900 sq. ft.
9	TU	✓	X	5415 sq.m.
10	AAU	✓	X	278 sq. m.
11	BU	✓	X	9724 sq.ft.
12	DU	✓	X	34397.07 sq.ft
13	GU	✓	X	7545 sq. m.
14	KKHSOU	X	✓	1584 sq. ft.
15	NLUJA	X	✓	650 sq. ft. approx.
Marks obtained		12	03	
Total		15	15	
Percentage (100%)		80%	20%	

Table 2 shows 80% of the University Libraries run in their own separate buildings. 20% of the University Libraries run in rented buildings. The widest area is enjoyed by Bodoland

University library among these fifteen libraries and the lowest area is assigned to AAU library.

Table 3: Sustainable Planning of Location

Sl. No.	Name of the University	Well integrate within the city	Healthy comfortable location for users	Maintain ecological criteria	Maintain ecological balance	Ecological surroundings	Score
1	RGU	X	✓	✓	✓	✓	
2	AU	✓	✓	✓	✓	✓	
3	TZU	✓	✓	✓	✓	✓	
4	MU	✓	✓	✓	✓	✓	
5	NEHU	X	✓	✓	✓	✓	
6	MZU	X	✓	✓	✓	✓	
7	NU	X	✓	✓	✓	✓	
8	SU	✓	✓	✓	✓	✓	
9	TU	✓	✓	✓	✓	✓	
0	1 AAU	✓	✓	✓	✓	✓	
1	1 BU	✓	✓	✓	✓	✓	
2	1 DU	✓	✓	✓	✓	✓	
3	1 GU	✓	✓	✓	✓	✓	
4	1 KKH SOU	✓	✓	✓	✓	✓	
5	1 NLU JA	✓	✓	✓	✓	✓	
Score obtained		11	15	15	15	15	
Total		15	15	15	15	15	
Percentage (%)		73%	100%	100%	100%	100%	

Table 3 shows that 73% libraries are well integrated within the city. In relation to healthy comfortable location, maintaining ecological criteria, balance and surroundings, all university libraries have such provisions.

Table 4: Sustainable Accessibility

Sl. No.	Name of the University	Accessible by public transport	Availability of parking place	Facilities of PWD	Internal information system in different language	User orientation facilities	Score
1	RGU	X	✓	✓	✓	✓	
2	AU	✓	✓	✓	✓	✓	
3	TZU	✓	✓	✓	✓	✓	
4	MU	✓	✓	✓	✓	✓	
5	NEHU	X	✓	✓	✓	✓	
6	MZU	X	✓		✓	✓	3
7	NU	X	✓	✓	✓	✓	
8	SU	✓	✓		✓	✓	
9	TU	✓	✓	✓	✓	✓	
1	AAU	✓	✓	X	✓	✓	

0							
1	1	BU	✓	✓	X	✓	✓
2	1	DU	✓	✓	✓	✓	✓
3	1	GU	✓	✓	✓	✓	✓
4	1	KKHSOU	✓	✓	✓	✓	✓
5	1	NLUJA	✓	✓	✓	✓	✓
Score obtained		11	15	11	15	5	
Total		15	15	15	15	5	
Percentage (%)		56%	100%	78%	100%	100%	

In relation to provision of reaching public transport, 56% libraries have such provision. In relation to Sustainable Accessibility of car parking, internal information in different language and user orientation, all libraries have such provisions. Most libraries (78%) provide facilities for PWD users. The term Differently abled Persons has also been used to denote PWD (Persons with Disability).

Table 5: Sustainability Measures

Sl. No.	Name of the University	Fat building system	Uses of solar panel	Uses of geo thermal	Preservation of rain water	Uses of less warm water	Score
1	RGU	✓		X	X	✓	
2	AU	X		X	X	✓	
3	TZU	X		X	X	✓	
4	MU	X		X	X	✓	
5	NEHU	X		X	X	✓	
6	MZU	X	✓	X	X	✓	
7	NU	X		X	X	✓	
8	SU	X		X	X	✓	
9	TU	X	✓	✓	X	✓	
10	AAU	X	X	X	X	✓	
11	BU	X	X	X	X	✓	
12	DU	X	X	X	X	✓	
13	GU	X	X	X	X	✓	
14	KKHSOU	X	✓	X	X	✓	
15	NLUJA	X	✓	X	X	✓	
Score obtained		01	04	01	0	15	
Total		15	15	15	15	15	
Percentage (%)		7%	27%	7%	0%	100%	

It is seen that 7% libraries have fat building system. Solar panel is used in 27% of libraries. Geo thermal devices are seen among 7 % libraries. Use of warm water is very rare in all these libraries. This helps in energy preservation.

