

How to Create Sustainable Campus Assessment System

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Campus in the City – Look like a public park



Area: 178 ha Floor Space: 740,000 m² Population: 22,000 (18 000 students, 4 000 staffs)



HOKKAIDO UNIVERSITY

Spatial structure

Historical Building and Open Space

poplar avenue, farm and the mountain Ging



Central Mal

Public Space









3

Vaterfront

Building setting for campus people



Wood deck of University museum

Studio of Architectural Course



HOKKAIDO UNIVERSITY

Correspondence and relation with society, community



Matching for Future development



Campus in the City

Need for good relationship between campus and city





What is Sustainable Campus

Why we try for a sustainable campus?





HOKKAIDO UNIVERSITY

Scope of Sustainability and Role of University





HOKKAIDO UNIVERSITY

Campus Master Plan 2006



Strategy for creating sustainable campus in University









International Comparison of Existing System

Condition of assessment system in the world

	Organization	Reagion	Participants	Version	Characteristic
STARS	AASHE	Northern America and Canada	666	2.0	 Self- assessment system Introduce good practices Lead toward achievement better results common assessment indicator The tool for better understanding of comprehensive sustainability
UNI-Metrics	Politecnico di Torino Vrije Universiteit Amsterdam University of Cambridge Hokkaido University		4 (Research Project)		Objective area of assessment is both campus and surrounding community
UI GreenMetric World University Ranking	University of Indonesia	Aisa, Europe, U.S.	178	3.0	There is deflection of physical categories. This system is totally ranking system.
College Sustainability Report Card	Sustainable Endowments Institute	U.S., Canada	over 300	4.0	Using existing indicators which are consist of environmental report Easy to refer to how to create sustainable campus
Green League	People & Planet	England	152	liaber	There are four classes. Totally ranking system This system puts special emphasis on environmental policy.



To be leading assessment system in the world

Representative data collection, assessment system and organization in the world

- 2007 College Sustainability Report Card (U.S.)
- 2007 Green League People and Planet (UK)
- 2007 International Sustainable Campus Network
 (EU + U.S. + Asia)
- 2008 Princeton Review Green Rating (U.S.)
- 2010 AASHE STRAS (U.S. + Canada)
- 2010 UI Green Metric Ranking (Indonesia)



