

ALL JUST RUBBISH?

ETH SUSTAINABILITY SUMMER SCHOOL 2011



ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Zurich, June 2011

Dear participants,

We warmly welcome you, the select group of participants admitted, to the ETH Sustainability Summer School 2011 at ETH Zurich, Switzerland.

The ETH Zurich passes on to its students the highest level of knowledge and skills. It wants its young people to feel at ease and capable in a complex and fast changing environment, while at the same time maintaining an understanding for ethical and cultural values. On this basis, learning and teaching towards sustainable development at the ETH Zurich offers a sound foundation for the next generation of decision makers and future leaders.

With the Summer School 2011, we want you to find new ways of confronting waste problems responsibly. For three weeks, we will create an environment in which you can work in interdisciplinary and international teams together with experts and industry partners to create concrete solutions to the challenges posed in real case studies.

You will increase your knowledge on global waste flows, eco-design and gain the ability to analyse the entire life cycle of individual products and generate creative alternatives in one of the three case studies: food packaging, washing machines or wood chairs.

We are looking forward working and learning with you.

We would also like to thank the following people and institutions for initiating, planning, financing and implementing this summer school: the president of the ETH Zurich, Ralph Eichler; the ETH Sustainability advisory board; the chair of Ecological Systems Design, especially Stefanie Hellweg, An de Schryver, Ronnie Juraske and Tobias Walser; the Institute of Construction and Infrastructure Management, especially York Ostermeyer; our industrial designer team Beat Karrer, Misch Sutter and Ernst-Jan van Hattum, the International Packaging Institute, especially Ingo Büren and Ursula Probst and the Club of Rome, especially Ian Johnson and Vera Narodnitzkaia.

Furthermore we would like to thank Martin Amman, Adrian Burri, Christian Capello, Annina Coradi, Walter Eschenmoser, Daniel Freitag, Gunnar Green, Roland Hischier, Bernd Hopfengärtner, Jörg Hülsmann, Albin Kälin, Françoise Krattinger, Daniel Lang, Christian Ludwig, Claude Martin, Lutz Osterbrink, Gregor Pawlitzki, Michael Pawlyn, Urs Schenker, Andreas Schläpfer, Mathias Schlupe, Stefan Munz, Bernhard Wehrli and Christan Zurbrügg for sharing their knowledge, time and enthusiasm and all the other people whose contribution has made the ETH Sustainability Summer School 2011 possible.



Christine Bratrach
Director ETH Sustainability



Catherine Lippuner
Organizer Summer School
ETH Sustainability

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June 2011

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INPUTS

LECTURES AND WORKSHOPS

The first week of the summer school will be spent in the traditional Swiss valley of Emmental. Broad topics in green product design, waste and material life cycle will be covered in preparation of the case study work to come later in the course.



The Emmental Valley in the Canton of Bern, Switzerland

Retreat to Emmental

Intensive Course

The summer school will begin with a retreat to Emmental, a rural region in central Switzerland. The terrain is marked by verdant valleys and home to a great many dairy farms, producing one of Switzerland's most famous products, the holy *Emmentaler* cheese, more commonly known in the English-speaking world as simply „Swiss“ cheese. Students will have a chance to experience rural Switzerland before spending two weeks in urban Zurich.

The class will stay in a conference hotel for the week. They will have lectures, workshops, and discussions during the day and keynote evening speakers at night. Throughout the week there will be many fun activities, mingling sessions and a cultural night. The class will have a chance to come together and bond and share their unique backgrounds and perspectives as they will be spending most of the day together.



