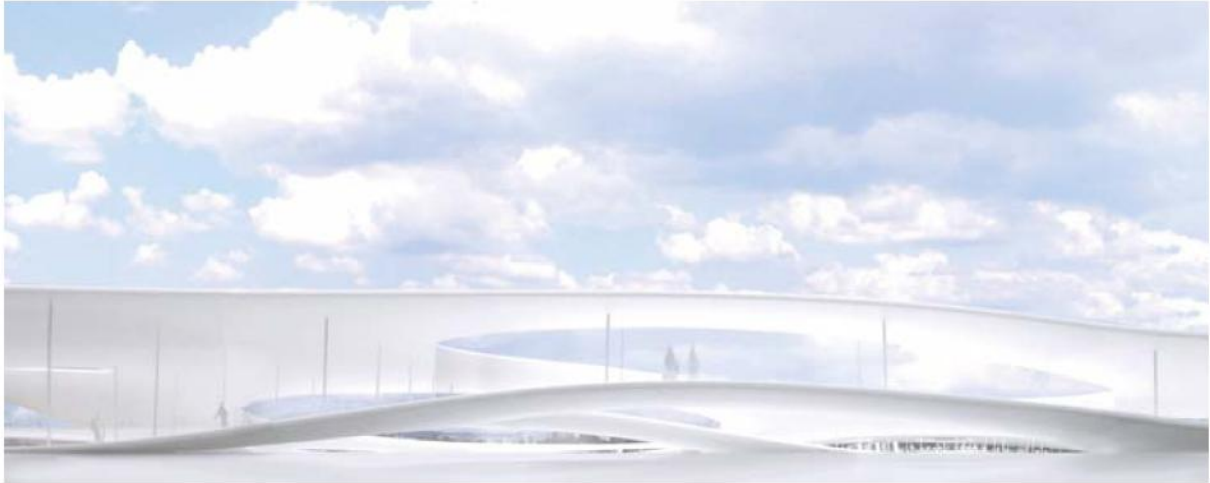


International Sustainable Campus Network / Global University Leaders Forum

Sustainable Academic and Corporate Campuses: Time to Implement



EPFL Rolex Learning Center, under construction © SANAA Ltd

Conference Summary

Third Annual Conference, June 10 – 12, 2009, Lausanne, Switzerland

Preface by Patrick Aebischer

The need to include sustainability criteria when planning the construction or the renovation of academic and corporate campuses, is rapidly gaining worldwide recognition as a key driver toward a more “livable” and sustainable environment for students and staff. Ecological responsibility, economic efficiency and social well-being are now reflected in current sustainable campus efforts along with a more rational energy end-use and reduction of greenhouse gas (GHG) emissions.

The conference was jointly convened by the:

- **International Sustainable Campus Network** (ISCN), which convenes senior administrators and faculty responsible for sustainability on academic campuses worldwide,
- **Global University Leadership Forum** (GULF), which was initiated in 2006 under the auspices of the World Economic Forum, and regroups Presidents from 23 universities around the world addressing issues of importance for universities and society at large.

Three main objectives were pursued during the joint ISCN – GULF conference:

- Enable and facilitate a worldwide exchange of information regarding campus sustainability issues as well as the convergence of purpose between various networks addressing campus sustainability issues.
- Involve representatives from key industries interested in issues and practices regarding sustainable campuses.
- Reach broad endorsement not only regarding sustainability initiatives but also their wide and coordinated implementation.

This conference was an opportunity for sharing results from “real life” pilot demonstrations and best practices to assess the impact of selected initiatives and to propose adjustments towards better design and more efficient decisions, as well as improved coordination and cross-leverage wherever desirable.

This event was also attended by corporations involved in sustainable campus practices and having parallel interests and needs. The format of the activities facilitated bottom-up and top-down insights and recommendations regarding campus sustainability while reaching all relevant levels of decision makers across organizations. A specific one-day leadership track enabled University leaders and Corporate Senior Executives to contribute to key conclusions and proceedings. The proactive commitment from all participants from more than 20 countries and over 40 universities was highly appreciated.

Patrick Aebischer
President of EPFL

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Executive Summary Letter

Dear ISCN and GULF members,

The discussions that started last year between the International Sustainable Campus Network (ISCN) and the Global University Leaders Forum (GULF) have already led to a fruitful collaboration. For the first time, our two organizations jointly hosted a conference on campus sustainability. That event, whose proceedings and main results are summarized in this report, confirmed the importance that many leading universities and corporations attach to campus sustainability in its complete life cycle: the planning, construction, and refurbishment of campus infrastructure and its use as a “living laboratory” for a sustainable society. The living laboratory concept includes establishing important links between infrastructure and research, education, and public awareness, including not only campus residents but also neighboring communities.

From the outset, the conference addressed both technical expertise and the strategic dimension of campus sustainability. This was illustrated by the topics of the opening keynote and the opening dinner speech (pages 5-7): solar buildings as a component of campus sustainability, and campus development as part of the sustainability strategy of a leading global pharmaceutical company.

In the plenary presentation sessions, representatives of leading universities and corporations from the Americas, Europe, and Asia focused on their successes and challenges regarding three key aspects of campus sustainability (pages 8-13): the overall goal of integrating sustainability into the institutional mindset; concrete planning and decision processes for campus sustainability; and the important issue of energy and CO₂ strategies within sustainable campus programs.

Continuing a format developed at prior ISCN conferences, a large part of the conference was dedicated to interactive discussions in the four ISCN working groups (pages 14-26). Prepared by Working Group I, a highlight of the conference was the presentation of the first ISCN Sustainable Campus Excellence Awards. An international jury with members from three continents had selected winners in the two awards categories: honoring excellence in construction and in program impacts (see pages 27-28 for the award winner lectures). Discussions in that working group included plans to extend the award categories in the following year. Working Group II had prepared a draft version of ISCN Charter and Guideline documents, which promise to be important for the ongoing collaboration between the ISCN and GULF (see below). Working Group III discussed results from a first international survey on factors that further or hinder decisions on increasing campus sustainability. And Working Group IV shared rich experiences on integrating education, research, and facilities for innovative sustainable campus programs. The working groups also made a number of concrete suggestions on how to further develop experience-sharing across all of the ISCN, including an ongoing exploration of linking awards criteria and Charter elements with the other groups’ findings, and sharing work

on masters’ and Ph.D. theses and case studies through a linked database. These discussions were also informed by the ISCN’s clear awareness of national and regional sustainable campus initiatives, so that the network does not create redundancies but rather adds value by adding a global dimension to the experience exchanges (see pages 29-30).

Recognizing that sustainable development is a key issue that organizations of higher education and research are well positioned to contribute to, the “Track B” part of the meeting was dedicated to high-level strategic discussions by university and corporate leaders (pages 31-34). This track was created based on the interest in campus sustainability of members from GULF, which is convened by the World Economic Forum and currently includes the heads of 23 universities from 9 different countries. The track was also open to a wider group of senior leaders from the academic and corporate world. The aim of this track was to achieve full endorsement of sustainability initiatives and of their broad and coordinated implementation. A key result of these deliberations, which was shared with all conference participants in the final plenary discussion, was the wish to further develop the Charter and Guidelines in a manner that combines strategic stewardship by GULF with the ISCN acting as the secretariat of the global Charter process (for first strategic suggestions, see page 33). This suggestion holds the promise of an ongoing collaboration between our two organizations that could be a key driver in promoting sustainable campus goals in a way that involves all organizational levels at leading universities and corporations.

Roland Stulz
Director Novatlantis

Hans Björn Püttgen
Director Energy Center EPFL

Bernd Kasemir
ISCN Program Manager

PROGRAM TRACK A: Sustainable Campus Professionals and Faculty

Wednesday, June 10, 2009

CONFERENCE OPENING

3:30pm Welcome

Patrick Aebischer, President EPFL

3:35pm Introduction to the Conference

Roland Stulz, Director Novatlantis

Hans B. Püttgen, Director Energy Center, EPFL

3:45pm Opening Keynote on Solarbuildings

Jean-Louis Scartezzini, Director Solar Energy and Buildings

Physics Laboratory, EPFL

4:15pm Parallel Working Group Start Session

I: Award Program

Facilitator: Leith Sharp, Harvard School of Public Health

Presenter: Peter Hopkinson, UK-HEEPI

II: Charter and Guidelines

Facilitator: Joe Mullinix, National University Singapore

Presenter: Bojan Baletic, University Zagreb

III: Financial and Decision Mechanisms

Facilitators: Erika Meins, CCRS University Zurich,

and Steve Mital, University of Oregon

IV: Integrating Education, Research, and Facilities

Facilitator: Katja Brundiers, Arizona State University

Presenter: Eddi Omrcen, University Gothenburg

6:00pm Transfer to Aperitive Location at Bois Chamblard, Buchillon

6:45pm Opening Aperitive at Bois Chamblard, Buchillon

Welcome by Jean-Claude Badoux, President of the Foundation

"Les Bois Chamblard"

8:00pm Opening Dinner at Restaurant Le Castel Bois Genoud, Crissier

Welcome by Daniel Brélaz, Mayor of Lausanne

Dinner Speech by Markus Lehni on Campus Development as

Integral Part of Novartis' Sustainability Strategy

Thursday, June 11, 2009

EXPERIENCE AND FUTURE CHALLENGES

8:30am Plenary Presentations on Best Practice

Plenary Opening, Bernd Kasemir, ISCN program manager

8:40am Integrating Sustainability into the Institutional Mindset

Marcelo Fernandez, Chancellor, International University

of Ecuador; Christine Bratrich, Director of ETH

Sustainability; Jenny Su, Director Department Environmental &

Occupational Health, National Cheng Kung University, Taiwan

9:40am Coffee Break

10:00am Planning and Decision Processes

Julie Newman, Director, Yale Office of Sustainability;

Hidetsugu Kobayashi, Chairman Research Committee

Urban Planning and Design, Hokkaido University;

Joachim Brünner, Head Corporate Account Management

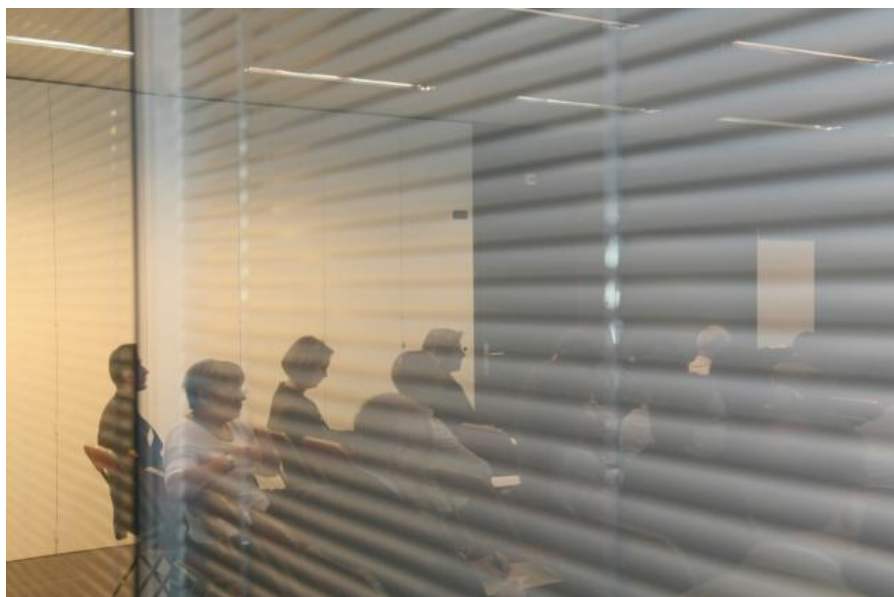
Research & Education, Siemens AG

11:00am Energy and CO2 Strategies

Michael Bienias, Director of Estate Management, University of

Cambridge; Bill Odell, HOK design team for KAUST Campus;

Raphael Llamas, Total Environmental Safety, Bunge Europe



PROGRAM TRACK B:

University and Senior Corporate Leaders

PROGRAM TRACK A:

Sustainable Campus Professionals and Faculty

Thursday, June 11, 12:15pm Buffet Lunch at «Le Pavillon», visit of EPFL Rolex Learning Center

1:30pm Opening remarks

Patrick Aebischer, President, EPFL

Hans B. Püttgen, Director Energy Center, EPFL

1:50pm Discussion on Major Challenges and Opportunities for

Organizations of Higher Education and Research

2000-Watt-Society, Roland Stulz, Director Novatlantis

Footprint Determination, Yves Loerincik, EcoIntesys

Sustainability Plans at Georgetown, Spiros Dimolitsas,

Senior Vice President, Georgetown University

Sustainable Energy Activities at ETHZ Ralph Eichler,

President, ETH Zurich

3:30pm Coffee Break

4:00pm Briefing from ISCN Working Group Chairs

4:30pm Open Discussion related to Incorporating Sustainability as

a Key Element of Organizational Strategy

Hans B. Püttgen, Director Energy Center, EPFL

1:30pm Main Parallel Working Group Sessions

I: Award Program

Facilitator: Claude Siegenthaler, Hosei Tokyo

Presenter: Jack Spengler, Harvard University

II: Charter and Guidelines

Facilitator: Ariane König, University of Luxembourg

Presenter: Marie-Gabrielle Méry, FONDATERRA France

III: Financial and Decision Mechanisms

Facilitators: Leith Sharp, Harvard School of Public Health,

and Julie Newman, Yale University

IV: Integrating Education, Research, and Facilities

Facilitators: Per Lundquist, KTH, Stockholm

Presenter: Karen K. Oates, U.S. National Science Foundation

4:00pm Coffee Break

4:30pm Plenary Presentation: Working Group Results

Reports from the Working Group Co-chairs

5:30pm Panel Discussion on Opportunities for Shared Learning between Academic and Corporate Campus Programs

6:15pm Transfer to the Dinner Location at Château de Bavois

7:00pm Main Conference Dinner at Château de Bavois

Welcome by **Thierry Lombard**, Senior Partner, Bank Lombard Odier Darier Hentsch

Keynote: Sustainability Strategies in University Campuses in Asia, **M.S. Ananth**, President, Indian Institute of Technology Madras

Presentation of ISCN Excellence Awards: introduction **Claude Siegenthaler**, Novatlantis; awards presented by **Jenny Su**, National Cheng Kung

University Taiwan, and **Jack Spengler**, Harvard

Friday, June 12, 2009

9:00am Campus Sustainability around the World

Key drivers in the US,

Julie Newman, Director, Yale Office of Sustainability

Novartis Basel Campus,

Markus Lehni, Novartis

Role of Universities in Communicating and

Inspiring Action for Environmental Sustainability,

Joe Mullinix, Deputy President Administration,

National University of Singapore

10:00am Visits of Campus Research Programs and Laboratories

EPFL Campus Development Solar PV power plant

LESO Building Systems and Technologies

Friday, June 12, 2009

OUTLOOK AND NEXT STEPS

8:30am Parallel Working Group Discussions on Next Steps

Facilitation: Co-Chairs of Working Groups

10:00am Coffee Break (Atrium BC Building)

10:30am ISCN Award Lectures (Room BC01)

11:00am Opportunities of Networking of Networks (Room BC01)

Discussion with inputs on AASHE, AAAS, COPERNICUS

HEEPI, and Asian Networks

11:40am Plenary on Further ISCN Network Development and ISCN-GULF Joint Actions

Moderation; **Hans-Björn Püttgen**, Director Energy Center, EPFL, and **Bernd Kasemir**, ISCN Program Manager

12:45pm Buffet Lunch and Conference Closing

WELCOME AND KEYNOTES



Jean-Claude Badoux guides conference participants through the Foundation Les Bois Chamblard site

In opening the conference, **Patrick Aebischer**, president of EPFL, emphasized the importance of sustainability to the future success of universities. This success, he believes, requires the combined efforts of both “doers” and “leaders.” For this reason, this year’s conference brought together for the first time sustainability professionals and faculty members from the ISCN network with university presidents, vice presidents, and leaders of organizations participating in the GULF group convened by the World Economic Forum. A key objective of this conference was to find out whether these two organizations could collaborate in shaping global debates on the role of organizations of higher education and research in sustainable development.