Comparison of indicators of existing system

Curriculum AC1 Academic Courses AC2 Learning Outcomes	1.0 CODE	CODE	CLUSTER	B
AC1 Academic Courses AC2 Learning Outcomes			5 AG	P
nos claiming outcomes	ER5-8	A1	īg	E
AC3 Undergraduate Program	ER10	-	NN.	E
AC4 Graduate Program	ER11		RC	P
AC5 Immersive Experience	ER12		SUP.	
AC6 Sustainability Literacy Assessment	ER13		LISE USE	Ľ
AC7 Incentives for Developing Courses	ER14		ÉQ	N
AC8 Capus as a Living Laboratory		A2	E A	P
Research			> ~	Ρ
AC9 Academic Research	ED15-17	A3	Ó	F
1010 0	Litto-II		TAT	C
AC10 Support for Research	ER18	A4	E E	F
AC11 Access to Research			Ę	E
	ER19		~	ł
Engagement				1
				h
Campus Engagement				E
EN1 Student Educators Program		45.0	E.	L
EN2 Student Unentation		A5-6	W	S
EN3 Student Life			Ĕ	k
EN4 Outreach Materials and Publications			Ž	E
EN5 Outreach Campaign		A7	Ë	h
EN6 Employee Educators Program		A8	E E	9
EN7 Employee Orientation			B	F
Eino olaii Protessional Development		-	E	R
Public Engagement			L.	ſ
EN9 Community Partnerships	PAE19	A9	×	R
	-		NC	Ľ
ENITY Inter-Campus Collaboration	nAE20 DAE21	A10	8	f
care continuing coucation	AE21	AIU	Ĕ	L
EN12 Community Service	PAE22		H	R
EN13 Community Stakeholder Engagement	. mak		Υŝ	1
EN14 Participation in Public Policy			5	1
EN15 Trademark Licensing	PAE25		NAU	F
EN16 Hospital Network			ð	F
Operations				1
Air and Climate				E
OP1 Greenhouse Gas Emissions	OP4-5	P1		Ļ
OP2 Outdoor Air Quality		-		L
Buildings		D2		F
0P3 Building Operations and Maintenance	UP1	P0	ES	H
OP4 Building Design and Construction	OP2	P2	5	E
OP5 Indoor Air Quality	OP3		E	A
Dining Services		-	se v	9
OP7 Low Impact Dision	070	-	NO	F
or reconstructioning			ATTA	1
Energy			nc.	E
OP8 Building Energy Consumption	OP7	P6	G	L
OP9 Clean and Renewable Energy	OP8	P7	Ч	L
Grounds			Ě	
OPto Landscape Management		P8 D0	FL	P
orn biodiversity		10	ng ng	
Purchasing			Ŭ	a
				N
OP12 Electronics Purchasing	OP10			10
OP14 Office Paper Purchasing	OP12		GR	E
OP15 Inclusive and Local Purchasing			Ξ	Ľ
and a constant with course of this high			S NO	E
OP16 Life Cycle Cost Analysis			SSICH	Г
OP16 Life Cycle Cost Analysis OP17 Guidelines for Business Partners			AR	P
OP16 Life Cycle Cost Analysis OP17 Guidelines for Business Partners Transportation	001	-	SE	P
OP16 Life Op16e Cost Analysis OP17 Guidelines for Business Partners Transportation OP18 Campus Reet Op19 Suddent Community Model Stalit	OP14 OP15	P14		P P
OP16 Life Octor Academic Of Diagnage OP17 Cuickelines for Business Partners Transportation OP18 Campus Fleet OP18 Student Commute Modal Split OP29 Student Commute Modal Split OP29 Student Commute Modal Split	OP14 OP15	P14	æ	e le le le
OP16 Life Octo Analysis OP17 Cuidelines tor Cost Analysis OP17 Cuidelines tor Eurose Partners Transportation OP18 Campus Rest OP19 Student Commute Modal Split OP19 Student Commute Modal Split OP10 Student for Superioritation Interpretation	OP14 OP15 OP16	P14 P14 P15	æ	
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					reenweulic world Or
CODE	INDICATOR	CODE			
1.01	Natural landmark		1.3	Sett	ing and Infrastructure
1.02	Environmental harmony			511	Open space area / total a
1.03	Urban renewal		- H	512	Open space area / total p
1.04	Community's memories	P12			Total electricity use / total people
1.05	Compus density	P3		_	Total bicycle found / total people
1.07	Re-use of previously occupied and contaminated land for buildings and				Courses minted (total course
1.07	Infrastructure				
1.08	Green Plot Ratio	P8	- 14	_	Hesearch fund related / total resea
1.09	Percentage of preserved existing area on total	P10			Persentage of university budget for
1.10	Percentage of connected green areas over the total	P11	- 14		Publication related
L11	Pervious surface				Event related
					Organization related
1.12		DIE	-		Surtainability Mabrita
	Lengur of sale bicycle routes per capita	P15		_	-
EF.01	Certified built environment	P2-3	-	513	Area on campus covered
EF.02	Pith of outdoor areas	P13		514	Area on campus covered
EF.03	Sewage management level			SI5	Non-retentive surfaces /
EF.04	Water resource management level	P18		516	Sustainability budget / total univers
EF.05	Water consumption level	P18	2.1	Ene	rgy and Climate
FE OS	Rate of wastewater collection and treatment	P17		EC1	Energy efficient appliances usage
EF.07	Wastewater sent out of the zone to municipal treatment plants			C2	Renewable energy usage
EF.08	Energy consumption level	P6		EC3	Total electricity use / total people
EF.09	Energy sustainability	P7		EC4	Energy conservation prog
EF.10	Climate change mitigation	P1		EC5	Green building element
	CO2 balance	P1			Climate change adaption and mitig
EF.11	Menter and a March	247		C6	0
EF.12	Waste production	P17		EC7	Greenhouse gas emission
EF.13	Food sovereignty	P19			forest
EF.14	Percentage of population less than 300 m away from services				Percentage of area on campus cov
EE 15	Accessibility to the public transport	P16			Policy to reduce the use of paper a
EF 16	Average distance between intersections	_		_	Policy for a smoke-free and drug-fr
FE 17	Contiguity of bicycle and car routes	P15	3.1	Nas	te
EF.18	Fuel efficiency of university vehicles			NS1	Recycling program for un
EF.19	Low emissions university vehicles			NS2	Toxic waste recycling
EE 20	Eaculty/Staff modal split	P14		1100	Organic waste treatment (garbage)
EE 21	Bicycle sharing	P15		NGA	Inorganic waste treatment (rubbish
FE 22	Campol matching			NS5	Sewerage disposal
ED.01	University affordability			NS6	Policy to reduce the use of paper a
ED 02	Accessibility to an international university education		4.	Wa	ter
ED 03	Accessibility to education	A10	- Ť	NR1	Water conservation prog
	Internetional metallity	61			Retention: non-retentive surfaces of
ED.04	International mobility	- 01	- H		area
ED.05	enrolled foreign student			NR2	Piped water
ED.05	Job Potential	S1	5.	Trar	sportation
ED.07	ICT device use			IR1	Total car entering / total people
ED.08	Broad band access			TR2	Iotal bicycle / total people
					Transportation policy on
ED.09	Wi-fi spread	-	- H	IH3	Transportation policy on
ED.10	Web-service accessionly			104	Campus burgs
ED.11	Onen data accessibility level	\$2		rps	Ricycle and nedestrian n
ED 12	Perioded paper une	02	6	Edu	ication
ED.14	Energy consumption and CO2 emissions awareness			ED1	Sustainability courses / to
					Sustainability research fu
ED.15	Sustainability Commitment			ED2	funding
ED 10	Sustainability courses (degree+Ph.D.)	A1	1	502	Sustainability publications
ED. 16	Percentage of funded international research	42	H	203	Sustainability events
P.02	Percentage of funded international research projects	43	H	EDF	Sustainability organizatio
B.02	Funding rate	44	H	EDE	Sustainability website
0.04	Description and the				Sustainability website
R.05	Technology Transfer level	A11			
R.06	Sustainability Transfer level				
R.07	Technology Innovation	A2			
R.08	Agreement and contract				
R.09	Industrial involvement activities	A11-12			
R.03 R.04 R.05 R.06 R.07 R.08 R.09	Funding rate Desemption activ Technology Transfer level Exchanology Innovation Technology Innovation Appendix at contrast Industrial Involvement activities	A4 A11 A2 A11-12		ED6	Sustainability website
	CODE Control 1 102 102 1 102 <	CODE Recurstories CODE Recurstories<	CODE MICRATOR CODE Code Microardian Code District Networks P10 District Networks P11 District Networks P11 District Networks P11 District Networks P12 District Networks P13 D	CODE CODE <td< td=""><td>CODE MACCION CODE CODE CODE CODE 1.5 etc. Data Marcine materia PD 1.5 etc. 1.5 etc. Data Constructive and management and management</td></td<>	CODE MACCION CODE CODE CODE CODE 1.5 etc. Data Marcine materia PD 1.5 etc. 1.5 etc. Data Constructive and management