Fields in Emmental

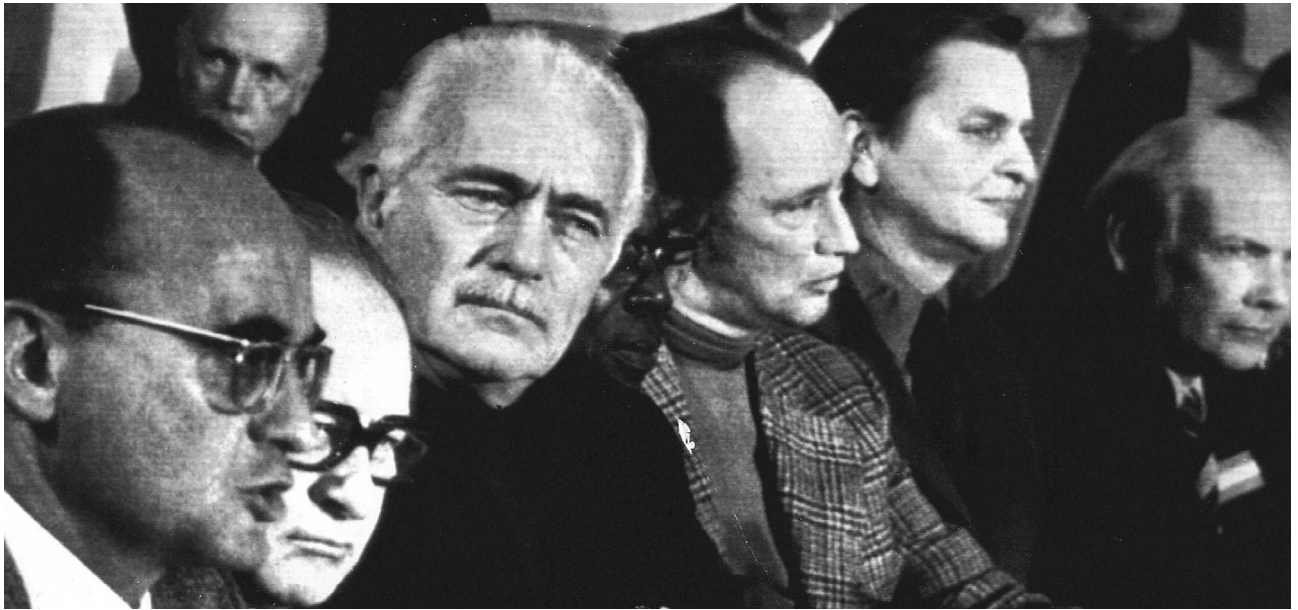


Our Home for one Week - Seminar Hotel Möschberg

Schedule Week 1

	Sunday 26	Monday 27	Tuesday 28	Wednesday 29	Thursday 30	Friday 1
8 AM						
9 AM		Fostering Sustainability Transitions in Waste and Resource Management Daniel Lang Leuphana University	Life Cycle Assessment Stefanie Hellweg ETH Zurich	The Role of Thermal Processes in Energy and Materials Flow Management Christian Ludwig PSI and EPFL	Biomimicry, Workshop and Lectures Michael Pawlyn Exploration Architecture, UK	
10 AM						
11 AM	Train from Zürich HB to Grosshöchstetten	Fostering Sustainability Transitions in Waste and Resource Management Daniel Lang Leuphana University	Material Flow Analysis Mathias Schluep Empa	Waste Management in Developing Countries Chris Zandbergen Eawag	Biomimicry, Workshop and Lectures Michael Pawlyn Exploration Architecture, UK	Train from Grosshöchstetten to Zürich HB
Noon						
1 PM						Free Afternoon Move in your apartment, hotel, etc.
2 PM	Train from Zürich HB to Grosshöchstetten	Triple Bottom Line Workshop Anniina Coradi W.I.R.E. York Ostermeyer ETH Zurich Lutz Osterbrink Credit Suisse	Life Cycle Impact Assessment An De Schryver ETH Zurich	Cradle to Cradle Albin Köhlin Walter Eschenmoser Andreas Schläpfer EPEA Switzerland	Biomimicry, Workshop and Lectures Michael Pawlyn Exploration Architecture, UK	
3 PM						
4 PM						
5 PM			Sustainable Design Strategies Ernst-Jan van Hattum Industrial Designer	Cradle to Cradle Albin Köhlin Walter Eschenmoser Andreas Schläpfer EPEA Switzerland	Biomimicry, Workshop and Lectures Michael Pawlyn Exploration Architecture, UK	
6 PM						Sustainability Pioneer Claude Martin WWF International Villa Hatt, Zurich
7 PM	Welcome and Introduction Gäthrine Lippuner ETH Sustainability		Great Pacific Garbage Patch Bernhard Wehrli Eawag Françoise Krattinger ZHDK		Cultural Night	
8 PM	Economy of Waste Ian Johnson Club of Rome	Application of LCA in Power Industry Christian Capello Axpo Group		Cradle to Cradle Albin Köhlin Walter Eschenmoser Andreas Schläpfer EPEA Switzerland		
9 PM						

■ Lecture
■ Workshops
■ Talks and Discussions



The Club of Rome meeting in Salzburg in 1972

Economy of Waste

Keynote Speech.