Roland Stulz, the Director of “novatlantis – sustainability in the ETH domain,” and **Hans Björn Püttgen**, the Director of EPFL’s energy center, joined president Aebischer in welcoming the nearly 90 participants. These attendees represented over 40 universities, more than 20 countries, and several leading corporations interested in dialogues on campus sustainability. Up to this point, about a hundred universities have engaged in the work of the ISCN and have helped to shape discussions about universities’ role in sustainable development—a key contribution to a mission that is now seen as a “race against time” to secure the future of our societies. The ISCN believes that we are beyond the phase of purely conceptual work; it is now time to implement. Particularly now, collaboration between the ISCN and GULF could be fruitful in bringing together different types of organizations, and different people within those organizations, whose cooperation is critical for sustainability on campus. This mutual effort could also help the

ISCN increase their profile at the top level of universities, assist GULF in gaining an avenue for practical implementation on sustainability issues, and provide a point of contact for corporations who have their own major campus developments or want to play a role in discussing how academic campuses are planned, built, operated, and financed. Financing is also an issue for which the ISCN needs to develop a sustainable plan, and the opening speakers expressed their hopes that the discussions throughout the meeting, and particularly in the “Leadership Track,” would provide more clarity on how the ongoing work of the network could be funded.

These welcome addresses and introduction remarks were followed by the conference opening keynote:

Solar Buildings: Main Players in Campus Sustainability

Jean-Louis Scartezzini, EPFL (Switzerland)
Director of Solar Energy and Building Physics Laboratory (LESO-PB), Founder of Institute of Infrastructures, Resources and Environment (ICARE)

Climate change is a very real and pressing danger. What the increase in extreme weather events expected under climate change could mean was illustrated in recent years by dramatic events like Hurricane Katrina in 2005 or the widespread floods and heat-waves in Europe in 2007. In Switzerland, a 2 to 3 degree temperature increase is projected by 2050, in addition to decreasing rainfall and snowfall, increases in floods, droughts and heat waves, and a continuation of the glacial retreat already in evidence today. Buildings are not only a major component of our economies’ energy use and greenhouse gas emissions,

they are also directly impacted by changing climatic conditions. Although climate change will likely decrease required heating loads for buildings in Switzerland by an estimated 11 to 15%, it will increase required cooling loads by an estimated 100 to 150%. Enabling buildings to cope with more demanding climatic requirements, while also decreasing their use of energy and emissions of carbon dioxide that contribute to climate change in the first place, will require clear changes in how we design and construct buildings in the future.

The IPCC's special report on renewable energy technologies (RET) emphasizes that solar buildings are key players in the mitigation of climate change. Buildings that use emerging solar energy technology such as colored solar collectors for instance, which combine high yield with a wide range of aesthetic options, will be essential in the future. But existing "demonstration" buildings, such as the LESO solar experimental building on the EPFL campus or the Forum Chriesbach building of EAWAG (which ISCN conference participants toured a couple of years ago), already demonstrate the feasibility of achieving the goals of the "2000 Watt Society," a concept for a future lifestyle that would cut Swiss per capita energy demand by two-thirds, in the built environment.

As some challenges are successfully tackled, others are moving to the forefront. As heating and cooling have become more efficient, reducing electricity plug load and embodied energy in general, and promoting sustainable refurbishment in particular, must be addressed next, in both solar buildings and pre-existing conventional buildings. Research and demonstration projects on these topics at campuses of leading universities around the globe, such as those participating in this ISCN-GULF conference, will be key in achieving future progress in this field.

After the opening keynote, the participants divided into the four ISCN working groups. These in-depth working group discussions spanned parts of all three conference days, and summary reports on them are given later in this report. Following the first working groups session, the pre-dinner aperitif was served at the site of the foundation Les Bois Chamblard, which contributed generously to the financing of the meeting. **Jean-Claude Badoux**, the foundation's president, explained that the founder, Mr. Nicola, left his estate to the organization with the directive that the site be used for conservation research and should bring together people from different regions, professions, and walks of life in order to talk about how to preserve nature and allow our society to meet the challenges of the future. Supporting the ISCN-GULF initiative fits squarely into this mandate, and the conference participants profited from the open design of the estate's indoor and outdoor spaces to deepen their discussions started on the first conference day.

The conference opening dinner then commenced with a welcome address by Daniel Brélaz, the mayor of the city of Lausanne. The dinner speech presented campus sustainability from a corporate perspective:

Campus Development as Part of the Novartis Sustainability Strategy

Markus Lehni, Novartis International
CHSE, Novartis Environment and Energy Manager

Novartis's core strategy revolves around the discovery, development, and successful marketing of innovative products to cure and prevent diseases, ease suffering, and enhance the quality of life. In this pursuit, it is committed to being a good corporate citizen, and to acting responsibly regarding patients, business conduct, people and communities, and the environment.



Hans-Björn Püttgen and Kristin Becker (EPFL) with Lausanne Mayor Daniel Brélaz at the opening dinner.

To this end, Novartis's campus developments are a core facet of the company's overall strategic goals, and its sustainability strategy in particular.

On the social side, Novartis strongly emphasizes drug access programs. For example, the Novartis Institute for Tropical Diseases is researching dengue fever, malaria, and tuberculosis, and treatments are made available without profit to patients in developing countries. On the environmental side, a key focus of Novartis is energy efficiency and climate protection, and the company has committed to "Kyoto" targets for carbon emission reductions after joining the UN Global Compact in 2001. To achieve this, Novartis employs a combination of energy efficiency measures, renewable energy use, and carbon-offset projects.

Within this strategic context, Campus sustainability at Novartis involves developing and operating an infrastructure that supports the company's business, research, and development goals, while also mitigating its environmental impacts. The "campus of knowledge" project in Basel, a 30-year initiative to become the administration and research corporate headquarters for 10,000 users, is based on a master plan that emphasizes the fundamental role of communication, knowledge exchange, and cooperation in generating value for the company. At the same time, this planning process integrates the "2000 Watt Society" vision of a planet where every person makes do with the current global average energy use per capita.

For Switzerland, the "2000 Watt Society" means a reduction of overall energy use to one-third and fossil fuel use to one-eighth of current levels, and of CO₂ emissions to one ton per person per year. Correspondingly, Novartis has entered a "target agreement" with the City of Basel to achieve 300 MJ per square meter per year of energy use in office buildings, a third of the current national average, and has committed to specific energy targets in laboratory buildings on campus. Novartis is also striving to make the NIBR campus in Shanghai the world's top R&D center with "zero carbon emissions," via exemplary energy efficiency, use of landfill gas and wind-generated electricity, surface water and groundwater cooling, and on-site solar energy generation. These are just two high-profile examples of Novartis's effort to make environmental protection an integral part of business strategy in all divisions and business units, and to generate value while being a good corporate citizen.



Participant Comment:

Jack Spengler

Professor, Harvard School of Public Health

"I'm struck here by the acceptance that we have to move towards carbon restrictions, which means energy conservation of our buildings, but we have to realize as well that there is good use of energy, which is to provide proper ventilation, proper air cleaning, proper lighting, to make sure that the functionality, the proactivity and the health of the occupants of those buildings are not just maintained, but enhanced. So I think this is a cautionary note that we have to realize that we shouldn't be single-minded in our drive for sustainability and ignore the actual liveability of the structures that we are trying to affect. A second point is we have to be broader-minded in what we include in what is truly sustainable. It just may be that climate change is the biggest threat we face in the upcoming generations, but we have to be really concerned about the environmental and health implications of the proliferation of synthetic organic chemicals, minerals, as well as other synthetic materials, nano-particles included. We know in particular that endocrine disrupting chemicals can interfere with hormonal activity, yet it's far from being widely accepted and there are huge investments by industry and manufacturers that wish it were not so. I do get re-encouragement from this conference; it is personally very helpful to know the seriousness, the breath, the excitement of so many people from different parts of the world. I also note that whole segments of our world community are missing and need to be brought into the process. I did very much like the interplay of the private sector and campus activity, I think there is a growing affinity of these two groups to work more closely together."

PLENARY PRESENTATION SESSIONS

The exchange of best practices and upcoming challenges on campus sustainability is a key goal of the ISCN. The presentations in the full plenary on Thursday morning provided the opportunity for the participants to hear about exciting projects at leading universities and corporations. **Bernd Kasemir**, the ISCN program manager, facilitated the session and introduced the speakers from the Americas, Europe, and Asia. They touched on the three key areas selected this year as focal topics: "Integration of Sustainability into the Institutional Mindset," "Planning and Decision Processes," and "Energy and CO₂ Strategies."

Session on Integrating Sustainability into the Institutional Mindset

Perspectives from Latin America and beyond

Marcelo Fernandez, Chancellor, International University of Ecuador

The International University of Ecuador's (UIDE) vision is "to be one of the best Universities of Latin America by 2015 and to contribute to the integration of the American continent." The high quality of education at UIDE is enhanced through collaboration with globally leading universities, including the offering of several master's programs with Harvard faculty members and sustainable development courses with the Earth Institute at Columbia University. Sustainability is also a key goal of UIDE's goal of cross-continental American networking: together with the Sustainability and Environmental Management Program of Harvard University's Division of Continuing Education, UIDE created the Continental Association of Universities for Sustainable Development (Spanish abbreviation: ACUDES) in May 2009. Headquartered in Quito, Ecuador, ACUDES aims to link universities from both South and North America, and has twenty initial member universities from across the region.

UIDE has three campuses: the main campus near Quito and campuses in the city of Guayaquil and in the Galapagos Islands. On the Quito campus, the continually mild climate eliminates the need for heating or air conditioning, and sustainability efforts are further supported by rainwater collection, wastewater treatment, garbage recycling, and energy-efficient lighting. More than 6,000 native trees have been planted on campus, and extensive footpaths are equipped with nature interpretation. The much smaller Galapagos campus encourages access to a unique natural laboratory for the study of evolution, with 91% of the islands' reptiles, 79% of mammals, 56% of insects, and 49% of birds endemic to the island. The campus will minimize environmental impacts and will serve as a model for eco-friendly construction in vulnerable regions. It is being designed collaboratively by twelve postgraduate students of Harvard University's Faculty of Design and eight students of the UIDE's Faculty of Architecture, supported by their respective professors.

UIDE is pleased to invite the members of ISCN and GULF to hold a future meeting at its Galapagos cam-

pus. And as the objectives of ACUDES are closely aligned with those of the ISCN, the association would like to join the ISCN/GULF initiative to enhance global networking.

Experiences from ETH Zurich

Christine Bratrich, Director of ETHsustainability, and Dominik Brem, Environmental Officer, ETH Zurich (Switzerland)

Twenty-thousand people from more than 80 nations study, research, and work at ETH Zurich, including nearly 370 professors teaching engineering sciences and architecture, system-oriented sciences, mathematics, and natural sciences. Distinguished by the successes of 21 Nobel laureates, ETH Zurich is committed to providing students an unparalleled education and outstanding leadership skills.

With its interdisciplinary expertise, the institution is perfectly positioned to play a pioneering role in the development of sustainable technologies. The foundation for this potential was laid more than 20 years ago, when the Department of Environmental Sciences was established. In 1997, ETH played a key role in establishing the Alliance for Global Sustainability AGS, followed in 2005 by the Energy Science Center ESC and by the introduction of a standardized environmental management system. The environmental goals of ETH Zurich include interrelated energy concepts for both ETH campuses, a stringent building code for new construction, and a significant decrease in fuel consumption and CO₂ and NO_x emissions, as well as a major reduction in the amount of waste and the consumption of paper.

In 2008, sustainability became an issue of the highest priority at ETH Zurich. Their strategy and development plan for 2008–2011 highlights the commitment to sustainability and related social issues. By creating a new coordination office reporting directly to the president, ETH Zurich is striving to bring together the numerous actors and initiatives in this area, and to stimulate new projects and activities. This newly created position coordinates efforts in the field of research, education, outreach, and campus sustainability. It also illustrates that the ETH aims not only to be a leading academic institution, but to contribute significantly to solving some of the world's most pressing environmental and social problems.

Sustainable Campus Projects in Taiwan

H. Jenny Su, Professor at Department of Environmental & Occupational Health, Vice President for International Affairs, National Cheng Kung University (Taiwan)

Against a background of a high level of community awareness about environmental issues among the Taiwanese people, a number of interesting and innovative projects are taking place on Taiwanese campuses that focus on the concept of the campus as a community, as well as its connection with its surrounding communities in innovative ways.

The governmental Ministry of Education (MoE) created a "Technical Committee for Sustainable Campuses" to review operational schemes, monitor progress, and offer advice on appropriate strategies for improving campus sustainability. In 2002, 76 schools submitted proposals and 23 projects were funded. Two years later this number increased to 564 submitted proposals, representing 15% of all schools across Taiwan. In addition, as of May 2009, over 3,710 out of 4,721 schools (79%) had joined the Taiwan Green School Partnership Network.