System

Condition

Contained more than half of system

Contained less than half of system

eenMetric World University Ranking						College Sus
ag and Infrastructure	201	1 201:	2 201:	3 201	4 CODE	Administration
Doen space area / total area	0	0	0	0	P13	Sustainability
Open space area / total people	ō	ō	ō	ō	P13	Administrative Co
otal electricity use / total people	0	1				Sustainability
otal car entering / total people	0					Office or Dep
otal bicycle found / total people	0	-	-	-		Website
Courese related / total course	0					Green Purchasing
lesearch fund related / total research fund	0	-	-			Employee Outrea
resentage of university budget for sustainability effort	0					Advisory Council
ublication related	0					Student Involvem
vent related	0					Climate Chang
Irganization related	•					Greenhouse
iustainability Website	0					Commitment Emissions R
Area on campus covered in forested vegetation		0	0	0	P8	Realized Gre Emissions Re
Area on campus covered in planted vegetation		0	0	0	P8	Energy Effici
Non-retentive surfaces / total area	-	6	6	0	P8	Renewable E
austanaustry budget / total university budget		p	p	ρ.		Renewable E
	6	6	6	6		Un-site Combusti
nergy emcient appliances usage	0	0	0	0		Energy Efficiency
Renewable energy usage policy	0	0	0	0	P7	Energy Conservat
otal electricity use / total people	-	0	0	0		Renewable Energ
nergy conservation program	0	0	0	0	P6	Food & Recycl
areen building element	P	P		0	PZ	Locally Grow
Climate change adaption and mitigation program	0	0	0	0		Produced Fo
Greenhouse gas emission reduction policy	0	0	0	0	P1	Fair Trade Produc
ercentage of area on campus covered in vegetation in the form of	6	-	-	-		
prest	6	+	+	-	-	Dishware and Eco
ercentage of area on campus covered in planted vegetation	<u> </u>	+	+	-		Food Composing
folicy to reduce the use of paper and plastic in campus	0					Waste Reduc
oicy for a shoke-free and drug-free campos environment		-	-	-		Hecycling of Trad
e Recycling program for university waste	6	6	0	0	P17	Recycling of Elect
Toxic waste recycling	6	6	ŏ	ŏ	P17	Source Beduction
Organic waste treatment (garbage)	6	6	0	0		Recyclics Program
norganic waste treatment (rubbish)	6	6	0	0		Recycling Program
iewerage disposal	ō	6	ō	ō		Composting of La
olicy to reduce the use of paper and plastic on campus		0	0	0		Green Building
er						Design and (
Vater conservation program	0	0	0	0	P18	Adaptive Reuse
letention: non-retentive surfaces on campus as percentage of total	0					Operations a
lped water	0	0	0	0		Water Manag
sportation	<u> </u>	<u> </u>	<u> </u>	<u> </u>		Energy Mana
otal car entering / total people	1	0	0	0		Green Building Po
otal bicycle / total people		0	0	0		Green Building St
Fransportation policy on limiting vehicles on	6	6	6	0	P14	
campus	P	r.	Ľ	P .	P14	Renovation and F
ransportation policy on limiting parking space	0	0	0	0	P14	LEED Certification
ampus buses	0	0	0	0		Student Involv
sicycle and pedestrian policy	p	p	p	D.	P15	Residential Comm
cation Sustainability courses / total cources	-	0	0	0	Δ1	New Student
Sustainability research funding / total research	+	ř	ř	<u> </u>	~	internatipa/c
unding	-	0	0	0	A3-4	Student Orga
ustanautry publications	1	P	2	0		Sustainability Cha
iustainability events	_	0	0	0		Transportation
Sustainability organization (students)	_	•	0	0	A5	Campus Morter F
Jushan Kaonny WEUSILU	1	10	<u>1</u> 0	Q	. 52	Local Transp Bic/ycle Prog Car-Sharing Prog Mass Transit Endowment Tr Investment Holdir Proxy Voting Rec
						processionry

Physical

Element

25% 30% 0 0 0 0 e Committee ollity Staff fice or Department 5 5 0 0 S 10 10 C en Purchasing 25 0 isory Council dent Involvemen ate Change and Energy enhouse Gas Emis entory nt to Green issions Reduction hissions Reduction ergy Efficiency and Coserva newable Energy Generation 15 15 Pi newable Energy Purchase 10 10 0 Pi 25 0 rgy Efficiency rgy Conservation 0 0 ewable Energy Investment d & Recycling cally Grown and Produced ganic and Sustainability oduced Food 20 20 0 Trade Products 5 5 10 10 O d Composting and Waste ste Reduction yoling of Traditional Materials yoling of Electronic Waste 10 15 5 5 5 nposting (Aside from Dining Facilities) rce Reduction 5 5 0 0 cycling Program for Dining Halls yoling Program for Office Waste nposting of Landscaping Waste n Buildina 25 P2 15 10 PE en Building Policy 20 〇 〇 en Building Standards 40 🔿 🔾 ovation and Retrofit ent Involvement 10 10 10 10 A6 A7 ernships/Outreach 30 30 udent Organiations 15 15 🔾 tainability Challenges an sportation npus Morter Fleet 12.5 12.5 〇 P1 10 cal Transportation Alternatives cycle Program -Sharing Program 37.5 37.5 nning ss Trans 40 40 0 0 30 30 0 0 30 30 0 0 owment Transparency stment Holdings essibility stment Priorities able Energy and stainable Investment 30 30 🔿 🔿 A1 A1 40 40 0 40 40 0 reholder Engagement Stakeholder involvemen 30 30 🔾 10 10 0 mmunity Inpu