Sunday, June 26. Evening.

Ian Johnson, current Secretary General of The Club of Rome, will discuss today's Economy of Waste. This topic relates to the course's focus on sustainable design, as effective design can help minimize the wasteful elements of our economy. Additionally, his talk will cover the key areas that The Club of Rome focuses on environment and resources, globalisation, international development, social transformation, and peace and security. This global think-tank network of innovative academics, educators, politicians, NGO leaders, and activists work to find solutions to these issues and further them both scientifically and politically. Their seminal work, „Limits to Growth“ discusses the inability of our planet and society to continue with solely growth-focused development, and the need to find some form of replacement goals and indicators. To this end, The Club of Rome is working on developing those new metrics by which we can measure development, economic vibrance, and success. Through these kinds of changes, humanity will be able to live more sustainably within our own limits and preserve the earth for future generations, as well as ensure peace, dignity, and adequate standards of living for the people of today.



Ian Johnson

*The Club of Rome,
Secretary General*

Ian Johnson, a British national, has experience in the areas of sustainable development, energy and economic policy. He joined the World Bank in 1980 and worked as an economist in the energy sector and subsequently as an advisor in the Policy and Research Department of the Bank. In 1991, he was appointed to the Global Environment Facility (GEF) and later became its Assistant CEO. In 1997 he was promoted to senior manager of the Environment Department and in 1998 he was promoted to Vice President with responsibilities for Sustainable Development, environment, agriculture and social policy. He was also appointed as Chairman of the Consultative Group on International Agricultural Research (CGIAR). Prior to joining the World Bank he worked with UNICEF and spent five years in Bangladesh. He left the World Bank in 2006 and has since then undertaken a number of advisory positions in the public and private sector. Mr Johnson is an economist and studied at the universities of Wales, Sussex and Harvard. In April 2010, Ian Johnson became Secretary-General of the Club of Rome.

Theory - Applied.

Fostering Sustainability Transitions in Waste and Resource Management

Monday, June 27. Morning Lecture.

Realizing sustainability transitions in the area of waste and resource management requires going beyond purely technical solutions. Instead a comprehensive perspective on the complex interrelations of related human-environment systems is crucial, which integrates knowledge from different disciplines as well as experiential knowledge, preferences, norms and values from relevant stakeholder groups. In this kick-off seminar some basic ideas and concepts related to human-environment systems, sustainability transitions and transdisciplinary sustainability research will be introduced. In small groups students will discuss these ideas and concepts in relation to case studies.

Further Reading*

- [1] R. Scholz et al., „Applying the HES Framework“, Cambridge University Press, 2011.
 [2] A. Spoerri et al., „Technological change in Swiss thermal waste treatment“, Int. J. of Integrated Waste Mgmt., 2010.
 [3] D. Lang, „Sustainability Potential Analysis (SPA) of landfills“, Journal of Cleaner Production, 2006.
 as well as [4], [5], [6], [7], [8], [9], [10], [11].

Application of LCA in the Power Industry

Monday, June 27. Evening Talk.

The presentation aims to give practical examples of how life-cycle assessment is applied in the power industry. Particularly, the focus will be on the application of LCA to assess energy systems, the use of LCA as a framework for decision-support and the environmental assessment of recycling processes used in power industry.

Further Reading*

- [12] EPD, „PCR for Electricity, Steam, and Hot and Cold Water Generation and Distribution“, 2010.
 [13] environdec.com.

* available online: bit.ly/S33read



Daniel Lang

*Professor for Transdisciplinary Sustainability Research
Leuphana University, Germany.*

Dr. Daniel Lang is Professor in Transdisciplinary Sustainability Research and co-director of the Institute of Ethics and Transdisciplinary Sustainability Research at the Leuphana University of Lüneburg. Furthermore, he is the Vice-Dean responsible for research of the Faculty Sustainability and Dean of Study Affairs of Leuphana College's Leuphana Semester and the Comprehensive Studies. He studied geo-ecology at the University of Bayreuth and environmental sciences at ETH Zurich, where he graduated in 2001. He then completed his PhD thesis in 2005 at the Department of Environmental Science at ETH Zurich. His research revolves around transdisciplinarity, sustainability science, systemic sustainability assessment and prospective analysis of human-environment systems mainly in the fields of waste and resource management as well as urban and regional transitions.