A wide range of demonstration programs have been developed in areas such as resource recycling and reuse; permeable surface paving; constructed wetland purification systems; renewable energy use; site remediation; ecological recycling through composting; teaching gardens; and the use of natural and recyclable building materials. These projects have created a more versatile teaching and learning environment. For example, participants have engaged with local communities in sharing learning contexts and opportunities through creating sustainable commercial products such as wooden furniture or dyed fabric, or planning programs such as eco-tours.

Activities for campus sustainability at Taiwanese universities include those at the National Cheng Kung University, which consists of nine campuses with over 21,000 undergraduate and graduate students. In addition, National Taiwan University; Tainan National University of the Arts; National University Kaohsiung; National Ping Tung University of Science and Technology; and National Taiwan Normal University have innovative campus sustainability programs in areas such as green buildings and water and wetlands management. All of these activities are a part of Taiwan's independent contribution to the UNESCO's Decade for Education for Sustainable Development.



Participant Comment:

Bojan Baletic

Vice-Rector for Development and Planning, University of Zagreb

"Two years ago, the University of Zagreb acquired a large piece of land, a former army base, which is towards the centre of the city. We have committed to build a green campus there and this will be specified in the international quote request. This is one thing we are doing. Another thing is that we are looking at the whole university – it is a large one, as we have over 50,000 students and 5,500 academic staff – and going through case studies and research to see what can be done for the old buildings. Of course, there are constraints due to the integration in the building's architecture. Also, our traditional campuses are in the centre of the city and the University has evolved with the city. So we are very eager to establish cooperation with the City of Zagreb, who has recently started to introduce some sustainability policies. Over the past two to three years, we have encouraged them to use the University of Zagreb to develop and test strategies that can then be applied elsewhere in the city.

We saw that joining the ISCN network would be very helpful for the University: it would give us a jump start, since we can meet many people who have already experienced similar situations, and it gives us the scope of the sustainability issue and its implementation. There are very interesting examples of how you structure, how you organize a university, how you create the instruments to deal with the academics, the problems of space and so on."

Session on Planning and Decision Processes

Sustainability at Yale: From Collaboration to Innovation

Julie Newman, Director, Yale Office of Sustainability (USA)

With a goal of positioning Yale University as a national and international leader in sustainability, the Office of Sustainability has expanded from 3 full-time equivalents (FTEs) and 2 research assistants (RAs) in 2004 to 6 FTEs, 20 RAs, 30 paid students, and over 250 volunteers from across all facets of the campus in 2009. Their activity is embedded in an organizational framework focused on:

- systems operations (transport, dining services, waste management, land-use, building design, etc.)
- policy and governance
- academic integration
- campus engagement
- strategic partnerships

At Yale, decisions with sustainability impacts are assessed against an established range of institutional governance and policy targets. These targets include a 10% greenhouse gas reduction from 1990 levels by 2020, all new construction meeting the LEED silver standard, and a 40% recycling target by 2010. Greenhouse gas reduction is to be achieved with a multipart approach: conservation, power plant and distribution efficiency improvements, renewable energy inputs, and carbon offset projects. Thus far a 7% reduction from the peak of emissions reached in 2005 has been achieved, despite of a campus growth of 3.2% in the same time-frame.

Academic integration on sustainability issues has been supported by course offerings (over 60 sustainability-related courses) and interdisciplinary degrees (for example, a Forestry School degree held jointly with Management, Public Health, Divinity, Architecture, or Law.)

In the future, the sustainability office will be paying attention to improving water and sewer management, transportation issues, energy use and fuel consumption, waste management and recycling, and supporting innovative shifts in procurement, notably by moving to a 100% recycled content paper campus-wide.

The Yale Sustainability Task Force, comprised of members with functions covering all aspects of campus operations, has been assigned to further analyze which targets and goals should be set in the future, which systems and policies need to be in place to achieve these, and which governance structures will be required to support the success of the program.

Toward a Sustainable Community through Campus Planning and Town-Gown Partnerships

Hidetsugu Kobayashi, First Chair, Campus Planning Committee, and Chair, Urban Planning Committee, AIJ, Hokkaido University (Japan)

Under the auspices of the Architectural Institute of Japan (AIJ), a Campus Planning Committee, established in 1998, studied 127 master plans from around the world and interviewed representatives from 35 campuses. This data was used to develop a Campus Management Handbook in 2004. Up until the present, the general approach to campus planning was focused on “place location” planning and building design. A new approach, as outlined in the handbook, would go beyond that and enable sustainable campus planning and management by systematic consideration of four distinct levels: (1) each component of the campus; (2) the campus as a whole; (3) the campus and the surrounding community; and (4) the nexus of the university and the wider region.

A campus master plan ideally addresses five important aspects of future decisions. It should:

1. describe a mission and vision;
2. display the results of public funding and show conformity between principles and targets with respect to university reform;
3. provide a venue for top executives to sign-off on initiatives, strategies, and responsibilities, while providing for accountability of decision-making and priority-setting in campus management;
4. provide a venue for private funding and donations; and
5. validate social contribution and cooperation with the larger community.

Although many Japanese universities have beautiful campuses, few have campus master plans. One notable exception is Hokkaido University, which in 1996 established the first campus master plan in Japan, focusing on eco-campus, green buildings, car-free zones, and an open space network. Other examples of campus sustainability projects in Japan relevant for campus master planning include the Todai sustainable campus project of the University of Tokyo, sustainability planning at Nagoya University, and the use of hydrogen gas and natural gas energy at Kyushu University.

The Sapporo Sustainability Declaration (stated at the 2008 G8 meeting in Sapporo) highlighted the importance of the sustainability role played by universities in civil society. In light of this, an ISCN initiative for an Asian Model for Sustainable Campus and Community would be valuable, particularly since it is estimated that, by 2025, more than half the megalopolises in the world will be located in Asia.

Sustainable Campus Infrastructure: Ways into a CO₂-Free Future

Joachim M. Brünner, Head of Corporate Account Management Research & Education (R&E), Siemens AG (Germany)

Decision-making on campus sustainability benefits from the availability of innovative, efficient, and cost saving technical options. Energy-consuming technical systems in buildings account for approximately 40% of global energy use. Managing and reducing such energy usage allows for both cost savings and greenhouse gas reductions.

In 2008, Siemens environmental products and solutions prevented the release of approximately 148 million tons of CO₂ into the atmosphere — an amount equal to the combined annual output of London, New York, and Hong Kong. Recent projects with research and higher education clients include:

- Automated mechanical, electrical, and lighting control systems at Hong Kong Polytechnic University;
- Integrated plant technology with guaranteed annual cost savings of €0.9 million and a 4,100-ton CO₂ reduction at Clinical Center of Reinkenheide (related to University of Göttingen)
- Combined energy and gas procurement and building technology services at Glenbrook High School District 225;
- Energy efficiency programs with guaranteed cost savings of more than €0.5 million out of total energy costs of €1.9 million at Chemnitz Clinic; and
- New building control systems and remote monitoring that reduced operational downtime by half at New York–Presbyterian Hospital.

Case studies conducted by Siemens on similar projects have shown that, to be a leader in Total Building Solutions (TBS), a higher-education organization can benefit from a structured approach that addresses issues of regulation, organization, technology, and financing. At the end it is all about integration:

- **Integration of people:** Including both university-internal and external actors (e.g. government) that own, operate, and use a building in collective decision-making;
- **Integration of processes:** Inviting all departments within the university that impact management decisions (property, security, and IT) to shared planning sessions;
- **Integration of technology:** Considering all technologies that have to work together for high building performance (e.g. heating, power, and ventilation) and
- **Integration of life cycles:** Integrating all financial aspects (liquidity vs. investment needs, buying vs. leasing technology, cost savings vs. increased earnings) in life-cycle assessments to maximize efficiency

In many of Siemens' R&E projects, guaranteed cost savings for the client can be agreed on at the outset. This enhances the ability of universities to green their infrastructure as a key element of "green university" programs that also include an institutional philosophy and an innovative curriculum geared towards sustainability.



Participant Comment:

Hidetsugu Kobayashi
Chairman, Research Committee Urban Planning and Design, Hokkaido University

"Asian universities have a specific role in the area of sustainability for our megalopolises. First, to educate our human resources (students and citizens). Second, faculty members should apply the results of their research and studies to the building of a sustainable lifestyle and society. For example, to find solutions to traffic problems in a megalopolis or to improve the energy efficiency of housing.

The ISCN conference gives us the chance to discuss or even create the future profile of society and the role of the University from various viewpoints. In addition, I can now see some kind of starting point to discuss sustainability both in the European and the Asian sense. I hope to follow through the ISCN conference with the concept of 'Campus Planning or Campus Master Plan' as a bed-rock of our research experimentation and application."

Session on Energy and CO₂ Strategies

Energy and CO₂-Strategies: Inducing Culture Change for Energy Efficiency

Michael R Bienias, Director of Estate Management, University of Cambridge (UK)

Celebrating its 800th anniversary this year, Cambridge University has a culture of “promoting excellence in teaching, learning and research.” It is also a leading construction client in the UK, with £500M capital projects currently in development. The university has many drivers behind its efforts for energy efficiency. These include:

- the EU Energy Performance of Buildings Directive;
- the government’s Carbon Reduction Commitment, which will reduce carbon emissions from participating organizations by 11% between 2010 and 2030; and
- the university’s instrumental role as a founding partner in defining the commitments of the Cambridge Climate Change Charter.

As the university strives to achieve its efficiency goals, the importance of partnership and collaboration is paramount. In particular, its drive to cut carbon emissions is shared by organizations and networks of which the Cambridge University is a member and in which it plays a leading role in the various environmental and low-carbon initiatives. In addition, there is also a great deal of academic activity on sustainable energy happening at Cambridge.

The operational aspects of energy management at Cambridge include:

- an investment in extensive electricity sub-metering systems;
- the installation of water metering and logging systems (resulting in a 63% decrease in water use over the last 20 years despite institutional growth);
- an examination of how to apply the university’s success in decreasing water consumption to energy use.

As the university’s estate has grown—a 40% increase in floor area since 1990—the monitoring and metering systems have helped provide an accurate picture of the university’s emissions over time. These systems indicate that there has been a 4.4% average increase annually in electricity use per square meter of estate as a result of increasing academic activity, particularly 5* rated scientific research. The university is attempting to reduce this consumption through the following initiatives:

- An electricity incentive scheme to achieve a 5% annual reduction in energy use. This initiative was very successful in 2008/09 and is planned to be repeated in 2009/10 and future years;
- A communications plan that has been developed and implemented to encourage awareness and motivation in staff and students in order to change their behavior and decrease their personal energy consumption. Key factors of the plan include: the use of plug-in energy monitors, informational posters, web energy usage reports, and on-line meter reading;

- A continuation of analyzing principles of energy use and carbon emissions – even considering greenhouse gas emissions by the university dairy herd!

Experiences from the KAUST Campus

Bill Odell, Design Team for the King Abdullah University of Science and Technology Campus, HOK (USA)

The King Abdullah University of Science and Technology (KAUST) campus is an enormous and ambitious multi-building construction project with a highly compressed planning and construction timeline. Between February and August 2007, the design for this 7.5 million-square-foot campus was carried from master planning status to the start of construction, and currently (summer 2009) construction and commissioning are in the final stages.

The university, which is located on the Red Sea coast of Saudi Arabia, focuses on energy production in the future, environmental remediation, carbon sequestration, water and desalination technology, diverse biotechnology applications, and sustainable agriculture. Consistent with this focus on emerging environmental research, KAUST made a commitment at the beginning of the design process to use the most innovative and cutting-edge design and building technology available. As the facility is located close to the sea in a hot, humid climate, a strong emphasis was put on heating/cooling and energy management issues. The design team drew on sustainability concepts ranging from the traditional Arabic courtyard house and urban space design, to the use of cooling wind towers and the design of Bedouin tents, as well as bio-concepts from the ecology of mangrove swamps. In addition, multiple types of transportation are being considered to reduce carbon emissions (trains, solar cars, and personal carriers such as segways and bicycles).

In balancing overall costs for carbon and energy, the design team used five decision gates in the design process: (1) sustainable impact; (2) design costs; (3) upkeep costs; (4) workable technology in the region; and (5) schedule. Major lessons learned include:

- the value of working with a fully integrated team;
- using a basic architectural approach to consideration of energy issues;
- using energy modeling and computational fluid dynamic modeling;
- modeling energy and daylight in parallel;
- having a full-time staff dedicated to coordinating sustainability issues; and
- having a weekly status update.

Most importantly, they discovered that attitude counts. Some items and issues can serve as lessons for improvement: the accelerated design schedule made it impossible to implement radiant slabs for cooling; controls planning should have been considered from the outset of the design process; and the project would have benefited from more on-site education of construction personnel.

Energy and CO₂ Strategies at Bunge

Raphael Llamas, Total Environmental Safety, Bunge Europe

Employing over 25,000 people in over 30 countries, Bunge makes agricultural fertilizers and feed, processes oil seeds for agriculture, food products, and biofuels, and mills wheat and corn for the food industry and other commercial customers. Bunge also acts as commercial middleman between growers and buyers of oil seeds. The company has four goals in their sustainability policy:

1. to be good citizens in the communities where Bunge facilities are located;
2. to achieve a high level of environmental performance by adopting science-based, culturally sensitive, and pragmatic best practices and promoting these within the supply chain;
3. to partner with companies and organizations to promote and apply sustainable practices; and
4. to communicate openly and engage in constructive dialogue with stakeholders.

Their global sustainability program focuses on climate, waste reduction, sustainable agriculture, and promotion of a healthy diet. Bunge uses the GHG (greenhouse gas) Protocol developed by the World Business Council on Sustainable Development and the World Resources Institute, in addition to selected indicators based on the Global Reporting Initiative's G3 Reporting Framework. The company's total global greenhouse gas emissions are approximately 6 million metric tons (CO₂ equivalents) per year. Of this, about half is the result of direct emissions from facilities, one third is from indirect emissions associated with electricity use at facilities, and the remainder is associated with ocean freight.

One highly innovative biomass energy strategy pivots on the use of sunflower seed hulls to generate energy. The energetic content of the hulls is 513 GWh annually while the plant uses just 360 GWh to operate annually. They are considering better ways to convert hull energy into heat and power, possibly by using condensation-type turbines and cogeneration. Such process innovations are an integral part of Bunge's mission to enhance lives by improving the global agribusiness and food production chain.