Others

Newly Indicators

Continual Indicators

2011 2010 2009 2008

25% 30% 🔿 🔿 C1





Activities

Oumber of indicators per evaluation factor

Evaluation Factor	STARS	Uni- Metrics	UI GreenMetric World	College Ssustainability Report Card	Green League	Total	
Condition(Planning and administration)	3			1	2	6	2.1%
System		4		5	2	11	3.8%
Physical Element	22	35	27	28	35	147	51.2%
Activities	30	21	6	12	24	93	32.4%
Other (Purchasing, Diversity and Affordability, Hralth,Well-Being and Work, Innovation, Endowment Transparency, Fairtrade & Ethical Procurement)	19			4	7	30	10.5%
Total	74	60	33	50	70	287	100.0%



Framework of assessment system from analysis

Evaluation Factor	Indicator	STARS	Uni- Metrics	UI GreenMetric World University Ranking	College Ssustainability Report Card	Green League
Condition	Planning amd Administration					
	C1 Sustainability Policies	•			•	•
	C2 Sustainability planning	•				•
	C3 Governance	•				•
System	S1 Sustaibaility Office and Staff		•		•	
-,	S2 Sustainability Website		•	•	•	•
Physical	Air and Climate			-		-
Flement	P1 Greenhouse Gas Emissions Beduction	•	•	•	•	
	Buildings		-			-
	P2 Design and Construction	•	•	•	•	
	P3 Operation and Maintenance					
	P4 Campus Density	-				
	P5 Histriacal Architecture's Quality					
	Energy		-			
	P6 Building Energy Consumption	•	•	•	•	
	P7 Benewable Energy (usage policy Generation Purchase)			•		•
	Grounds					-
	P8 Conservation of Vegetated Area					
	P9 Biodiversity			•		
	P10 Preserved Existing Area					•
	P10 Preserved Existing Area					
	P11 Connected Green Area		-			
	P12 Community's Memories		-			
	Transportetion		•	•		
	P14 Commute Model Split	-	-			
	P14 Commute Model Spint					
	P15 Bicycle Program	-	•	-	•	•
			•		•	•
	Vasie P17 Weste Minimization, Requeling	-				
		•	•	•	•	•
	P19 Water concernation	•			-	
	File Water conservation	•	•	-	•	•
	Pla Organic and Sustainability Produced Food					
Activition	Education		-		•	•
Activities	A1 Academic Course	•	•			
	A1 Academic Course	•	•	•		•
	A2 Callipus as a Living Laboratory	•	•			
	A3 Acadomic Poscarch					
	AS Academic Research Funding					
	Campus Engagement	-	-	-		
	A5 Student Organization					
	A6 New Student Orientation			-		•
	A7 Internships/Outreach Opportunities					•
	A8 Employee Education Prigram	•			-	•
	Public Engagement					_
	A9 Community Partnerships	•			•	•
	A10 Continuing Education	•	•			-
	A11 Empower Private and Public Sector Collaboration		•			
	Investment					
	A12 Sustainable Investment	•	•		•	•
	A13 Community Investment				•	
	A14 On-Campus Sustainability Projects				•	

Contained more than half system Newly setting indicator Continuosly using indicator

Sustainable Campus Assessment System

The role of assessment system

• For implementation of action plan, all stakeholders related university need to ready for action

Evaluation of progress of implementation



Framework of sustainable campus



<u>ここから記入を開始してください / Start from here</u>

1.下記から、貴学の考えるサスティナビリティの概念にあてはまるキーワードにチェックをつけてください。 そのほかのキーワードや明文化された定義がある場合は自由記入欄に記載ください。

1.Please tick all items which match the concept of sustainable campus your institution has. If your ideas are not listed or if you have an official definition of the concept, please describe it in the text box below.



Sustainable Campus Assessment System (ver.2)



- **Holistic**: Criteria cover holistic activities of the university.
- **General**: to be adopted to universities in Japan/Asia.
- to help the university develop their future strategy. Guiding: to show their strengths and weaknesses in each field.

What is component of sustainable campus? - Overall Plan First step for creation of common understanding

Understanding of character of own university and creating strategy

Preferential Question

- Organization for management
- Recruiting talent
- Funding

Indica	ators List	43 indicators						
	I-1 Policy and overall plan	I-1-1 Education and research						
		I-1-2 Campus						
		I-2-1 Dedicated staff						
	I-2 Organizeation to	I-2-2 Activities						
	consider sustainability	Mechanisms to support						
		policy decisions						
		I-3-1 Long-term planning						
	Financial resource	Securing budgets and						
	management	acquiring funds						
I Management		I-3-3 Operations						
		I_{-4-1} Community utilization of						
	I-4 Asset management	university assets						
		I-4-2 Servicing of university assets						
	I-5 Facility management							
	I-6 Network to enhance su	stainability						
	I-7 Personnel training	I-7-1 Faculty evaluation						
		I-7-2 Recruiting talent						
	Procurement and	I-8-1 Procurement						
	contracts	I-8-2 Contracts						

16 indicators

	II-1-1 Curriculum				
II-1 Education	u 1 o Sustainability				
	Literacy				
	II-2-1 Sustainability research				
II-2 Research	II-2-2 Living lab				
	Practical community				
	research				
	Encouraging and				
II-3 Students	II-3-1 supporting student				
	activities				
	UL3-2 Student participation in				
	university management				
	II-1 Education II-2 Research II-3 Students				

34 indicators



	1\/ 1	Collaboration between industry, academia, and						
	10-1	government						
	N/ O	Community	IV-2-1	System				
	10-2	service	IV-2-2	Activities				
	IV-3	Disseminatio	on of Info	ormation				
			11/11	Disaster prevention inside				
	IV-4	Disaster	10-4-1	the university				
Community		prevention	11/4 0	Disaster prevention in the				
Community			10-4-2	local area				
				Continuity of university's				
		Role of	11/-5-1	function				
	11/5		10-0-1	(BCP-Business Continuity				
	10-5	after strike		Plan)				
		aner strike	N/ 5 2	Support for local				
			10-3-2	community				