Table 6: Uses of Green ICT

Sl. No.	Name of the University	Thin clients PC	Energy star printer	Uses of waiver thermal paper	Uses of recycling printer cartridge	Uses of scanning rather than paper printing	Score
1	RGU	✓	✓	X	X	✓	
2	AU	✓	✓	X	X	✓	
3	TZU	✓	✓	✓	X	✓	
4	MU	✓	✓	X	X	✓	
5	NEHU	✓	✓	X	X	✓	
6	MZU	✓	✓	X	X	✓	
7	NU	✓	✓	X	X	✓	
8	SU	✓	✓	X	X	✓	
9	TU	✓	✓	X	X	✓	
0	AAU	✓	✓	X	X	✓	
1	BU	✓	✓	X	X	✓	
1	DU	✓	✓	X	X	✓	
2	GU	✓	✓	X	X	✓	
3	GU	✓	✓	X	X	✓	
4	KKHSOU	✓	✓	X	X	✓	
5	NL UJA	✓	✓	X	X	✓	
Score obtained		15	15	01	0	15	
Total		15	15	15	15	15	
Percentage (%)		100%	100%	7%	0%	100%	

It is found that all these libraries are using the thin clients PC, energy star printer and prefer scanning rather than paper printing. So a step is taken to save more trees. Waiver of thermal paper is used by very few libraries (7%).

Table 7: Safety (internal) Measures

Sl. No.	Name of the University	Emergency exit	Uses of fire extinguisher	Alarm system	Provision of anti-theft control	Save from vandalism	Score
1	RGU	✓	✓	✓	✓	✓	5
2	AU	✓	✓	X	✓	✓	4
3	TZU	✓	✓	✓	✓	✓	5
4	MU	X	✓	✓	X	✓	3
5	NEHU	✓	✓	✓	✓	✓	5
6	MZU	✓	✓	✓	✓	✓	5
7	NU	✓	✓	✓	✓	✓	5
8	SU	✓	✓	✓	✓	✓	5
9	TU	✓	✓	✓	✓	✓	5
10	AAU	✓	✓	✓	✓	✓	5
11	BU	✓	✓	✓	X	✓	4
12	DU	✓	✓	X	X	✓	3
13	GU	✓	✓	X	X	✓	3
14	KKHS OU	X	✓	✓	✓	✓	4
15	NLUJ A	X	✓	X	X	✓	2
Score obtained		12	15	11	10	15	
Total		15	15	15	15	15	
Percentage (%)		80%	100%	73%	67%	100%	

Majority of the libraries (80%) have emergency exits. All libraries use fire extinguishers and are never faced any vandalism. Many libraries (73%) have alarm system. More than half of the libraries (67%) have provision of anti-theft control.

Table 8: Security (external) Measures

l. No.	Name of the University	Employed security staff	Security in place of collection	Availability of video surveillance	Availability of locker facilities	Multiple access control	Score
	RGU	✓	✓	✓	X	X	3
	AU	✓	✓	X	X	X	2
	TZU	✓	✓	✓	✓	X	4
	MU	✓	✓	X	X	X	2
	NEHU	✓	✓	✓	X	X	3
	MZU	✓	✓	✓	X	X	3
	NU	✓	✓	✓	X	X	3
	SU	✓	✓	✓	X	X	3
	TU	✓	✓	✓	X	X	3
0	AAU	X	✓	✓	✓	✓	4
1	BU	✓	X	✓	X	X	2
2	DU	✓	X	✓	✓	X	3
3	GU	X	✓	X	X	X	1
4	KKHSOU	✓	✓	✓	✓	X	4
5	NLUJA	✓	X	✓	✓	X	3
Score obtained		13	12	1 2	05	01	
Total		15	15	1 5	15	15	
Percentage (%)		87%	80%	80%	33%	7%	

Most libraries (87%) employed security staff to protect their territories. Place of collection is monitored in most (80%) of the cases by video surveillance. One third of the libraries (33%) provide locker facilities and only very few (7%) have multiple access control system.

Table 9: Flexibility Measures

Sl. No.	Name of the University	Enough space for change	Availability of varieties services	Provision of building extension	Provision of opening beyond library hours	External pertaining to the library areas	Score
1	RGU	✓	X	✓	X	✓	3
2	AU	✓	✓	✓	X	X	3
3	TZU	✓	✓	✓	✓	X	4
4	MU	✓	✓	✓	X	X	3
5	NEHU	✓	✓	✓	X	X	3
6	MZU	✓	X	✓	✓	X	3
7	NU	✓	✓	✓	✓	X	4
8	SU	X	✓	✓	X	X	2
9	TU	✓	✓	✓	✓	X	4
10	AAU	✓	✓	✓	✓	X	4
11	BU	✓	X	✓	X	X	2
12	DU	✓	✓	✓	X	X	3
13	GU	✓	✓	✓	✓	X	4
14	KKHSOU	✓	X	X	X	X	1
15	NLUJA	✓	✓	✓	✓	X	4
Score obtained		14	11	14	07	01	
Total		15	15	15	15	15	
Percentage (%)		93%	73%	93%	47%	7%	

Almost all libraries have left enough space for change and building extension. Three-fourth of them (73%) provides varieties of services. Almost half of them (47%) provide service beyond the library hours. But very few (7%) libraries have external open area surrounding the library building.