Participant Comment:

Victoria Hands

Environmental and Sustainability Manager, London School of Economics & Political Science

"My particular interest during this conference is to look at what other people do in terms of campus sustainability. It's really useful to get a benchmark of where you are compared with other universities. Quite interestingly, on an international basis, we see that the same things work and the same things don't work, so that there seems to be a universal sort of checklist of how you can help your school integrate sustainability. In the UK, HEFCE (Higher Education Funding Council for England) has funded a three-year pilot of a phased environmental management system for the higher education sector called Ecocampus. It takes you step-by-step through bronze, silver and gold to platinum, then you do a small leap to a conversion for ISO 14001. We have currently just achieved the bronze stage, which means having the basic environmental policies and benchmarking under way. I'm really personally reticent to specify targets before you're got adequate benchmarking data and I think that's been highlighted by everybody here. You have to count and measure things. Based on that, we're obviously trying to meet the government targets for a range of factors."

SHARED EXPLORATION: WORKING GROUP SESSIONS



John Spengler (Harvard), Bernd Kasemir (ISCN Program Manager), Ann Kildahl (Hong Kong University), and Peter Hopkinson (HEEPI) during working group discussion.

A key feature of the conference was the strong focus on interactive work, enabling in-depth discussions and shared exploration between all participants. This included in-depth discussions in the four ISCN Working Groups that met for parts of all three conference days, to consider inputs drafted by the group members and co-chairs before the meeting or presented in the group sessions; discuss current plans for shared research and dissemination; and plan next steps for each group. Each group presented key findings from its deliberations in a shared plenary discussion in Track A, as well as to the university leaders participating in Track B.

Working Group I: International Sustainable Campus Awards Program

WG I conference discussion co-chairs:

- Leith Scharp (Harvard)
- Claude Siegenthaler (Hosei)

Discussants:

- Peter Hopkinson (HEEPI Network, Member of the Jury)
- Jack Spengler (Harvard, Member of the Jury)
- Jenni Su (National Cheng Kung University, Member of the Jury)
- Su Wild-River (Australia National University, Award Winner)

Background

The Award Program Working Group was established to develop and implement a prize or series of prizes that would fuel the international sustainable campus movement while also adding momentum to the efforts of the other ISCN working groups.

During its first year, this working group prepared several documents that served as discussion starters during the 2nd annual ISCN Conference in Zurich. In particular, they drafted a report that identified existing networks and awards that could potentially fertilize their work and an input paper that articulated the key elements of an ISCN award, including criteria, process, and goals. During the Zurich meeting, three different award tracks were identified and framed in accordance with the goals of the ISCN and the criteria and principles of the award scheme defined at that point.

Following the conference discussions, two awards were further developed, and an award secretariat and website were set up. The first call for applications was announced in November, followed by the establishment of a jury of international experts. Ultimately, thirty projects from four continents applied for the ISCN awards, twenty in the “Impact” track and ten in the “Construction” track. (Details on the application process and the application forms can be found at <http://hosei.ch/iscn/>.)

During the 3rd ISCN Conference in Lausanne, the first two winning projects were presented: EPFL in the “Construction” category and ANU in the “Impact” category. Details on the winning projects and the award ceremony are available at <http://www.isc-network.org>, and from the summaries of the awards lectures presented elsewhere in this report.

Objectives

Following on the heels of this first award cycle, the 2009 WG I meeting focused on reviewing the award process from the perspectives of the applicants, the jury members, the secretariat, and other award stakeholders. In addition to identifying incremental improvements, the group revisited the overall strategy for creating interest from prospective applicants and their stakeholders, as well as sponsors, and for inviting existing regional networks and award schemes to collaborate with this international award. To this point, the group debated reframing and further differentiating the award tracks beyond the “Impact” and “Construction” categories.

Discussions and Findings

Having now experienced the first award-giving cycle, this year’s discussions were jumpstarted in a very informal and lively manner—an atmosphere that turned out to be most productive. Rather than a chronological summary of the meeting, the following viewpoints focus on the concrete results.

Incremental improvements to the award process

A rich list of recommendations was drawn from jury members and applicants involved in the first awards process. Ranging from how to improve the application forms to how to verify the quality of data provided, most points were relatively straightforward and have been sent to the secretariat for implementation.

Securing the impact of the award scheme

Now that the first two awards have been given, members and award recipients explored ways to create value for all parties involved, particularly the winners, prospective sponsors, the ISCN, and its target audience. This conversation included a discussion about the “risks” of the award process for non-winning applicants. Members were concerned, in particular, about the danger of demotivating applicants who were not selected as recipients. As expressed by the three jury members present, most entries were of high quality and exemplified the kind of good practice that could inspire others. Non-winning projects could benefit through obtaining feedback from the jury, or receiving a special mention for particularly interesting aspects of their project or on a regional basis (for example “best application from the US”). Furthermore, shortlisted projects could be featured along with winning projects in the ISCN gallery of good practice.

Another potentially adverse impact discussed was the risk that applicants might compare their entries to the winning applications in a way that triggers lengthy but

nonproductive discussions around a single and subjective aspect of a project. Hence, it was agreed that the applications and submitted materials should not be published. Instead, the winning projects should be portrayed by the secretariat or jury members in the form of a story that highlights the outstanding characteristics of the project from the perspective of the jury.

The question of how to secure a high impact for the awards was approached from various viewpoints. Jury member Jack Spengler pointed out that branding is key and recommended choosing an easy to memorize, meaningful name. The idea emerged to specifically associate award categories with existing, well-known authorities such as institutions that promote the advancement of sustainability, education, science, or climate change mitigation (such as UNESCO, IPCC, or *Nature* magazine), or individuals who are well recognized in those fields (such as Al Gore, Bill Clinton, or Richard Branson). The idea of assigning a master’s or Ph.D. student to design a communication concept for the awards was also suggested.

Award winner Su Wild-River suggested the possibility of creating opportunities for scholars to publish about these projects in order to trigger faculty interest in sustainable campus issues and strengthen the collaboration between administration and scholars (students or professors). Furthering this idea, the suggestion was made to link awards to scholarships that would help finance and add rigour to the analysis and evaluation of the respective projects. The scholarship could also be configured so that the award winner receives a budget for a thesis or paper on an issue relevant to the agenda of the ISCN, which they could assign to a scholar on their campus.

Furthermore, it was suggested that the ISCN should not limit communication regarding the awards to just the online ISCN gallery of best practice. Award winners and shortlisted applicants could also be provided with platforms to share their experience, such as through workshops and lecture series or webinars. In addition, the ISCN could work on providing such training opportunities at various conferences—not just at the ISCN conference itself.

Collaborating with existing regional awards and networks was also discussed as another method of securing outreach for the award. This WG will review and update its report on existing awards, allowing the secretariat of the awards to build the relationship with those networks and schemes. Those connections are not only valuable when the call for applications is launched and the award winner is nominated to the shortlist, but also when the group needs to communicate about the results and the winning applications.

Framing the awards and its categories

When the entries were first reviewed, the jury was surprised to note that the “Impact” category attracted many more applicants than the “Construction” category. One possible reason for this is that many applications were drawn from a “university-wide perspective,” focusing on the course and results of comprehensive sustainability programs over a long period of time. This

was probably a result of calling for applications through networks of Sustainability Managers, such as ASHEE, who were seeking recognition for their organizational unit rather than for single initiatives they had implemented. Although this talent pool is certainly welcome and should even be cultivated further, the jury faced the difficult task of picking a winner when there were so many excellent, but much smaller-scale, more specialized initiatives addressing key issues of campus sustainability such as carbon mitigation. As a result, the group decided to further differentiate the categories in order to recognize a wider diversity of projects.

Other arguments for adding award categories and reframing existing ones were articulated, including attracting sponsorship, raising the image and reach of the award by teaming up with important institutions or personalities, and giving more visibility to key challenges of the sustainable campus movement. The feasibility of such an approach was illustrated by jury member Peter Hopkinson, who shared the experience gained from developing the Green Gowns Awards in the UK—a set of awards that are highly differentiated, continually reframed, and aligned with professional associations. Referring to the several hundreds of applications received in recent years, he warned that a successful ISCN award could easily overstretch the capacity of the current secretariat and jury, and that differentiation could be used to mobilize additional jury members from varied or more specialized institutions.

Extensive brainstorming on additional categories yielded a wide variety of ideas, which were presented to the plenary of the ISCN conference for an initial review. This review pinpointed the following ideas for further elaboration:

- A differentiation of the existing “Construction” category into an award for multiple buildings and for single buildings.
- A differentiation of the existing “Impact” category into a continual improvement and a pioneering or entrepreneurial award, the first one highlighting comprehensive, long-standing programmes, the latter featuring younger, innovative initiatives.
- A “Momentum” award for projects that are especially suited for scaling up or for integrating a broad array of practices.
- Single issue awards, particularly a Carbon Impact Award (to be organized in collaboration with important institutions such as the IPCC or sponsors like HSBC or SwissRe).
- A “Research” award, to foster explorations into issues regarding sustainable campus development and trigger interest in scholars who aim to publish papers. This award could be given in conjunction with a scholarship program or could be published in a special section in Nature or Science magazines.
- An award for projects that demonstrate System Thinking and interdisciplinary, integrative approaches.
- An award for the Living Laboratory or Campus Classroom that features outstanding practice in turning sustainable campus activities into education (which could be organized in collaboration with UNESCO, for example).

- A specific category for student entrepreneurship in order to encourage applications from the many active student initiatives, such as oikos International or NetImpact.

The idea of giving a special mention for the best application from a region, when that specific area has generated a sufficient number of applications, was also well received.

Next Steps

The WG will review these ideas during summer and early fall and will likely pick a few additional categories that would serve the overall agenda of the ISCN best and for which resources can be mobilized.

Summary prepared by Leith Sharp and Claude Siegenthaler.

WG I discussion participants at Lausanne meeting: Andreas Eklöf, Peter Hopkinson, Ann Kihldal, Leith Sharp (co-chair), Claude Siegenthaler (co-chair), Jack Spengler, Jenni Su, Philippe Vollichard, Su Wild-River.



Participant Comment:

Michael Bienias
Director of Estate Management, University of Cambridge

"As Director, I'm particularly keen to see research being translated into practical means of saving energy. I understand the importance of research and I take the most interest in those academic programmes that will be of real benefit to us in managing the estate. Such an academic programme has prompted us to work on and develop relationships with the Clinton Climate Initiative. Bill Clinton has invested heavily in setting up energy-saving companies that are ready to develop energy-saving processes within existing buildings. That's where the difficulty lies – certainly in Cambridge that's the case. We're engaged with them at the moment to see how much use we can make of those processes and I'm really very hopeful. The initiative deserves recognition and support and I think it will be enormously useful to the University to buy into.

I get a great deal of reassurance and comfort during this conference from knowing that people, literally worldwide, are tussling with the same issues and that issues to do with sustainability within universities are equally difficult. It's enormously important that we share the information together and very comforting to know that we're confronting the issue, gradually working our way forward against different standards and different constraints."



Participant Comment:

Christine Bratrich
Director of ETH Sustainability

"At ETHZ, we encourage interdisciplinary work by focusing on themes such as sustainable energy technologies, which require interdisciplinary collaboration since you can't find solutions on a disciplinary level. People are motivated to work on these projects, the problem being simply that they are completely overloaded. This is where we can jump in, by putting a potential donor in contact with a professor or helping with time-consuming coordination and management tasks. Trade shows and exhibitions also help by profiling professors, their departments and, at the end of the day, our school.

I am really interested in the GULF discussions for the top senior level that are taking place during this conference. This is quite new. To do this job, you need the full backing of the board, which is the case in our school; it would be a suicidal job if all you did was greenwashing. I expect quite a high return on investment from the GULF meetings."

Working Group II: Charter and Guidelines

WG II conference discussion co-chairs:

- Ariane König (University of Luxembourg)
- Joseph P. Mullinix (National University of Singapore)

Discussion presentations:

- Ariane König (University of Luxembourg)
- Bojan Baletic (University of Zagreb)
- Marie-Gabrielle Méry and Mathieu Garnier (FondaTerra)

Background

The ISCN Working Group II on Charter and Guidelines (WG II) has three main objectives: (1) to foster continued commitment to sustainable development in higher education and research organizations; (2) to facilitate target-setting and enhance organizational learning and improvement; and (3) to provide structures for effective exchange of information on best practices and lessons learned across continents.

Between the ISCN Zürich 2008 meeting and the ISCN Lausanne 2009 meeting, the group prepared a first version of the Charter and Guidelines in a form suitable to present to university presidents to obtain feedback. The charter outlines organizational commitments that will help universities achieve the ISCN goals. Associated guidelines provide recommendations for defining and implementing strategic activities. "Topics for target setting," which support practical implementation of campus sustainability programs by providing direction on how organizations can define, commit to, and monitor concrete targets, remain to be further developed.

The main objective of WG II in Lausanne was to further develop the ISCN Charter and Guidelines as a tool to facilitate experience exchange across organizations. The group also discussed a strategy for gaining the first signatories from leading universities.

Presentations on WG II Tasks and Case Studies Link Charter and Guidelines to Practice

Presentation 1: Overview on current drafts of the ISCN Charter and Guidelines

(Dr. Ariane König, Responsable pour le Développement Durable, Université du Luxembourg)

Several existing initiatives maintain goals related to those of ISCN. These include the 1990 Talloires Declaration, the 1993 Copernicus Alliance, and the United Nations Declaration on the "Decade for Higher Education for Sustainable Development from 2004–2013." In addition, there are regional and national networks with related missions (for example, the North American AASHE network and the UK HEEPI initiative). Many forward-looking firms also develop their approaches to corporate governance and reporting (for example, following the Global Reporting Initiative guidelines) and address sustainable campus design in this broader strategic context. However, there seems to be a lack of

systematic effort to facilitate information exchange between such networks and organizations. The ISCN WG II is developing a Charter and Guidelines to facilitate this exchange and to provide tools to enable organizational commitment and action. The charter is structured around three topics: (1) sustainable construction, renovation, and campus operation; (2) sustainable master planning and development, mobility, and community integration; and (3) the practice of linking facilities, research, and education for sustainable development. The ISCN Guidelines associated with this charter describe the objectives of the ISCN and each of the above goals in more detail. They include a table on "Suggestions for Campus Management Objectives," alternatively called "Tools for Target-Setting," which provides examples of targets that each ISCN member organization could set for themselves, monitor, and report progress on.

Presentation 2: Sustainable development at the University of Zagreb and feedback on ISCN tools (Prof. Bojan Baletic, Vice Rector for Development and Planning, University of Zagreb)

Three case studies were presented that outlined opportunities for sustainable growth at the University of Zagreb: (1) analysis of the energy profile of the university's existing buildings, and solutions for and potential results of renovating these facilities; (2) a project for an artistic incubator at Borongaj campus which would serve to facilitate social and professional interactions; and (3) a new campus at Borongaj, including the proposed technologies and cost estimates for energy-efficient construction. The main urban planning concern regarding a new Borongaj campus is how to integrate the campus into the city itself and to open the campus perimeter in such a manner that urban flows into and through its structure are attracted. This could involve laying a new tram line through the campus, connecting the campus with the city network and giving it a more urban character. Further systematizing the ISCN guidelines will provide a start for developing an enhanced theoretical framework for future campus planning. Integrating this in the development process of the new university campus will allow the campus to serve as an example for the sustainable development of Zagreb and other cities.