77 indicators

I Management

Category	Field	Section
	1 1 Delion and everall plan	I-1-1 Education and research
	1-1 Policy and overall plan	I-1-2 Campus
		I-2-1 Dedicated staff
	U-2 Organizeation to	I-2-2 Activities
	consider sustainability	I-2-3 Mechanisms to support policy decisions
		I-3-1 Long-term planning
	I-3 Financial resource management	I-3-2 Securing budgets and acquiring funds
I Management		I-3-3 Operations
	I-4 Asset management	I-4-1 I-4-1 University assets
		I-4-2 Servicing of university assets
	I-5 Facility management	
	I-6 Network to enhance su	stainability
	I-7 Personnel training	I-7-1 Faculty evaluation
		I-7-2 Recruiting talent
	Procurement and	I-8-1 Procurement
	contracts	I-8-2 Contracts

		⊢ 1−1	Education and research	1	Is there an overall p an and policy for education and res	earch on sustainability?			
Policy and			2	2 Is there a Campus Master P Ian with reference to sustainability?					
FI	plan	⊦ 1−2	Campus	3	Does the master plan contain policies and schemes system ?	to construct a sustainable energy			
					Does the master plan contain policies and schemes univeristy besides energy issues?	to enhance sustainalbity of the			
		F-2−1	Dedicated staff	5	Is there a sustainability office and a coordinator?	Campus Master Plan			
		6 A re faculty and staff be i		A re faculty and staff being educated about sustai	- Sustainable energy system				
				_	Are there education programs for sustainability or	- Other sustainability issues			

- Is there a *Campus Master Plan* with reference to sustainability?
 - * Does the master plan contain policies and schemes to construct a *sustainable energy system*?
 - * Does the master plan contain policies and schemes to **enhance sustainability** of the university **besides energy issues**?

		L2_2 Mechanisms to support			
				12	ls there a perm anent comm ittee that makes policy decisions related to the university's sustainability?
		FZ-3	' policy decisions		Is there a system to evaluate the progress of the overallplan?
		1⊢3−1	1−3−1 Long-term planning		Is there an operation policy and secure funds for bng-term development of a sustainable campus with regards to education and research funds, university administrative costs, and overall university resources?
			Securing budgets and acquiring funds	15	Has sustainability been specifically set as a budgetary expense?
				16	A re national funds for sustainability being acquired?
⊢ 3	Financia I resource m anagem ent	1-3-2		17	A re private funds for sustainability being acquired?
				18	A re international funds for sustainability being acquired?
				19	A re initernal funds of university for sustainability being guranteed? E.g. space charging, carbon credit purchase.
		100	3–3 Operations	20	A re investments being made in relation to the environment and sustainability? And are impact assessments for these investments being made?
		⊢3-3		21	Is there a research fund albcation system in place especially for exploratory sustainability research?

Campus Master Plan 2006



Campus Master Plan

Facilities Department (Task Force, Working Group)

Sustainable Campus Assessment System

Revision

			C om m un ity utilization of un ivers ity assets	22	Is the community utilizing the university's facilities on all cam pus?
	Asset m anagem ent	F-4-1		23	Is the infrastructure of the university utilized am ong bcalcomm unity? (e.g. green area, evacuation sites, etc.)
⊢4				24	A re historical assets being preserved, opened to public, and are the inform ation on the assets being dissem inated in around the entire university ?
				25	A re there environm ental policies and cam pus developm ent plans to be carried out in conjunction with the bcal community and environm ent?
		ŀ-4−2	Servicing of university assets	26	A re public-private partnerships and fixed-term leases being utilized to maintain the university's environment?

- Is *the community utilizing* the university's *facilities* on all campus?
- Are *historical assets* being preserved, opened to public, and are the information on the assets being disseminated?
- Are there environmental policies and campus development plans to be carried out *in conjunction with the local community and environment*?

	I–6 Network to enhance sustainability			33	Has the university created a sustainability network with overseas universities, research institutes, and communities? And is there awareness of movements on the global stage? E.g. OECD, UNESCO, ISCN, AASHE
1−6				34	Has the university created a sustainability network with dom estic universities, public research institutes, and communities? And is there awareness of movem ents on the dom estic stage?
	Personnel	1⊢7−1	Faculty evaluation	35	ls there a mechanism for evaluating researchers' dedication to administrative affairs related to university's sustainability? E.g. Researchers' dedication to administrative affairs lke campus eco-system planning, development of campus master plan, utilization of historica lassets etc.
1⊢7	training			36	A re the results of researchers' work for adm inistrative affairs dissem inated to whole university and implemented? E.g. giving incentives like securing posts to those researchers.
		ŀ7−2	Recruiting talent	37	Is there a system with a flex ble means for recruiting talent with competency in sustainability? E.g. Secure contract term, designation to a post which fits his/her professional skills
				38	ls there a career developm ent system to educate personnel who can propose practical solutions/ideas tow ard sustainability? E.g. Provision of sustainability know ledge, W.S. sem inar
		L0_1	Denoment	39	ls green purchasing being em p byed for office equipm ent and is there procurem ent regulation oriented eco-friendly products in overall university? E.g. Local food purchase, O ffice equipm ent, cleaning materials, O A papers.
		F9-1	r locureil ent	40	A re contracts being completed based on the contract patterns prescribed in the Green Contract Law ? Contract patterns: Electricity purchase, cars, boats, ESCO, facility design
-8	P rocurem ent and			41	A re environm entally conscibus contractors being used? E.g. supplier quality m anagem ent system
	contracts	⊢ 8−2	Contracts	42	A re bcal contractors being actively used? e.g. food, m aterials, etc.
				43	Is there a sustainability guideline for goodwill? e.g. social and environm ental respons bility of vendors, regulation for vendors which m eet the university's sustainability conditions

the community utilizing the university's facilities



Café, sustainable lifestyle with firewood

II Education and Research

Category	Field	Section			
		II-1-1 Curriculum			
	II-1 Education	II_1_2 Sustainability			
		Literacy			
		II-2-1 Sustainability research			
II Education	II-2 Research	II-2-2 Living lab			
and		Practical community			
Research		research			
		Encouraging and			
		II-3-1 supporting student			
	II-3 Students	activities			
		Student participation in			
		university management			