Christian Capello

*Head of Sustainability
Axpo AG, Baden, Switzerland.*

Christian Capello is currently working as head of sustainability at Axpo AG – the leading Swiss electricity producer. His main tasks are supporting the Executive Board regarding corporate sustainability, developing the sustainability strategy and evaluating existing power plants as well as important projects with respect to environmental and social impacts. From 2002 to 2006 he worked at ETH Zurich as teaching and research assistant of the ETH continuing education programme „risk and safety“ and worked as representative in the Swiss Centre for Life-Cycle Inventories (ecoinvent). In 2002 he obtained a Master degree in environmental sciences and in 2006 he completed his PhD at ETH Zurich.



Triple Bottom Line - Illustrated by Spring into Action

Triple Bottom Line

Workshop

Monday, June 27. Afternoon.

Triple Bottom Line is a framework for situational analysis that captures not only traditional economic elements but also social and environmental effects. It is sometimes referred to as comprising the „three pillars“ of „people, planet, and profit.“ Students will be introduced to the topic through presentations about ecological (Ostermeyer), social (Coradi) and economic (Osterbrink) sustainability. There will be a workshop activity, rating three chairs using a Triple Bottom Line rating system and knowledge gained from the introductions.



Annina Coradi
Junior Researcher
W.I.R.E., Zurich, Switzerland.

Annina Coradi, born 1982, studied geography and political economy in Zurich, Switzerland. She wrote her master’s thesis about sustainable city development, which has been presented at the

Alliance for Global Sustainability at Tokyo University. Since 2010 she works for the independent think tank W.I.R.E. Additionally she is a member of the commission of use and operation from the residential and commercial housing development Kalkbreite and is developing the social sustainable city project „reclaim the street by the kids.“



York Ostermeyer
Senior Researcher at D-BAUG
ETH Zurich, Switzerland.

Mr Ostermeyer studied architecture at the University of Hanover, specializing in construction. Since 2008, he has worked as a post-doc at the Chair of Sustainable Construction at ETH Zurich’s Institute for Construction Engineering and Management. He has been a group leader since 2010 handling projects to adapt sustainable buildings in different climate zones and cultures.



Lutz Osterbrink
Quantitative Analyst
Credit Suisse, Switzerland.

Lutz Osterbrink works as a Quantitative Analyst in the Investment Banking division of Credit Suisse, based in Zurich. He is part of the Global Modelling and Analytics group (GMAG). GMAG is responsible for the development & implementation of models and trader tools for the Equity Department globally. Mr Osterbrink studied at the University of Hamburg as well as the ETH Zurich and the University of York. He holds a diploma in physics and a PhD in Mathematics.

Life Cycle Assessment

Introduction

Tuesday, June 28. Morning Lecture.

The lecture will provide an introduction to the Life Cycle Assessment methodology. Examples of the application of this method to various case studies will be presented (e.g. for closing material cycles and for product design). A long list of questions must be addressed, e.g. when making decisions related to waste management or environmental product design; for example, when choosing between different disposal technologies or a better product design which allows for reuse and recycling. To answer such questions, environmental assessment tools can be used. One of these tools is Life-Cycle Assessment (LCA). LCA analyzes all interactions with the environment during the complete life cycle of a product or service and quantifies the resulting potential impact on the environment.

Further Reading*

[14] S. Hellweg, „Introduction to Life Cycle Assessment“.

Material Flow Analysis

Tuesday, June 28. Morning Lecture.

The aim of the lecture is to introduce the basic principles of the Material Flow Analysis (MFA) methodology. The main educational objective is to understand the contribution of MFA as an assessment and planning tool for sustainable management of resources.

Furthermore the students will learn how to apply MFA in concrete cases on different spatial and strategic levels, based on two case studies: e-waste flows in Ghana and the movement of metals in society.

Further Reading*

[15] P. Brunner and H. Rechberger, „Practical Handbook of Material Flow Analysis“. CRC Press, 2004.

[16] Y. Amoyev-Osei et al. „Ghana e-Waste Country Assessment“, 2011.

[17] T. Graedel, „Metal Stocks in Society“, UNEP, 2010.