Presentation 3: Fostering sustainable campus development in higher education in France and feedback on ISCN Guidelines (Marie-Gabrielle Méry and Mathieu Garnier, Chargés de Projet, FondaTerra, France)

FondaTerra is an organization founded by presidents of French universities to foster the development of sustainable campuses. A major national initiative with importance to campus development is the plan to relocate several "Grandes Ecoles" (including HEC) and two universities on the Plateau de Saclay near Paris. FondaTerra has over 70 member organizations including 27 institutions of higher education and research and 18 private-sector organizations. One of its key goals is improving the link between research, teaching, campus

design, and community life. Energy-efficiency activities include developing a map of energy consumption and greenhouse gas emissions at 85 university campuses in France, a national guide with methods for energy-efficient campus renovation, and a tool box on “sustainable mobility on university campuses.” They have also developed a charter for “Une alliance des universités françaises en faveur du développement durable.” The Charter is currently being considered by the French Association of University Presidents. Furthermore, a recent survey documented activities on environmental management and research and education for sustainable development at 51 universities, and showed that a platform to share best practices is seen as critical for the successful implementation of sustainable development plans.

Feedback on the ISCN Charter and Guidelines included their potential use as a structure for case studies to help comparative analysis of strengths and weaknesses of diverse sustainable campus projects and for effective communication on best practice, worst practice, and other challenges.

Discussions: Improving the Charter, Guidelines, and Case Studies

The ISCN Charter

The March 2009 version of the ISCN Charter was generally welcomed. This Charter was also presented on 11 June at the parallel Track B meeting of the GULF Association of University Presidents. President Aebischer proposed to support the signing of the ISCN Charter by all GULF Universities. Following that, they could then raise awareness to support endorsement of the Charter also by other universities in their respective regions. (For more Track B results on the Charter and other topics, see Track B results summary).

Action Points:

- Review the Charter on compatibility with IARU and GULF goals and add appendices as suggested.
- Address the challenges of fostering interdisciplinarity at universities in Charter and Guidelines.
- Use the opportunity of the 2010 GULF meeting in Davos to obtain endorsements by GULF university presidents on a revised version of the ISCN Charter.
- Promote the Charter through association with other networks and intergovernmental activities, such as the Shanghai Declaration at the World Expo.

ISCN guidelines and case studies

In general, the Guidelines were considered a useful tool to guide implementation of sustainable development policies at universities, and to facilitate a structured exchange of experiences with sustainable campus development.

A number of topics were suggested that could be addressed in more detail in a subsequent version, including some environmental issues (e.g., biodiversity), social topics (e.g., barrier-free campuses for persons with special needs), and educational interests (e.g., integrating sustainable development in university curricula). There were controversial discussions regarding

whether to suggest overall emissions targets, and on the challenges surrounding sustainability issues that are key in some world areas but not in others (e.g., fair trade, responsible investment, etc.). The development of regional guidelines by ISCN was deemed unnecessary by the group unless there are regional independent chapters of the ISCN in the future who would conduct such work quasi-independently.

The group agreed that linking theory with practice will enhance usefulness of the guidelines, and for this the guidelines should be associated with case studies organized in a searchable database. Work on this has already been started by René Lisac at the University of Zagreb (a summary of his inputs into the WG discussions is available in an extended version of the WG II discussion overview). The French organization Fon-daTerra also offered to develop case studies.

Action Points:

- A meeting in the first week of September in Luxembourg will focus on collaborations with the University of Zagreb on structures of and relationships between guidelines, case studies, and a searchable database.

Tools for target setting and the relationship to schemes for eco-certification of buildings

In conjunction with the guidelines, WGII is developing “topics for target setting” in order to support individual organizations in defining, committing to, and monitoring concrete sustainable campus targets (qualitative, quantitative, or both). This would include a recommendation to take into account existing regional eco-certification schemes, such as the Japanese CASBEE, BREEAM, LEED, or the new German DGNB system. As there are very diverse environmental and social conditions across the five continents, and in many organizations the easiest efficiency targets have largely been achieved already making further emission reductions increasingly difficult, recommending absolute reduction targets for ISCN members across the board was seen as problematic. However, including a reference to IARU emission reduction targets in an appropriate manner was suggested.

The topics for target-setting could be particularly useful in providing more detail on topics included in the ISCN guidelines but not covered much by environmental eco-certification systems, such as community development, integration of “town and gown,” and integration of research, teaching, and campus facilities.

Changing roles of universities and interdisciplinarity

It is generally agreed that science that supports sustainable development requires "an interdisciplinary approach." The group agreed that interdisciplinary projects pose particular challenges in terms of evaluation, funding, and management, and that such challenges should be addressed in an annex to the Charter and Guidelines. As a start, a thought piece on this topic has been prepared by the Philosopher of Science, Professor Jerome Ravetz (included in an extended version of the WG II discussion overview).

Interface activities to better connect WG II activities with the other ISCN Working Groups

All four ISCN Working Groups recognized the need for closer interaction and exchange. One option to achieve this would be co-supervised Ph.D. research projects, possibly linked to searchable web databases.

WG I - Awards

WG I and WG II will work together to make the Awards application form align more closely with the guidelines, case studies, and associated database. They will explore whether information in submitted awards applications can be used for case studies.

WG III - Financial and Decision Mechanisms

WG III will provide information on financial mechanism case studies in order to improve the ISCN guidelines and the case study database. Research topics of common interest include returns on investments in environmental measures leading to future savings on expenditures for natural resources (energy, water, etc).

WG IV - Integrating Research, education, and facilities

Information from this working group, in particular on integrating sustainable development in university curricula, should be more systematically added to the ISCN guidelines. The chairs of the WGs will work together to achieve this.

Action points:

- Working Group chairs will work together to brainstorm Ph.D. topics with the goal of compiling a list of four to six priority Ph.D. topics as a basis for a proposal for funding of shared ISCN activities.

Next Steps

Next steps on the Charter are to update it and present it to GULF members at the next World Economic Forum in Davos, and then to link it to other international/intergovernmental activities.

The Guidelines will be revised and, at the end of 2009, turned into a living document that will be updated every one or two years, with inputs from case studies and the awards scheme.

A template for case studies and a database will be developed over the next year (lead: University of Zagreb, in collaboration with the University of Luxembourg and FondaTerra). The topics for target-setting will also be considered in greater detail in conjunction with the database design.

Furthermore, WG II will start the development of a proposal for funding for ISCN that will be based on four to six Ph.D. students (and possibly post-doc projects) before the end of the year, that will be developed with all WGs. These projects could be co-supervised by two or more ISCN member organizations in different WGs to enhance information exchange within the ISCN.

Summary prepared by Ariane König.

WG II discussion participants at Lausanne meeting: Bojan Baletic, Michael Binas, Dominik Brem, Yves Corminboeuf, Jenny Forshufvud, Mathieu Garnier, Hidetsugu Kobayashi, Ariane König (co-chair), René Lisac, Naomichi Kurata, Marie-Gabrielle Méry, Joseph Mullinix (co-chair), Takao Ozasa, Takeru Sakai, Naoki Tsurusaki, Takeshi Uneo.



Participant Comment:

Julie Newman

Director, Yale Office of Sustainability

"The different networks I am active in have various leveraging points and varying needs. One type of network is the one I helped start in the north east of the United States, which brings together sustainability professionals from universities and outside. We don't set targets or sign off on charters, it's rather an opportunity to demonstrate the evolution of commitments and best practices within each of our institutions, and to have some high-level discussions about what works and what doesn't. Another type of network is the Council of Ivy Presidents. The sustainability point people from each of these institutions develop principles and commitments that we feed up to the presidents for endorsement; once they are approved, we submit how we are going to implement them. The International Alliance of Research Universities (IARU) follows the same idea.

Now, as GULF is part of the World Economic Forum, we have a real opportunity to put on the table the role of higher education in society: how ought higher education respond in the roles of operations? The next level that is really coming to the forefront is how do we prepare our citizenry and our students? Because we're facing such complex issues, we have to ensure that students are prepared to deal with these. How do you think and communicate across disciplines? How do you recognize complex systems? I believe that is what we are going to have to address in time."

Working Group III: Financial and Decision Mechanisms

WG III conference discussion co-chairs:

- Erika Meins (CCRS University of Zurich)
- Steve Mital (University of Oregon)

Discussion presentations and session leaders:

- Arthur Onyeali (University of Zurich)
- Leith Sharp (Harvard University)
- Julie Newman (Yale University)

Background

Sustainable campus development and operation are often hampered by inflexible budgeting processes and/or unfavorable organizational constellations during the decision-making process. The ISCN Working Group III (WG III) aims to: (1) identify financial and decision mechanisms that contribute to and, inversely, hinder sustainable campus development; and (2) facilitate mutual learning on decision-making mechanisms that support sustainable forms of construction.

Between the ISCN Zürich 2008 meeting and the ISCN Lausanne 2009 meeting, co-chairs refined their list of key factors that contribute to or, inversely, hinder sustainable campus development, and collected additional case study information from working group participants. WG III members also designed a survey that was reviewed and tested by additional WG III participants. Under the supervision of Erika Meins, the survey was administered during spring 2009 by a graduate student at University of Zurich who collected and analyzed responses from forty-seven universities. Discussions on how to structure working group sessions led to an agreement to invite Leith Sharp and Julie Newman to lead a workshop on Institutional Change.

The main objectives of the WG III discussions during the Lausanne meeting were to complete a list of the most relevant financial and decision-making mechanisms and to chart a path forward for how best to disseminate the recommendations and encourage their implementation on campuses across the globe.

Workshop Sessions

Session one: Survey results (Arthur Onyeali, University of Zurich)

Results from the fifty-four-question survey confirmed most of the financial and decision-making mechanisms identified previously by the group. Responses from public universities were compared to those from private universities. Universities with robust sustainability initiatives still lack specially designated funds to support green building attributes. Key decision makers involved with recent green construction projects understand life-cycle costing. Inputs from operational staff, user groups, and capital construction staff were incorporated into the building design. The survey also confirmed that the most important factor in campus green construction is the existence a written institutional commitment to

sustainable construction. The second-most important factor is the presence of a well-placed “champion” of green construction on the decision-making team.

Session two: Managing institutional change (Leith Sharp, Harvard University and Julie Newman, Yale University)

Leith and Julie led the group in an informal discussion on the history and development of the campus sustainability movement and current needs. Leith identified the following three periods in the sustainability movement:

1. Wave I: Defined by individual pilot projects (recycling, carpooling, etc) without deep institutional commitments.
2. Wave II: Defined by institutional commitments that result in hiring professional staff, establishing governance structures, and signing executive-level documents such as the American College and University Presidents' Climate Commitment.
3. Wave III: The period that we're now entering, which is defined by deeper institutional commitments that begin to embrace systemic change.

The group then shared insights from their respective professional experiences. Some insights from the sessions that will likely inform the WG III's future work include:

- People are not afraid of change, but afraid of uncertainty. A successful sustainability director finds ways to mitigate the risks associated with change.
- Sustainability does not follow the organizational chart. Rather, it cuts across it. Successful sustainability programs need to develop horizontal networks in addition to vertical ones.
- Systems thinking is not well understood within the ranks of university staffs.
- Universities are not rational. Planning and goals are murky. Sustainability professionals/champions need to learn to function in and be comfortable with this environment.
- To achieve deep institutional or systemic change, programs must be positioned to engage their campus communities in visible, individual, and creative ways over a sustained period of time.

Session three: Recommendations (Erika Meins and Steve Mital)

The group collapsed the work of the past eighteen months into a set of recommendations for creating an environment that ensures sustainable campus construction.

Recommendations:

1. Institutional Commitment
 - a. Institutionalize and/or codify sustainability commitments, i.e. with a mission statement or by signing the ISCN charter. It is important to make the commitments as binding as possible.
2. Personal Commitment
 - a. Hire appropriate staffing to implement and/or manage major sustainability activities who can interact equally with buildings, operations, academic, and campus life management.

- b. Identify and build a network of champions—find them, hire them, enable them. Use them to institutionalize commitments before they leave the institution.
3. Process
- Develop an implementation plan (master plan).
 - Involve key stakeholders, especially occupants and operations staff, in building design phase. (Note: Operations budget will bear 90% of total cost of building over its total life.)
 - Consider life-cycle costs during design.
 - Train occupants and operations staff to manage new building systems effectively.
4. Financing
- Establish a life-cycle fund to finance sustainability features in new construction (5% of total construction cost is appropriate). This removes the burden of first costs from current decision-makers.
 - Establish a green fund or revolving loan fund to pay for sustainability features in major renovation projects. Green fund should also finance training for operations staff.

Next Steps

WG III's recommendations for creating sustainable campuses result from case studies, working session discussions, and an international survey. These recommendations can be appended to the ISCN charter drafted by WG II. We would like to explore with WG II and others the possibility that signatories to the charter be required to demonstrate implementation of a specified number of the recommendations to remain in good standing. The American College and University President's Climate Commitment (ACUPCC), which more than 600 universities are party to, uses this tactic to great effect. It sets expectations high and at the same time recognizes that institutions require flexibility in meeting the spirit of the charter.

Summary prepared by Steve Mital.

WG III discussion participants at Lausanne meeting: Ulrik Abild, Veronika Gmür, Paul Horan, Erika Meins (co-chair), Steve Mital (co-chair), Julie Newman, Bill Odell, Arthur Onyeali, Christian Ross, Leith Sharp, Stephan Tanner.



Participant Comment:

Mrs Su Wild River
Deputy Manager ANUgreen, Australian National University

"The key to our success in rooting sustainability in our school is our effective engagement of the people within our community. We offer a range of ways for students and staff at the Australian National University to get involved with sustainability. We offer rich information on our website*, freely available to anyone, run events such as the annual 'Celebrate Sustainability Day' and 'Great Green Debates', host a 'Sustainability Learning Community', provide adjunct supervision for students in courses within any discipline, and offer paid internships both within ANU and in partnership with other universities. There are also professional development training opportunities and the chance for anyone to contribute directly to university sustainability. We make it both fun and rewarding for people to help achieve sustainability. The ISCN conference is a great opportunity to meet others involved in sustainability within the higher education sector. The examples presented are inspiring and provide good ideas to take back to the Australian National University. It is humbling to see all the achievements, and hard to believe that we have been selected as the winners of the Impact Award. But the distinctive features of our own program gradually became clear to me during the conference, and this was a great stimulus to both continue with our community engagement work, and also to help other campuses to take up similar initiatives."