- ✓ *Not mentioning details* of curriculum or research to value faculties' originality.
- Focusing on *how campus is being utilized* for sustainability education and research (Living Lab) and practical community research.

						1	A re there educational program s related to sustainability?
					a · .	2	Has the university individually defined "sustainability" and developed a specific curriculum including educational programs, internships, and lectures to which this definition applies?
				1-1-1	Curricu Lim	3	W hat is the ratio of sustainability program s and lectures to a II?
		I⊩1	Education			4	Is the university providing incentives for this type of carriculum?
			II-1-	II-1-2	Susta inab ility L iteracy	5	Is sustainability orientation for new students and environmental education for current students being carried out?
						6	Is the university developing and conducting diverse measures for dissemination of sustainability issues? e.g. Life-bng education programs, questionnaire for students.
				I ⊢ 2−1	Susta nab ility research	7	Is the topic of sustainability being researched at the bachebr's, master's, and doctoral degree level?
		[1		1	
	Is the ca	mp	us bei	ng ι	ised for su	sta	ainability research?
*	Is the uni	iver	sity nro	widi	na incenti		s for this type of research?
-4-			sity pro				
*	Are resea	arch	ers pu	blis	hing the r	es	ults of these research works?
	Research						
		I⊢2	Kesearch			11	Is interdisciplinary research on sustainability being conducted together with the bcalcommunity?

	I⊢2	Research			11	ls in	is interdisciplinary research on sustainability being conducted together with the bcal community?		
					12		Is the university providing incentives for this type of research?		
			I ⊢ 2−3	Practical community research	13		Is the achievem ents from this type of research being dissem nated through publications, blushed up, and im plem ented in a real society?		

- Is the university *supporting students' activities* related to sustainability?
- Does the university **encourage off-campus internships** (related to the environment and sustainability)?
- Are mechanisms being created for *student participation* in overall university's sustainability planning and campus-wide activities?



Organic fertilizer for university farm



leftover from cafeteria + livestock manure (faculty of agriculture) Compost

University farm



III Environment

Category		Field	Section			
	-1	Ecosystem				
	III-2	Land	III-2-1	Green space and forest land		
			III-2-2	Other open space		
l í	III-3	Public Space				
L L	-4	Landscape				
	III-5	Waste	I			
	III-6	Enorgy and	III-6-1	Energy management		
		resources	III-6-2	Greenhouse gases		
III Environment		resources	III-6-3	Renewable energy		
			III-6-4	Other resources		
	-7	Basic Equipme	nt			
				Environmental		
	III-8	Facilities	111-8-1	performance		
			III-8-2	Indoor environment		
			III-9-1	Flow planning		
		Tuenenentetien	III-9-2	Pedestrians and cycling		
	111-9	iransportation		Connecting with the local		
			111-9-3	community		
	III-10	Use of historical assets on campus				

- Is there a *database* in which *flora and fauna* characteristics and distribution on campus are recorded?
- Are there **ecosystem conservation plans**?
- * Does the plan contain *the strategy* for indigenous ecosystem conservation? (e.g. biodiversity)
- * Is there an organization to execute these plans?
- * Are the plans' state of *implementation and results* fully understood?



- Are there *guidelines to build public spaces* inspired by intellectual creativity with humanity and culture in mind?
 - * Are the plans based on these guidelines being carried out?
 - * Are the plans' state of *implementation and results* fully understood?
- open public space (e.g. square, trail, courtyard)
- *indoor public space* (e.g. Lounge, atrium, café, bar)

			16	A re cu Iti	there guidelines to build public spaces inspired by intellectual creativity with hum anity and ure in mind?
			17		Are the plans based on these guidelines being carried out?
			18		Are the plans' state of in plem entation and results fully understood?
HU's campus	^{II⊢3} is vei	y open to public	19	Is th unde e.g. s	e area of open public space inspired by intellectural creativity with hum anity and culture in mind fully erstood? Is such open area designed in campus master plan? square, trail courtyard
- Public space	2	11(5>	20	Is th unde e.g. I	ne area of inner public space inspired by intellectural creativity with hum anity and culture in mind fully erstood? Lounge, atrium, cafe, bar
- Attractive la - Efficient Tra	indsc ns្ឋpo	rtation inside/outside	21	D oes poss	s the university aim to have a suitable campus that preserves the current design and does everything sble to avoid rebuilding?
campus			22	Does desi	s the university aim to have a campus that takes its surroundings into consideration? (Suilding height, gn)

Conservation and disclosure

Indigenous and particular flora and fauna



Propose to set up public space Emphasize of historical loan and building setting

クラーク会館周辺は、札幌キャンパスの中心的な場所として位置づけられている。大学創建時からの歴史が、建築および自然環境として残され、札幌キャンパスのシンボル空間となっている。 歴史を感じさせる外部空間と豊かな自然環境を中心に、保全と利用を促進し、キャンパスの中心空間にふさわしい「風格あるゆとりとうるおいの空間イメージ」をクラーク会館周辺パブリックスペース整備の目標とする。