Table 10: Sustainable Entrance Area

Sl. No.	Name of the University	Enough visibility	Adequate door for all types of users	Visibility of vertical circulation	Visual relationship between interior and exterior	24x7 accessibility	Score
1	RGU	✓	✓	✓	✓	X	4
2	AU	✓	✓	X	X	X	2
3	TZU	✓	✓	✓	✓	✓	5
4	MU	✓	✓	✓	X	X	3
5	NEHU	✓	✓	✓	✓	X	4
6	MZU	✓	✓	✓	✓	X	4
7	NU	✓	✓	X	X	X	2
8	SU	✓	✓	X	X	X	1
9	TU	✓	✓	✓	✓	X	4
10	AAU	✓	✓	✓	X	X	3
11	BU	✓	✓	X	X	X	2
12	DU	✓	✓	✓	✓	X	4
13	GU	✓	✓	X	X	X	2
14	KKHSOU	✓	✓	✓	X	X	3
15	NLUJA	X	✓	X	X	X	1
Score obtained		14	14	09	06	0	
Total		15	15	15	15	1	
Percentage (%)		93%	93%	60%	40%	7%	

Almost all libraries (93%) have the provision of enough visibility for all types of users. Adequate door for all types of users is provided by all. More than half of them have the provision of vertical circulation. Less than half of the libraries (40%) keep provision of visual relationship between interior and exterior parts of the library. Only one library provides 24*7 services for users.

Table 11: Sustainable Building Materials Used

l. No.	Name of the University	Sustainable building materials used	Possibility of building designed remodel	Non-noisy public stairs	Uses of non-hazardous materials	Uses of perfume-free, biodegradable materials	Score
	RGU	✓	✓	✓	✓	X	4
	AU	✓	✓	✓	✓	X	4
	TZU	✓	✓	✓	✓	✓	5
	MU	✓	✓	✓	✓	X	4
	NEHU	✓	✓	✓	✓	✓	5
	MZU	✓	✓	✓	✓	✓	5
	NU	✓	✓	✓	✓	✓	5
	SU	✓	✓	✓	✓	X	4
	TU	✓	✓	✓	✓	✓	5
0	AAU	✓	✓	✓	✓	✓	5
1	BU	✓	✓	✓	✓	✓	5
2	DU	✓	✓	✓	✓	✓	5
3	GU	✓	✓	✓	✓	✓	5
4	KKHSOU	✓	✓	✓	✓	✓	5
5	NLUJA	✓	✓	✓	✓	✓	5
Score obtained		15	15	15	15	1	
Total		15	15	15	15	1	
Percentage (%)		100%	100%	100%	100%	73%	

All libraries of this study use sustainable non-hazardous building materials. All include possibility of building designed, remodeled, non-noisy public stairs. Three-fourth of them (73%) use perfume-free, biodegradable materials.

Table 12: Library Building Roof

Sl. No.	Name of the University	Uses of roof for planting artificial grasses	Uses of roof for set up solar panel project	Score
1	RGU	X	X	0
2	AU	X	X	0
3	TZU	X	X	0
4	MU	X	X	0
5	NEH	X	X	0
	U			
6	MZU	X	✓	1
7	NU	X	X	0
8	SU	X	X	0
9	TU	X	✓	1
10	AAU	X	X	0
11	BU	X	X	0
12	DU	X	X	0
13	GU	X	X	0
14	KKHS	X	X	0
	OU			
15	NLUJ	X	X	0
	A			
Score obtained		0	02	
Total		15	15	
Percentage (%)		0%	13%	

The idea of using for planting artificial grasses has yet to gain credence. Using solar energy as an alternative energy source has just started to gain root. The table shows only 13% university libraries have used their roof top for installing solar panels.