* www.anu.edu.au/anugreen/

Working Group IV: Integrating Education, Research, and Facilities

WG IV conference discussion co-chairs:

- Katja Brundiers, Arizona State University (USA)
Per Lundquist, Royal Institute of Technology (Sweden)

Discussion presentations and session leaders:

- Eddi Omrcen (University Gothenburg, Sweden)
- Karen Kashmanian Oates, National Science Foundation (USA)
- Milena Ràfols Salvador, Polytechnic University Catalonia (Spain)

Background

Working Group IV's focus, "Integrating Education, Research, and Facilities," was inspired by the outcomes of a series of workshops at previous conferences. All these workshops concluded with the need to strengthen the collaboration among administration, faculty, staff, and community partners in order to link knowledge to action for a sustainable campus. Group members agreed on the need to bridge the transformation of the built environment with educating the mind-sets and skill-sets necessary to enable organizational change toward sustainability. As Professor Barcelo (Universitat Politècnica de Catalunya) points out: "We should not only worry about what world we leave to future generations, but also what future generations we leave to the world."

Conceptual Model: Campus as Living Learning Laboratories¹

The WG IV discussions at the conference built on the notion of the Campus as a Living Learning Laboratory (CLLL). The CLLL approach means that if universities are able to conceptualize sustainability problems as research or classroom projects that offer formal educational opportunities for students, they can use their campus as a place to explore, approach, and solve these problems. Solutions developed in these educational projects can be implemented directly on campus, and their performance can be monitored, assessed, and improved.

As a strategy for implementing the CLLL step by step, WG IV proposes a type of sustainable campus project with specific characteristics. Such projects should connect a sustainability problem or challenge in the built environment with the mind-sets and skill-sets needed to solve that problem, using the opportunity that all actors involved in the project and the problem addressed are present in the campus setting. Specifically, project criteria are:

- focus on sustainability from an integrated perspective (not only an ecological perspective);
- provide formal real-world learning opportunities for students;

- engage faculty in leading research projects and supervising students in these projects;
- involve practitioners to guide applicability of research results; and
- commit to mutual learning among students, faculty, and facilities/practitioners.

The added value of such projects can be:

- Generic learning outcomes regarding sustainability that are relevant for students, faculty, facility managers, staff, and other community partners.
- Specific learning outcomes regarding sustainability that are scientifically sound and applicable solution approaches
- The creation of settings where all the "stakeholders" can meet on terms that facilitate mutual learning and transcend hierarchies. This can provide benefits such as:
 - facilitated coordination of sustainability activities across campus;
 - buy-in and ownership for implementation ; and
 - "points of pride" for communication and outreach (impact for society)

However, the collaboration among faculty, staff, students, and stakeholders can pose various challenges and requires a careful project design and management. Working Group IV aimed to develop strategies to cope with these challenges.

Contributions: Lessons from the Field

Managing facilities and operations: Development and implementation of a University Climate Strategy (UCS) (Eddi Omrcen, Environmental Management Unit, University Gothenburg, Sweden)

This presentation illustrated the University of Gothenburg's development of a UCS that systematically reduces the university's climate impact and presents the university as a climate-responsible actor and employer—an approach which appeals to students, staff and faculty.

Education for sustainability—Integrating education, research, and facilities: The ecosystem for integration and innovation (Karen Kashmanian Oates, Deputy Director, Division of Undergraduate Education, National Science Foundation, USA).

This presentation introduced the relevant funding avenues for research and educational grants. Drawing upon selected sustainability projects, the presentation illustrated how NSF-funded projects advance sustainability in universities, in both the classroom and the built environment.

Research and faculty engagement for sustainability—Preliminary results: Incentivizing faculty engagement in sustainability research and education (Milena Ràfols Salvador, Polytechnic University Catalonia [UPC], Spain)

This presentation illustrated UPC's initiative to analyze the frameworks and incentive structures regulating faculty's research interests and educational activities regarding sustainability. The preliminary results of their international survey on "recognition and support mechanisms of SD activities for academics" offered first

¹ This model is currently developed by Arizona State University (ASU) through a partnership of ASU's School of Sustainability and ASU's Office of Sustainable Business Practices (Campus Sustainability).

insights regarding incentives and obstacles. The initiative ultimately strives to propose to university leaders a policy for incentivizing faculty's activities in the field of sustainability.

Outcomes

Managing facilities and operations

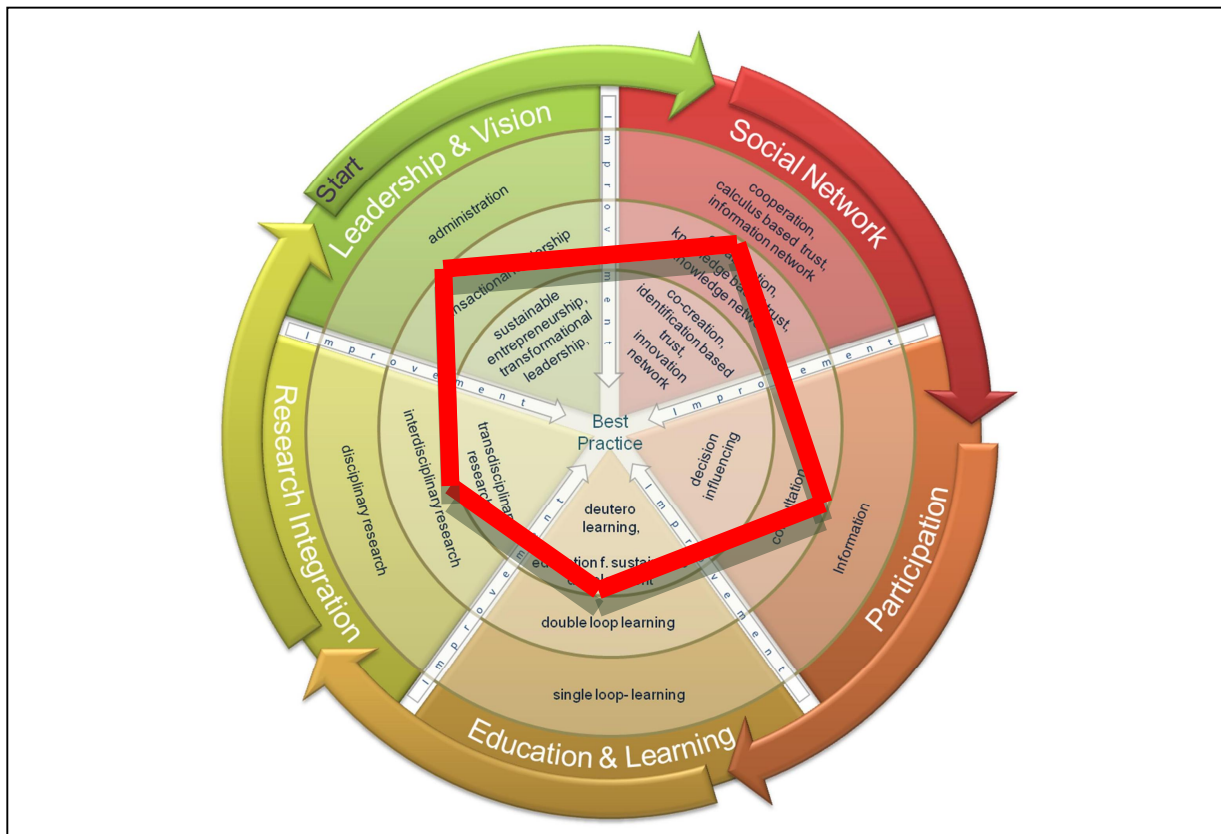
The discussion explored key elements in managing campus-wide projects to improve performance of facilities and operations.

- Competition: Develop tools to stimulate, motivate, and create change-agents (e.g., Awards)
- Communication: Visualize and “speak in the right language” (e.g., don't speak about energy as kWh when energy comes to people through products and services they consume).

Education for sustainable development

The discussion explored core learning outcomes and skills for students (and faculty) in sustainability and outlined learning settings where these outcomes and skills could be trained. (Note: measurements to evaluate learning outcomes and learning settings have not been discussed.)

- **Core learning outcomes/skills:** (i) Openness for the societal perspective (overcome introverted academic perspective); (ii) Holistic thinking (Social perspective: integrate social and collective behaviors, adopt intercultural competences, and oscillate between individual and collective needs. Economic perspective: integrate: bottom line costs, economies of scale of sustainability, costs to ensure basic needs for all.); (iii) Critical thinking; (iv) Systems thinking (Coping with uncertainty; Normative sce



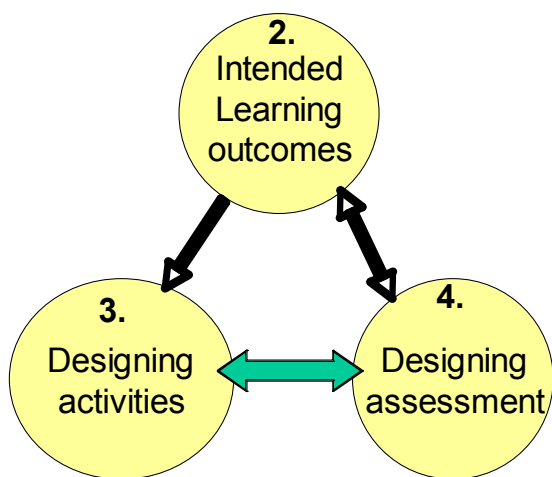
Reflection and planning of an SD Process in the Graz Model for Integrative Processes toward sustainability.

Clemens Mader, University of Graz, and Regional Centre of Education, RCE Graz/Styria, (Austria) presented a summary of key principles for a successful integrative process: Leadership & Vision (value system, action goals); Social Networks (partners, financial and knowledge); Participation (involvement of society and affected people in action); Education & Learning (ESD actions, learning by actions and exchange); Research Integration (research projects).

Source: Mader 2009. (Mader, C., 2009: Principles for Integrative Development Processes towards sustainability in regions, University of Graz, 141p. [on demand: Clemens.mader@uni-graz.at])

narios; Future studies (supplementing linear, numerical studies; cause—effects / cascading effects; Managing complex systems.); (iv) Solution-orientation; (v) Communication (Promote what you want to achieve; learn how to negotiate (rhetoric, mediation, conflict management and resolution, consensus building.); (vi) Participation (With stakeholders; Civic engagement/Respect; Perspectivism (Relativity of own perspective.); (vii) Social and interpersonal skills.

- **Connecting learning outcomes to supportive learning settings:** (i) engage students in controversial debates and thereby account for a variety of perspectives (apply different formats in the classroom to make students ready to engage outside the classroom); (ii) make students develop applicable solutions in collaboration with community partners; (iii) expose students to all stakeholders in a project (e.g., other 'experts', decision makers, investors / creditors, service and maintenance); (iv) expose students to cultural diversity. For instructors / teachers: rethink the efficiency/effectiveness ratio and allow more exploration and self-responsible learning through students; recognize students' individual learning behavior and jointly identify ways for enhancement.



- **Follow the concept of the “Constructive Alignment”** (cf. John Biggs, 1999):

1. What are the overarching goals in SD? This informs intended learning outcomes.
2. What should the student be *able to do* with respect to SD as a result of the interaction with the CLLL for SD?
3. What *work/activities* are appropriate for the student to do to reach the intended learning outcomes?
4. What should the student do to demonstrate that they reached the intended learning outcomes?

Integration of SD competencies: integrate Objectives (cf. 2.) with Activities (cf. 3.) with Assessment (cf. 4).

Research and faculty engagement

The discussion explored recognition, incentives, and support structures for faculty to promote sustainability topics in research and education. “Internal” refers to internal structures set by the university, “external” refers to the external structures set by the “scientific community,” with which most academics strive to comply.

- **Research (scientific credentials):** INTERNAL: List achievements in annual report (like any other achievements). EXTERNAL: Provide information about conferences, extant High Impact Factor Journals that publish research in relation to SD, and other areas of scientific recognition. Encourage faculty to submit their work to these avenues.

- **Funding:** INTERNAL: Create and present funding opportunities (e.g., seed money). For example, KTH has reallocated money and thereby created a new financial pot for funding sustainability projects in research or education. EXTERNAL: Provide information for faculty about funding opportunities related to SD research or education (include academic institutions as well as foundations). Train staff (e.g., research professionals) to look out for such opportunities
- **Teaching:** INTERNAL: Create and present awards such as the OIKOS award (student prize for the best teacher in the sustainability field) or KTH (faculty prize for the best teacher in the sustainability field). The prize money is not cash but funding for a grad student or Ph.D. student to promote continuity and expansion of research in sustainability. Other prizes include free parking (in the best parking spot) or other rebates or research infrastructure access benefits. KTH promotes curriculum development through a top-down process that leaves enough space for faculty autonomy and creativity, with a 3-step process that focuses on Programs, Outcomes, and Activities.
- **Teaching:** EXTERNAL: Provide information about existing teaching awards in or funding that is earmarked for teaching (e.g., NSF provides funding to develop new courses. This could be used as seed money to get pilot projects started. If faculty gets the funding and the courses are successful, then the university might commit and provide additional funding for integrating it into the curriculum. Data gathered throughout this process [from the initial pilot projects to integration into curriculum] could be used to perform accompanying research and publish an article in an educational journal.)
- **Hiring, Promotion, and Tenure:** NOT DISCUSSED. This incentive structure only makes sense when there is a general sustainability policy issued by the institutions, combined with a monitoring scheme to ensure compliance and accountability (similar to the sustainability reporting schemes in the private sectors, which became standardized). The Sustainability Report issued each year by the University of Graz provides an overview of the performance of each department, triggering competitiveness through this transparency.

Next Steps

Proposals:

- Continuation to work on these issues, aiming to prepare a joint publication
- Connect with other Working Groups to integrate our findings/discussions into their work, in particular connect with Working Group II (Charter).

Summary prepared by Katja Brundiars.

WG IV discussion participants at Lausanne meeting: Austin Andrade, Katja Brundiars (co-chair), Erik Dumusque, Fredrik Gröndahl, Roberto Hauser, Kadri Kalle, Catherine Lippuner, Per Lundquist (co-chair), Clemens Mader, Karen Oates, Eddi Omrcen, Milena Rafols, Juan Reiser, Evelyn Underwood



Participant Comment:

Spiros Dimolitsas

Senior Vice President, Georgetown University

"Thousands of alumni from Georgetown University find their way into the federal administration. Georgetown is very unique in trying to produce leaders with a real passion for public service, as well as respect for the individual and the environment, so most of the students leave the University with a very strong moral and ethical framework, which I think lends itself to caring about the planet as well as human beings.