■整備イメージ:クラーク会館周辺









Information Center (Environmentally friendly architecture)









北海道大学の正門横に建つ、インフォメーションセンターである。 新しいインフォメーションセンターにふさわしい立地として、大学の玄関ロ正門横の旧守衛室 位置が選択された。都市の幹線道接するも、学術交流会館と生垣で囲まれた芝生が広がり、 ニレ・サクラなどの木々が心地よい木陰をつくる、静けさを感じる敷地である。

計画テーマ (情報とリラックススペースの提供) (学術交流会館との機能連携等、新しい大学の顔づくり) (樹林がつくる緑環境と共生した施設づくり)



ファサード:浮いた木の縦格子が透過性のある内部空間を強調し、樹木環境と調和する

環境共生の建築 正面から続くエルムの並木(新渡戸稲造夫人)

記念植樹)は、北大の最初の印象をつくる。 **〈ファサード〉**浮いた木の縦格子がつくる屈折した際け、並本と変易の本々との多たかた関係を

た壁は、並木と背景の木々との柔らかな関係を つくり、四季の風景を受け止める。正面からの見 通しは、背景にある樹林へと導く。 (インテリア)リーフ型を切り取ったアルミパネル の天井と壁に焼い出されるシルエットは、背景の 樹林風景と同調する。

〈環境技術〉樹木への影響を最小にする地盤 置換工法。地中熱活用の床暖冷房システム。 太陽光発電、LED照明を採用している。

■ 樹林の環境が建築をつくる

プログラムでは、計画地の樹木を残しつつ、約300㎡の施設を整備する。木々の下には光 が射し込み、爽やかな風が流れる。既存樹木を保全しつつ、樹林地の心地良さを生かした新 しい場をつくる。

地面よりやや高いレベルに床をつくり、フラットルーフを設け、空間を切り取り、光や風をコント ロールする。樹林がつくる環境と一体化する。インフォメーション・休憩・グッズショップ等の機能 を、開放的なワンルーム・屋外デッキや樹林へと連続する空間として構成している。







Facility Design and Management

Guide line for building setting



パブリックスペースをキャンパスの骨格軸とし 位置づける キャンパスの重要なコアとしてパブリック スペースを位置づける

Facility Design and Management

Guide line for Architecture



Facility Design and Management

Guide line for Architecture

3.1 冬季に熱回収可能なダブルスキン

・夏モード

ブラインドによる日射遮蔽を行うとともに、ダブルスキン (= 集熱ダクト)上部排気窓を利用した自然換気による排熱を行う。

・冬モード

OA トレンチ経由の新鮮外気を、ダブルスキン(=集熱ダクト) 上方に流すことで太陽熱による予熱を行い、熱回収ダクトを経 由して下方の OA トレンチに戻す。(右図参照)



ダブルスキン外観 (冬モードの空気の流れ) 3.3 地中熱を利用するクール&ヒートチューブ

新鮮外気を OA トレンチ経由で取り入れることにより、地中熱 を利用した外気の予冷・予熱を行う。



地中熱利用夏モード





集熱ダクト ブラインド (スタジオ) (室内より) (スタジオ) \wedge' 室内より (ダンパー閉) OAトレンチ 夏モード



-Has an *implementation plan been formulated with a circulation design* that controls the amount of vehicle, pedestrian, and bicycle traffic in the entire university?

Are the plans' results evaluated?

E.g. carpool, efficient vehicle, efficient delivery system

124

-Are there *circulation plans and implementation plans for bicycle and pedestrian traffic* in the entire university?

E.g. bicycle road, bicycle parking, removal abandoned bicycles, bicycle-sharing system ,rentbicycle

128 Are the plans' results evaluated?

-Is an implementation plan being formulated with a circulation design that **connects to the campus's surrounding transportation network**?

	III-9-3 the local community		Is there an organization to execute these plans?		
		132	Are the plans' results evaluated?		
		133 Is the state of conservation of historical buildings being evaluated?			
			a plan for their use being formulated? g. open to public, exhibition		
	III-10 Use of historical assets on campus		Is there an organization to execute these plans?		
		136	Are the plans' results evaluated?		

Traffic diagram research



49



日

New Campus Gate Plan

■北海道キャンパス 西側新設出入口のメリット・デメリット整理

1. 前提条件

✓ 将来的に中道道路を車両通行止めにすることにより、構内は大きく5つ(A~E)のブロックに分断されることが想定される。
 ✓ 分断されるブロックのうち特に西側ブロック(A・B)は、既存の出入口がないため、新しく西側(国道230号沿い)に出入口を新設する必要がある。
 ⇒既存の構内道路状況を考慮して、敷地西側の新設出入口を4つ(①~④)想定する。次頁にそれぞれの新設出入口について、想定されるメリットとデメリットを整理する。
 ※中央道路の車両通行止め後のA・Bブロックへの転換交通量は分析中(2/28入構車両状況調査結果より)





11/03/04

HOKKAIDO UNIVERSITY

IV Local Community

Category		Field	Section			
	I\/_1	Collaboratio	n betwe	en industry, academia,and		
		government				
	N/ 9	Community	IV-2-1	System		
	10-2	service	IV-2-2	Activities		
	IV-3	IV-3 Dissemination of Information				
(Disaster prevention inside		
		Disaster	10-4-1	the university		
Community	10-4	prevention	IV-4-2	Disaster prevention in the		
Community				local area		
				Continuity of university's		
			11/51	function		
	1) / 5	Role OI	10-3-1	(BCP-Business Continuity		
	IV-5	university		Plan)		
		aller slike		Support for local		
			10-0-2	community		