Table 13: Uses of Acoustic Materials

Sl. No.	Name of the University	Noise- free building	Noise separation possible	Uses of acoustic baffles	Special acoustic absorber used	Score
1	RGU	✓	✓	X	X	2
2	AU	✓	✓	X	X	2
3	TZU	✓	✓	X	X	2
4	MU	✓	✓	X	X	2
5	U NEH	✓	✓	X	X	2
6	MZU	✓	✓	✓	X	3
7	NU	✓	✓	X	X	2
8	SU	✓	✓	X	X	2
9	TU	✓	✓	X	X	2
10	AAU	✓	✓	X	X	2
11	BU	✓	✓	X	X	2
12	DU	✓	✓	X	X	2
13	GU	✓	✓	X	X	2
14	KKH SOU		X	X	X	0
15	A NLUJ	✓	✓	X	X	2
Score obtained		14	14	01	0	
Total		15	15	15	15	
Percentage (%)		93%	93%	7%	0%	

Consciousness about noise pollution is gradually awakening among the librarians. This is evident from the existence of noise-free building in 93% university libraries. Formation of noise zones to separate noise-free and pro-noise area is also a feature in all the libraries. Against the praiseworthy moves, a lacuna is found in the use of advanced acoustic techniques like acoustic baffles and acoustic absorber. This is evident in the use of acoustic baffles in only one library.

Table 14: Sustainable Openings

Sl. No.	Name of the University	Dimensions and location guaranteed against accidents	Thermal control based openings	Acoustics control based openings	Natural light possible	Automatic openings	Score
x	RGU	✓	✓	✓	✓	X	4
x	AU	✓	✓	✓	✓	X	4
x	TZU	✓	✓	✓	✓	X	4
x	MU	✓	✓	✓	✓	X	4
x	NEHU	✓	✓	✓	✓	X	4
x	MZU	✓	✓	✓	✓	X	4
x	NU	✓	✓	✓	✓	X	4
x	SU	✓	✓	✓	✓	X	4
x	TU	✓	✓	✓	✓	X	4
X	AAU	✓	X	X	✓	X	2
11	BU	✓	X	X	✓	X	2
12	DU	✓	X	X	✓	✓	3
13	GU	✓	X	X	✓	X	2
14	KKHSOU	✓	X	X	✓	X	2
15	NLUJA	✓	X	X	✓	X	2
Score obtained		15	09	09	15	01	
Total		15	15	15	15	15	
Percentage (%)		100%	60%	60%	100%	7%	

Location and structure of the libraries are chosen in such a way to make accident a rare occurrence, Thermal and acoustics control based openings are found in little more than half of the libraries. Prudent use of natural light has been done judiciously by all libraries. Only one library has automatic openings.

Table 15: Sustainable Interior and Exterior Light Fittings

Sl. No.	Name of the University	Uses of recycling bulb	Uses of fluorescent energy saving lamp	Uses of spot light	Set up light inside the reading table	Uses of indoor light motion sensor	Score
1	RGU	X	✓	✓	✓	X	3
2	AU	X	X	X	X	X	0
3	TZU	X	✓	✓	✓	X	3
4	MU	X	X	X	X	X	0
5	NEHU	X	✓	X	X	X	1
6	MZU	X	✓	X	X	X	1
7	NU	X	✓	X	✓	X	2
8	SU	X	✓	X	✓	X	2
9	TU	X	✓	X	✓	X	2
10	AAU	✓	✓	X	✓	X	3
11	BU	✓	✓	X	✓	X	3
12	DU	✓	✓	X	✓	X	3
13	GU	✓	✓	X	✓	X	3
14	KKHSOU	✓	✓	X	✓	X	3
15	NLUJA	✓	✓	X	✓	X	3
Score obtained		06	13	02	11	0	
Total		15	15	15	15	15	
Percentage (%)		40%	87%	13%	73%	0%	

Energy saving lights saves money in the long run. Awareness about using fluorescent energy saving lamp is prevalent (87%), though use of recycling bulbs (40%) is gradually gaining ground. Spot light is being used only in rare occasions. Use of indoor light motion sensor is yet to be practiced by any of the libraries. To aid the readers' eye-sight, lights have been set up inside the reading table in eleven libraries.

7. Conclusion

After careful analysis of the above data, it has been revealed that Central and State University Libraries of Seven-Sister States in North-East India are gradually moving towards the development of green image. Actually all these libraries are situated in the hill area. The Libraries have different barriers like climatic conditions, low bandwidths and other communication problems. But these remote provinces still enjoy an instinctive, cultural bond with nature. So the library authorities, as well as the government, took many fruitful initiatives to save environment and also to develop entire North-East India. We found from the tables that installation of solar panel is the most important step to go with green or sustainable environmental image by Tripura University Library and Mizoram University Library. These libraries use non-conventional energy as well as preserve solar energy for future use. Among the six State University Libraries, Assam Law University and Judicial Academy and Krishna Kanta Handique State Open University have very effective sustainable strategies for making green library image. Environmental sustainability is deeply related to global warming which has direct effects on global environment. So, global warming and greenhouse gases (CO₂, CH₄, CO, CFC/CFM) could be reduced by practicing green environment in libraries. In this way, Library and Information Centres and services both will be sustained.

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