The conference is helpful in that it is good to hear what other people are doing and there is a great deal of communality. However, most people in the group primarily deal with the technical aspects of sustainability, there are no economists, no politicians, so it's all pretty much trapped in scientific thinking. Other dimensions often are crucial. While it is important for each of us to be good institutional citizens and do all the right things for ourselves, there isn't much activity from members in the group on how you go now to the next sphere of influence, which is to influence governments and policy makers. At least at Georgetown, this is something that we believe we have an opportunity, an obligation to do."

AWARDS LECTURES AND NETWORKING OF NETWORKS



Co-Chairs Claude Siegenthaler and Leith Sharp, award winner Philippe Vollichard, juror Peter Hopkinson, award winner Su Wild-River, and jurors John Spengler and Jenny Su at the awards ceremony

ISCN Award Lectures

At the Lausanne conference, the ISCN Awards for Excellence in Campus Sustainability were presented for the first time. These awards recognize sustainable campus projects that demonstrate leadership, creativity, effectiveness and outstanding performance in the areas of "Construction" and "Impact". The construction category focuses on the integrated application of the principles of energy efficiency and environmental sensitivity. The impact category recognizes the comprehensive integration of design and the surrounding mission of the organization doing the construction. The award jury was composed by experts on campus sustainability world-wide:

- Professor Jack Spengler, Harvard School of Public Health
- Professor Jelena Srebric, Department of Architectural Engineering, Penn State University
- Professor Jenny Su, Professor and Director for the Department of Environmental and Occupational Health at the National Cheng Kung University in Taiwan
- Dr. Peter Hopkinson, Co-director of "Higher Education - Environmental Performance Improvement" (HEEPI) in the UK
- Professor Yong Kwet Yew, Vice President for Infrastructure, Department of Civil Engineering, National University of Singapore

To share lessons learned and plans for the future with their colleagues, representatives from the teams of the ISCN Awards of Excellence winners presented their programs to the conference plenary. Their presentations were introduced and moderated by **Leith Sharp**, Harvard University, a Co-Chair of the ISCN Awards Working Group.

Excellence in Impacts Award

Su Wild-River, The Australian National University
Deputy Manager ANUgreen

The Australian National University is home to the **ANUgreen** Campus Environment and Sustainability Program. Characterized by the integration of academic, operational, and residential aspects of campus life, ANUgreen focuses on energy and greenhouse gas management, water conservation, recycling and waste management, pollution prevention, biodiversity and sustainable landscapes, mobility, and community awareness.

Founded in 1998, ANUgreen has a ten-year track record in sustainability programs that cut across the operations of the university. Examples of initiatives undertaken as part of ANUgreen include a large-scale, university-wide compost project, the ANUgreen internship program where students tackle real-life environmental management challenges, and the first large-scale urban biodiversity audit undertaken in Australia.

A key characteristic of these and all ANUgreen projects is the multiple opportunities that ANU students have to fully participate in the different programs.

The ANUgreen team also takes strong steps to extend the reach of their initiatives beyond the ANU campus. A founding member of the Australasian Campuses Towards Sustainability network, the team also collaborates with the International Alliance of Research Universities (IARU) and shares resources, information and best practices through various online portals and academic publications.

ANU operates under an environmental management plan, the third generation of which is currently being finalized. This plan is organized around the principles of People, Place, and Performance, and focuses on management, innovation, leadership, and resilience as defining principles. In addition, a robust set of quantitative indicators are used to track both the environmental performance, and the degree to which a variety of different stakeholders are engaged in the ANUgreen portfolio of activities.

ANUgreen sees a variety of benefits in engaging students in their initiatives. Students receive practical experience for future careers, build problem-solving and critical-thinking skills, develop an appreciation of global issues, and are thus empowered to affect change both on ANU's campus and elsewhere. At the same time, the ANU community directly benefits from the students' engagement as their participation explicitly links the academic and operational sides of the university organization. The programs enhance ANU's reputation and offer faculty and staff interesting new opportunities to integrate real-world examples into their research and teaching.

Ultimately ANU would like to be seen as a global leader in campus sustainability programs. As evidenced by its numerous awards to date, it is well on its way to establishing exactly that reputation.

Excellence in Construction Award
Philippe Vollichard, EPFL (Switzerland)
Sustainability Manager

The Ecole Polytechnique Federale de Lausanne has a long history in sustainable campus activities. From its federalization in 1969, the EPFL has established itself as a thought-leader in the deployment of technologies that save energy, conserve water, and offer other benefits in campus construction, operations, and maintenance. EPFL's overall strategy, "**Campus Durable**", is based on integrating energy demands with biological factors, while recognizing the need for mobility for its students, faculty, and staff.

At the core of EPFL's success is an integrated approach to sustainable campus initiatives. This includes the use of high thermal insulation materials, green roofs, natural ventilation and lighting, using the water from Lake Geneva for heating and cooling, using durable materials, and natural landscaping. Moreover, the EPFL has demonstrated its commitment to the social aspects of sustainability through its integration of dis-

ability-friendly design and its inclusion of sustainability in the education of its students. This integrated approach is probably best illustrated by the new Rolex Learning Center on campus. This state-of-the-art building reflects the latest thinking in design and energy and water conservation, while also being well integrated into the physical and social fabric of the EPFL community.

For over 40 years, EPFL has made decisions resulting in a high degree of energy efficiency on its campus. While the average Energy Expenditure Index for campus buildings falls in the 700-800MJ/m²-year, EPFL buildings show EEI index values of 150-575 MJ/m²-year, significantly below the average. More recently, EPFL's announced partnership with Romande Energy will result in Switzerland's largest photovoltaic center with 2 megawatts of power output from 20,000m² of solar panels.

EPFL's commitment to sustainability is not simply limited to technological solutions. Since 2000, EPFL has had an environmental management system (RUMBA) in place that enables it to monitor its activities in an integrated fashion. Students are also deeply involved in EPFL's sustainability activities. In 2002, a student association specializing in sustainable development was established, whose efforts include publications, workshops and awards for students, exhibitions, and group action days.

Mobility is seen as a key factor in EPFL's overall sustainability strategy. Through programs that offer half-price rail cards, to partnerships with the car-sharing company "Mobility", to electric vehicle charging stations, to a cycling help desk, EPFL recognizes that moving people around is an important facet of campus sustainability.

Students at EPFL have the option of engaging in a number of academic courses that have sustainability-related missions. They can select sustainability courses to cover their mandatory humanities curriculum obligations, and the school offers various continuing education courses in relation to sustainability. Faculty are engaged in research projects relevant to sustainability, including those within the Plasma Physics (EURATOM/ITER) program and the EPFL Energy Centre and Transportation Centre.

Opportunities for Networking of Networks

Steve Mital, University of Oregon (USA)
Katja Brundiers, Arizona State University (USA)
Clemens Mader, University of Graz (Austria)
Peter Hopkinson and Peter James, University of Bradford (UK)
Ann Kildahl, The University of Hong Kong (China)

To ensure that the ISCN adds value to existing networks, rather than redundancies, the organization seeks dialogue and cooperation with national and regional networks that focus on campus sustainability. Presentations at the Lausanne meeting discussed networks in North America and Europe with which the ISCN has already started dialogues, as well as an overview of potential Asian networks with which to forge alliances.

Networks Initiated in North America

The American Association for the Advancement of Science (**AAAS**), an international nonprofit organization dedicated to advancing science around the world, publishes the journal *Science*, as well as many scientific newsletters, books, and reports. Although “triple A–S” is not solely focused on sustainability or sustainable campus issues, it engages in important activities in this field. The organization includes eight centers, one of which, the Center for Science, Technology, and Sustainable Development, has particular relevance to the ISCN. This center is focused on knowledge exchange and networking on new developments in Sustainability Science globally. The center has an online forum that acts as a hub for researchers, practitioners, and decision-makers; provides a directory of people, programs, projects, papers, and curriculum; lists events and opportunities; and offers discussion boards. The center also operates a “Roundtable for Sustainability Science Programs” that is focusing this year on issues of the differentiation of Sustainability Science and of curriculum development.

Focused more specifically on campus sustainability, the Association for the Advancement of Sustainability in Higher Education (**AASHE**) is North America’s major association of colleges and universities working to create a sustainable future. It is positioned as the professional home for campus sustainability officers, with over 650 campus members. Its mission is to empower higher education to lead the sustainability transformation, and to enable institutions in modeling sustainability in all their operations, including governance, education, research, and engagement.

A Board of Directors leads AASHE, cooperating with an Advisory Council, a Senior Council, and supported by 15 staff members in eight states. Members pay dues and are non-voting. Major projects that AASHE conducts or plays a key role in are the Sustainability Tracking, Assessment & Rating System (STARS) and the American College & University Presidents’ Climate Commitment (ACUPCC), with over 620 signatories in the U.S. AASHE organizes biannual conferences, hosts workshops and webinars, and informs its members with publications, an active website, and a weekly news bulletin.

Networks Based in Europe

In 1993, Copernicus Campus, a European network on higher education for sustainable development, was established and launched the Cre Copernicus Charta, which was signed by more than 300 European universities. However, the Copernicus Campus office was closed in 2004 and the network went dormant. Currently a group of European universities that convened in the context of the LENSUS EU Project is re-establishing Copernicus by having dialogue with multiple stakeholders, developing structures and consulting with universities that had signed the charta, and preparing a launch conference for 2010.

The renamed **Copernicus Alliance** strives to promote the role of sustainable development in European higher education. Its goals include the exchange and enhancement of knowledge on education and research for sustainable development between European higher education institutions, the promotion of higher education for Sustainable Development in European policy, and the representation of European HESD in international committees on Education for Sustainable Development.

A national initiative on campus sustainability in the UK is the Higher Education Environmental Performance Improvement organization (**HEEPI**). This nationally funded program strives to improve higher education environmental performance, increase capacity to deliver improvement, and embody a network model comprising *all* the key higher education bodies in the UK that potentially contribute to environmental performance. One of HEEPI’s key activities was the founding of the Green Gown awards program in 2003—the leading sustainability award for higher education in the UK. In the 2008/2009 award cycle, eight award categories were included, over 200 applications were received, and the program was sponsored by a wide range of sector bodies. HEEPI’s other activities include the establishment of benchmarks for energy use in buildings, creation of the institutional sustainability self-assessment tool, “Good Campus,” and the development of a national sustainable building standard for higher education.

Networks with Asian Membership

Campus sustainability in Asia must be seen in relation to current higher education trends in this region, including strong increases in student enrollment, the competition of regional “hubs” for education, and the drive to develop more “world-class” Asian research universities. At the moment, there does not appear to be any campus sustainability networks that cover all of Asia and focused solely on the Asian region. In fact, this also seems true with regard to university networks in general that may now or in the future include campus sustainability as part of their activities. But there are a number of well-established, as well as more recent, **university networks with reach beyond Asia that have substantial Asian membership**, as well as a variety of networks focused on particular parts of Asia. These two groups include the Association of Commonwealth Universities (founded 1913), the International Association of Universities (1950), OECD-IMHE, the Association of Southeast Asian Institutions of Higher Learning (1956), the International Association of Uni-

versity Presidents (1964), the Association of Universities of Asia and the Pacific (1995), Universitas 21 (1997), and the Association of Pacific Rim Universities (1997), and the Association of University Presidents of China (1997).

Global networks with Asian membership that have established sustainable campus activities include the Magna Charta Universitatum (1988), the Alliance for Global Sustainability (1997), the International Association of Research Universities (2006), the McDonnell Academy Global Energy & Environment Partnership (2007), the G8 University Summit/Sapporo Sustainability Declaration (2008), and the planned Salzburg Sustainable Futures Academy. Such networks also include the two convening organizations of this conference: the Global University Leaders Forum (2006) and the International Sustainable Campus Network (2007).

Sustainability networks within Asia include the Australasian Campuses Towards Sustainability (2002), the UNU Regional Centres of Expertise (from 2005), "IR3S" Integrated Research System for Sustainability Science (2005), and the Korean Association of Green Campus Initiatives (2008).



Participant Comment:

Markus Lehni

Novartis International, Corporate Environment and Energy Manager

"In the same way as universities, Novartis needs a lot of energy for research programmes, which is in contradiction with energy-saving targets. However, there can be no compromise on the quality of the work in the laboratories as well as on rules of health and safety, and these constraints are even stronger for pharmaceutical companies. Despite that, there are many opportunities to be energy-efficient within these rules and to put in place energy-saving measures. Thanks to the more sophisticated systems and controls that exist today, you can manage the energy consumption to reduce it by 20 or 30%.

For a representative from a corporation, it is interesting to enter a dialogue with research institutions on shared issues, such as the same type of buildings."

ISCN-GULF 2009 TRACK B



Marcelo Fernandez (Chancellor UIDE), Patrick Aebischer (President EPFL), and M.S. Ananth (Director IIT Madras) during Track B discussion break

Participants

University Leaders

Patrick Aebischer (President, EPFL)
M. S. Ananth (Director, Indian Institute of Technology Madras)
Bojan Baletic (Vice-Rector for Development and Planning, University of Zagreb)
Spiros Dimolitsas (Senior Vice President, Georgetown University)
Ralph Eichler (President, ETH Zurich)
Marcelo Fernandez (Chancellor, Universidad Internacional del Ecuador)
Joseph Mullinix (Deputy President Administration, National University of Singapore)
Ralf Tarrach (Rector, University of Luxembourg)

Corporations

Joachim Brünner (Key Account Management, Siemens)
Markus Lehni (Novartis Environment and Energy Manager)
Rafael Llamas de Andrés (Environmental Manager, Bunge Europe)

EPFL

Jean-Claude Badoux (Former President)
Kristin Becker van Slooten (Advisor to the President)
Hans Björn Püttgen (Director of Energy Center)
Jean-Louis Scartezzini (Professor)

Members Strategic Planning Board

Julie Newman (Director, Yale Office of Sustainability)
Roland Stulz (Executive Director, Novatlantis)

Others

Rabab Fayad (Global Leadership Fellow, World Economic Forum)
Yves Loerincik (Director, Ecointsys Life Cycle Systems)

Scope

This year's meeting was the first to be jointly convened by International Sustainable Campus Network (ISCN) and the Global University Leadership Forum (GULF). The Global University Leadership Forum of the World Economic Forum regroups Presidents from 23 universities around the world addressing issues of importance for the University and society at large. Recognizing that the environmentally benign production, transportation, distribution and end-use of energy constitute a major challenge for universities, GULF has decided to include the design of energy efficient and environmentally benign campuses among its priorities for common action.