				156	Dece the university have a dispeter nervention who and an approx		
				100 1			
				157	is an em ergency drillbeing held with all students and staffs every year?		
				158	Is a safety confirm ation m ethod defined and fully dissem inated to all students and staffs at norm altim e? Consider power failure, b bck of transportation system , lim ited inform ation access etc. Support for international students and foreign workers must be considered, too.)		
		№ -4-1	D isaster prevention inside the university	159	Is a decision making process and criteria for an instruction to stay at hom e or to lift the instruction defined clearly and being dissem inated to the people in charge? Consider power failure, block of transportation system , limited inform ation access etc. Support for international students and foreign workers must be considered, too.)		
Nr−4 Disa prev	saster evention			160 I	ls there a plan to hold adequate functions of disaster prevention on cam pus? E.g. Plan to hold em ergency generators, Plan for installation of a m irror server at a distant sate llite cam pus or other universities, plan to build stockpile warehouses, plan to build earthquake resistant buildings, etc.		
				161	A re those plans executed?		
-	ls a <mark>bet</mark>	disas ween	ster pre 1 the un	ve	ntion plan at the local area developed <i>under the collaboration</i> ersity and local entities?		
				164	ls adequate inform ation publicized to bcalpeople for an efficient evacuation? For exam ple, publication of a cam pus m ap for disaster prevention, signboards of evacuation routes, etc.		
-	ls th Con	nere a	a plan <mark>t</mark> ty Plan	00	continue education/research after the strike? (Business		
		liniai	cy i lang	· _			
- I	s ti	nere (a conta	Ct	office for local community?		
	(university members collect relief aids, provide volunteer work, support education for schools)						
-	s a	deau	ate loce	al i	information and knowledge dissemingted by the university to		
	local people? (set a contact office, publicize a result of damage investigation, etc.)						

a place been created *for ongoing consultation* with the local government

Agreement with City of Sapporo, July 2013 - Long-term energy vision until 2050 - Scenario building for city planning

incl. Sapporo Campus



Scoring (ver.2)



<u>Scoring percentage</u> A[%] = (score) / (allocation excl. "not applicable")×100

Rank	Score percentage
Bronze	A<45
Silver	45≦A<65
Gold	65≦A<85
Platinum	85≦A

Trial run through Architectural Institute of Japan Results of 6 universities (score [%] in each category, ver.1)





Result of each field, Hokkaido University (Feb. 2014)



Sustainable Campus Assessment System Pilot Project

Sustainable Campus Assessment System Pilot Project ver.1

	The number of answer	The number of registrant school	The number of the distribution
National (except for large-scale universities)	15	26	79
National (large-scale universities)	4	4	7
Public	2	4	83
Private	13	23	592
Overseas	1	5	0
Incorporated association	0	1	0
Total	35	63	761

Period : 2014.9.1 ~2014.11.7

Overseas Universities ; Korea: 1, China: 1, Thailand: 2 Saudi Arabia: 1



Sustainable Campus Assessment System

I-6 サステイナビリティを高めるためのネットワーク / Network to enhance sustainability 評価基準 Assessment Criteria Bell Bell	
評価基準 Assessment Criteria基準配点 Score Allocation得点計算方法 How to calculate your score得点 高点計算方法 Score内容説明(出典やホーナス点の 計算過程も可能次限り記入くだ さい)1.満外の大学、研究機関、公的機関、地域等とサス デイナビリティに関わるキャリワークを持ち、大学 をあげて世界の動きを把握しているか e.g. OECD, UNESCO, I S C N (国際サスティナ ブルキャンパズネットワーク)増速=監護が及ければの点、恐れば農 セスディナビリティについては、民族 のウエスーイナビリティについては、民族 のウエスーチズで鮮沢くた さい,増速 「「」点 二」点1.Has the university created a sustainability2点2点 ないこ1	
1.満分の大学、研究機関、公約機関、地域等とサス デイナビリティに関わるネットワークを持ち、大学 をあげて世界の動きを把握しているか e.g. OECD, UNESCO, I S C N (国際サステイナ ブルキャンパスネットワーク) 増点=範囲がなければの点、恐れば貫 点(配), サステイオビリティCOいでは、長紙 のサステイオビリティログメージ回称 キーラードを参考に含え天で解釈でき さい, 1.Has the university created a sustainability 1 1 1.Has the university created a sustainability 2点 score is of your university depend meet this riferion 1 1	
network with overseas universities, research institutes, and communities? And is there awareness of movements on the global stage? E.g. OECD, UNESCO, ISCN, AASHE UNESCO, ISCN, AASHE	
2.国内の六学、研究機構、処的機構、地域等とネット トワークを持ち、大学をあげてサステイナビリティ に関わる国等の動きを把握しているか 第点 認道: ・サステイナビリティのンマには、表紙 のサステイナビリティのンメージ回や キーワードを参考に名大学で解釈くだ さい、 1 点 点 2.Has the university created a sustainability network with domestic universities, public research instructes, and communities? And is there awareness of movements on the domestic stage? 2点 2点 2.mass the university created a sustainability network with domestic universities, public research instructes, and communities? And is there awareness of movements on the domestic stage? 2点 1 	

http://www.osc.hokudai.ac.jp/scas/









National (except of largescale universities)

National large-scale university





サステイナブルキャンパス評価の方向性 67 **Direction of Sustainable Campus Assessment** エネルギー消費だけの評価ではない It is not only in the evaluation of energy consumption 大学全体の活動の評価(研究・教育、運営、環境、地域社会) Evaluation of the total activities of the University 活動情報、先進事例を集めるためのネットワークの構築 Establishment of network for data collection and good example 大学と地域の相乗的な関係の構築に寄与 Synergistic relationship between the University and the city キャンパス空間の質的評価など環境面の向上 Improvement of the quality of the campus setting 継続的なサステイナブル活動の支援 Support of continuous activity for creating sustainable campus