University leaders from GULF and other Universities as well as Corporate Senior Executives participated in Track B, a specific leadership track of one-day duration, allowing them to contribute to key conclusions and proceedings of the conference. The aim of this track, organized by **Kristin Becker van Slooten** and **Hans Björn Püttgen**, was to achieve full endorsement not only of sustainability initiatives but also of their broad and coordinated implementation.

Discussions and outcome

The discussions of Track B, moderated by **Hans Björn Püttgen**, focused on major challenges and opportunities for organizations of higher education and research as well as on campus sustainability around the world, both stimulated by various short presentations.

Having been briefed by the ISCN working group chairs about the ongoing debates in the working groups, the participants of Track B had a very fruitful discussion about the establishment of a common charter. It was stated that such a charter should clearly provide an added value to the existing charters, that it should include a commitment specific to each university, and that progresses would need to be monitored using agreed-upon processes. The signature of the Charter would provide a clear and public affirmation as to the University's commitment to continuous improvement toward a sustainable campus. It was also suggested that ISCN could serve as the secretariat for the charter management.

Furthermore, guidelines could be developed in the form of «green cards» among which each University could select action items when signing and updating its individual Charter commitments. It was stressed in the discussions that local circumstances need to be explicitly accounted for and that the collaboration with other networks is essential. Moreover, it was suggested to take up this discussion at the next GULF meeting at Davos in January 2010 and to suggest to the GULF leaders to serve as regional « lighthouses » for local institutions by signing the Charter.

Conference Dinner at Château de Bavois

This year's conference dinner was hosted by **Thierry Lombard**, a Senior Partner of the Bank Lombard Odier, at his extraordinary Château de Bavois. In his welcome address he reminded the audience of the effects of the global climate change on fragile ecosystems like the North Pole, illustrated by pictures of an expedition he organized lately.

One of the highlights of this evening was the keynote presentation of **M.S. Ananth** about sustainability strategies in university campuses in Asia, with an emphasis on the campus of the Indian Institute of Technology, Madras. M.S. Ananth showed the efforts made by the IIT Madras to obtain a dynamic equilibrium with its social, ecological and economic environment while striving continuously for excellence in education, research and technological service to the nation. He concluded his speech with the citation of Mahatma Gandhi "Nature gives us enough for our needs not for our greed".

The ISCN Awards of Excellence were then presented with introductions by **Claude Siegenthaler**, Co-Chair of the ISCN Awards Working Group. Jury member **Jenny Su** from National Cheng Kung University, Taiwan, presented the Excellence in Impacts Award to the team of ANUgreen team of the Australian National University, and jury member **John Spengler** from Harvard University presented the Excellence in Construction Award to the team of EPFL Campus Durable. (Summaries of the presentations by the award winners are given earlier in this report).



Thierry Lombard (Bank Lombard Odier) delivering the conference dinner welcome speech

Closing Session

During the plenary closing session with Participants from Track A, a summary of the key outcomes and recommendations was presented by Hans Björn Püttgen:

Charter

- Signature of the Charter would provide a clear and public affirmation as to the University's commitment to continuous improvement toward a sustainable campus.
- This commitment would provide a positive, proactive and credible response to enquiries from the public at large, students, peer institutions, public authorities, and the media.
- GULF leaders would also commit to serve as regional « lighthouses » for local institutions while getting their leaders to also sign the Charter.
- The Charter process could provide a constructive process to influence and guide public policy setting.
- Should contain specific and, whenever realistic, measurable commitments for improvement.
- The commitments should be University-specific, taking local circumstances fully into account.
- Commitments for improvement should be short term – no more than 2 -3 years.
- The commitments should be publicized.
- Progress against to commitments should be regularly audited based on self-audits using agreed-upon processes.
- Results of the self-audits should be publicly available.
- Avoid overall numerical targets and comparative rankings

Guidelines

- Should be simple to understand and relate to for the public at large. Avoid detailed implementation considerations.
- Should be presented in the form of « green cards » among which each University could select action items when signing and updating its individual Charter commitments.
- Local circumstances need to be explicitly accounted for.
- Use the WEF model already put forward for City Mayors.
- The Charter process could provide a constructive process to influence and guide public policy setting.

Additional suggestions

- Launch the Charter – Guideline process under the stewardship of WEF GULF
- ISCN could become the Secretariat of the Charter management and follow-up process.
- Coupling the sustainable campus effort with the similar effort targeted at cities would provide enhanced visibility and traction, also financially.
- Need to work and interface with other networks – avoid repetition of efforts.
- There is a true need for a « Sustainable campus design handbook ». ISCN could consider taking the lead to prepare and publish such a document and then keep it current.
- Preparation and subsequent dissemination of case studies would provide highly useful instructional tools. « Learn by doing ».



Ralph Eichler (President ETH Zurich), and Joe Mullinix (Deputy President Administration, NU Singapore) during Track B coffee break



Participant Comment:

Marcelo Fernandez
Chancellor, International University of Ecuador

"Until recently, most networks in the Southern half of our continent only spread across the Latin American and Caribbean countries, because we were stuck in a political opposition to the United States. However, things are now changing: in Paris, this July, UNESCO is holding a conference on higher education and research. For the first time, there will be workshops on 'internationalization, regionalization and globalization'. Why? Because Africa wants to join European networks, Europeans wish to help Africans in order to reduce the pressure from immigration and Asians want better North-South collaboration. On May 8, the International University of Ecuador created the Continental Association of Universities for Sustainable Development (ACUDES, in Spanish), together with Harvard University's Department of Sustainable Development and with Jack Spengler's help. Today, 20 selective universities from Peru, Ecuador, Venezuela and Colombia are members. I find the ISCN Conference very interesting. You learn from so many experiences from different parts of the world. I think that will help us develop our projects in the Galapagos."



Participant Comment:

Joachim Brünner
Key Account Manager, Siemens

"Siemens is highly interested in working for universities, because we must focus on markets that will bring business to us. We believe that research and education will be one of the markets that will grow the most over the next few decades, particularly in the United States. Worldwide, we are talking about a relevant market of 17 billion Euros.

It is very interesting for me to take part in this conference. Universities are a closed shop. It's the first time they open a little for corporations and it was an honour for Siemens to be requested to share our ideas from a supplier's point of view. In addition, I don't often get the possibility to be in contact with so many high-potential individuals from universities across the world, discussing an issue that is as important to them as it is to us. As Siemens itself is striving to save energy in its own buildings, we can communicate from the user's point of view as well as from the supplier's point of view. It's a good relationship."

Appendix: Conference Participants



Participants of the ISCN-GULF conference 2009

Firstname	Lastname	Organization	Titel and/or organizational unit	
Ulrik	Abild	Danish University and Property Agency	Head of Office	Denmark
Zenon	Achillides	Cyprus University of Technology	Director of Estate Management Service	Cyprus
Patrick	Aebischer	EPFL	President of EPFL	Switzerland
M. S.	Ananth	Indian Institute of Technology Madras	Director	India
Austin	Andrade	Austral Biotechnology Exchange	CEO	Switzerland
Jean-Claude	Badoux	EPFL	President Fondation Les Bois Chamblard	Switzerland
Bojan	Baletic	University of Zagreb	Vice rector for development and planning	Croatia
Kristin	Becker van Slooten	EPFL	Advisor to the President Director of Estate Management and Bldg Services	Switzerland UK
Michael	Bienas	University of Cambridge		Switzerland
Christine	Bratrich	ETH Zurich	Director ETH Sustainability	Switzerland
Daniel	Brélaz	City of Lausanne	Mayor of Lausanne	Switzerland
Dominik	Brem	ETH Zurich	Environmental officer ETHZ	Switzerland
Katja	Brundiers	Arizona State University	Community-University Liaison Head of Corporate Account Management Research and Education	USA Germany
Joachim	Brünner	Siemens AG		Switzerland
Delphine	Buffat	EPFL	Student Staff	Switzerland
Suzanne	Buffat	EPFL	Conference administrator	Switzerland
Sidi-Rachid	Cherkaoui	EPFL	Research Associate	Switzerland
Carole	Cohen	EPFL	Assistant to the President for Public Relations	Switzerland
Yves	Corminboeuf	Haute école d'art et de design Genève	Enseignant, Responsable de recherche	Switzerland
Martina	Cvitanovic	University of Zagreb	Head of planning office	Croatia
Denis	Décosterd	City of Lausanne	Head of the City Development Service and Communication	Switzerland

Spiros	Dimolitsas	Georgetown University	Senior Vice President	USA
Erik	Dumusque	EPFL	Logistics responsible	Switzerland
Ralph	Eichler	ETH Zurich	President of ETH Zurich	Switzerland
Andreas	Eklöf	Infakt AB/Chalmersfastigheter AB	Consultant/Managing director	Sweden
Rabab	Fayad	World Economic Forum	Global Leadership Fellow	Switzerland
Marcelo	Fernandez	Universidad Internacional del Ecuador	Chancellor	Ecuador
Sophie	Flynn	EPFL	Secretary Energy Center	Switzerland
Jenny	Forshufvud	Chalmers Technical University	Environmental Coordinator	Sweden
Mathieu	Garnier	Fondaterra	Project Manager	France
Veronika	Gmür	Novatantis	Project Coordinator	Switzerland
Fredrik	Gröndahl	Industrial Ecology, KTH	Associate Professor	Sweden
Mary-Claire	Guyot	EPFL	Secretary to the President	Switzerland
Pierre-André	Haldi	EPFL	Research Associate	Switzerland
Victoria	Hands	London School of Economics & Political Science	Environmental & Sustainability Manager	UK
Alain	Herzog	EPFL	Photographer	Switzerland
Peter	Hopkinson	University of Bradford	Director of ESD	UK
Paul	Horan	Dublin Institute of Technology	Campus Planner	Ireland
Roberto	Houser	Universidad Del Pacífico	Planning Director	Ecuador
Kadri	Kalle	Estonian University of Life Sciences	Green University Project Manager	Estonia
Bernd	Kasemir	Sustainserv, Inc.	Director	USA
Masashi	Kawano	The University of Tokyo	Project Specialist	Japan
Ann	Kildahl	The University of Hong Kong	Sustainability Manager	China
Sayaka	Kindaichi	The University of Tokyo	Assistant Professor	Japan
Hidetsugu	Kobayashi	Hokkaido University	Professor	Japan
Ariane	König	Université du Luxembourg	Advisor to the rector	Luxembourg
Naomichi	Kurata	Kogakuin University	Professor	Japan
Markus	Lehni	Novartis International	Corporate Environment and Energy Manager	Switzerland
Patrick	Léonard	EPFL	Quality system responsible	Switzerland
Catherine	Lippuner	ETH Sustainability	Sustainability Officer	Switzerland
Rene	Lisac	Faculty of Architecture, University of Zagreb	Science fellow - assistant	Croatia
Rafael	Llamas	Bunge Europe	Environmental Manager	Switzerland
Yves	Loerincik	Ecointesy-Life Cycle Systems	Manager Europe	Switzerland
Thierry	Lombard	Bank Lombard Odier Darier Hentsch	Senior Partner	Switzerland
Per	Lundqvist	KTH	Professor	Sweden
Clemens	Mader	University of Graz, COPERNICUS Alliance	Director RCE Graz-Styria	Austria
Erika	Meins	CCRS, University Zurich	Research Associate	Switzerland
Marie-Gabrielle	Méry	Fondaterra	Project leader	France
Steve	Mital	University of Oregon	Director, UO Sustainability Program	USA
Joseph	Mullinix	National University of Singapore	Deputy President (Administration)	Singapore
Julie	Newman	University of Yale	Dir. Office of Sustainability	USA
Karen	Oates	National Science Foundation	Deputy Undergraduate Education	USA
William	Odell	HOK, Inc.	Sustainable Design Principal	USA
Eddi	Omrčen	University of Gothenburg	Environmental Manager	Sweden
Arthur	Onyeali	University of Zurich CCRS	Architect	Switzerland
Hans Björn	Püttgen	EPFL	Director Energy Center	Switzerland
Milena	Rafols	Technical University of Catalonia	Coordinator UPC02 Programme	Spain

Juan	Reiser	Pontificia Universidad Catolica del Peru	Professor	Peru
Christian	Ross	Oikos	Student	Switzerland
Zina	Sanyoura	World Economic Forum	Community Manager Middle East	Switzerland
Jean-Louis	Scartezzini	EPFL	Professor	Switzerland
Leith	Sharp	Harvard University	Campus Sustainability Advisor	USA
Claude	Siegenthaler	Hosei University	Professor	Japan
John	Spengler	Harvard School of Public Health	Professor	USA
Roland	Stulz	Novatlantis	Executive Director of Novatlantis	Switzerland
Huey-Jen Jenny	Su	National Chang Kung University	President for International Affairs	Taiwan
Ozasa	Takao	Hokkaido University	Associate Professor	Japan
Sakai	Takeru	Kyushu University	Professor	Japan
Stephan	Tanner	Intep LLC	Principal	USA
Rolf	Tarrach	Université du Luxembourg	Rector of the University of Luxembourg	Luxembourg
Helms	Thorsten	EPFL	Student	Switzerland
Naoki	Tsurusaki	Kyushu University	Associate Professor	Japan
Takeshi	Ueno	Chiba University	Professor	Japan
Evelyn	Underwood	Alliance for Global Sustainability at ETH Zurich	Assistant to AGS Faculty Coordinator	Switzerland
Marc	Vogt	EarthEffect	Partner	Switzerland
Philippe	Vollichard	EPFL	Sustainability Manager	Switzerland
Laurent	Vulliet	EPFL	Professor	Switzerland
Su	Wild-River	The Australian National University	Deputy Manager ANUgreen	Australia
Jennifer	Wood	Oxford University Estates Department	Director of Estates	UK



Participants leaving the conference, with Michael Bienias (University Cambridge) and Erika Meins (CCRS University Zurich) in the foreground

Conference Strategic Planning Board

- Patrick Aebischer (supported by Kristin Becker van Slooten and Philippe Vollichard), EPFL
- Julie Newman, Yale University
- M. S. Ananth, Indian Institute of Technology Madras
- Roland Stulz (supported by Bernd Kasemir), Novatlantis and ISCN
- Hans-Björn Püttgen, EPFL
- Michele Petochi, World Economic Forum

Conference Scientific Board (ISCN Working Group Co-Chairs)

- Claude Siegenthaler, Hosei University
- Leith Sharp, Harvard University
- Ariane Koenig, Université du Luxembourg
- Joe Mullinix, National University Singapore
- Erika Meins, CCRS University Zurich
- Steve Mital, University of Oregon
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