* available online: bit.ly/S3read



Stefanie Hellweg

*Professor of Ecological
Systems Design
ETH Zurich, Switzerland.*

Stefanie Hellweg is professor for ecological systems design at the Institute of Environmental Engineering of ETH Zurich. After completing her PhD she worked as a post-doc and senior scientist at the Institute for Chemical and Bioengineering at ETH Zurich. Between 2004 and 2005 she was a visiting scientist at Lawrence Berkeley National Laboratory. Since 2006 she holds the Chair for Ecological Systems Design at ETH Zurich. Her main research interests are the environmental assessment of products and processes, e.g. food products, chemicals and waste treatment technologies. Together with her collaborators, she is developing methods for Life Cycle Assessment, e.g. for indoor pollutant exposure and water-use assessment.



Mathias Schluep

*Program Manager and Scientist
Empa, Dübendorf, Switzerland.*

Mathias Schluep is a senior scientist leading Empa's e-waste related research. He is responsible for several co-operative e-waste management projects with developing countries in Africa and Asia. His special focus is in Africa, where he has implemented e-waste projects for the Swiss States Secretariat of Economic Affairs (SECO), Hewlett Packard, Microsoft, UNIDO, UNEP, the Secretariat of the Basel Convention and the European Union. Before that he worked in the private sector in the field of environmental and business consulting at national and international levels. He received his MSc in Environmental Engineering and his PhD in natural sciences from ETH Zurich.

Life Cycle and Design

Life Cycle Impact Assessment

Tuesday, June 28. Afternoon Lecture and Workshop.

To quantify the environmental impact of a product or process by use of life cycle assessment an appropriate impact assessment methodology needs to be chosen. Several researchers developed methodologies to quantify the environmental impacts of a product, using different approaches, a range of assumptions, specific indicators and diverse ways of aggregating different impacts. In this lecture, a clear overview will be given of the variety of methodologies applied today. Special attention will be given to the differences between methodologies and the suitable applications, advantages and disadvantages of each methodology. Applying a different methodology can affect the life cycle assessment results of a product or process. A role-playing game will be used to illustrate this difference in a practical way, to bring consciousness and awareness to the choice of methodology and to open discussion on the different perspectives of methodologies.



An De Schryver

*Postdoctoral Research Associate
ETH Zurich, Switzerland.*

An De Schryver works as a post-doc researcher for ecological systems design at ETH Zurich. After completing her master's in Environmental Biology in 2004 at the Free University of Brussels she began work as a Life Cycle Assessment consultant. She has worked on several European Union projects. Her research field encompasses life cycle assessment of products and impact assessment development. In 2008 she started a PhD at the Radboud University of Nijmegen in the field of Life Cycle Impact Assessment, more specifically on value choices in human health modeling. In 2010 she finished her PhD and started to work as a postdoc at ETH Zurich to analyse the wood value chain and its improvement potentials from an environmental point of view.

Sustainable Design Strategies and Product Development Process

Tuesday, June 28. Afternoon Lecture.

This lecture will focus on the basics of the product development process to establish a common ground of knowledge for the participants, which will be very helpful during the workshops.

Additionally, this input will focus on sustainability aspects within - and outside - the product development process. We will ask: when, where and how can sustainability be initiated or triggered? A selection of sustainable design strategies and tools will be viewed from the different life cycle phases of a product/service/system to get a clear overview of the overall process of sustainable design.

Further Reading*

[18] M. Crul and J. Diehl, „[Design4Sustainability](#)“. UNEP and TU Delft, 2009.



Ernst-Jan van Hattum

*Industrial Designer and Owner
XStern, Zurich, Switzerland.*

Between 1997 and 2008, Mr van Hattum served as Chairman of the O2 Global Network Foundation on Sustainable Design. After earning his MSc in Industrial Design Engineering in 1989 from the Technical University of Delft, Mr van Hattum worked as an R&D Manager and Industrial Designer for Promech Sorting Systems BV, a producer of sorting systems for clothing, books, CDs and other products. In 1989, he began applying Ecodesign principles to his work and designed a low-energy, 95% recyclable sorting system that was selected as best practice example of Dutch Ecodesign. Through his privately owned business XStern (www.XStern.com) he now offers services in Design and Innovation for Sustainability and organizes practical workshops with a whole-systems approach.



Vac from the Sea, joining the B.E.A.C.H. Project in Hawaii.

The Great Pacific Garbage Patch

Presentation and Discussion

Wednesday, June 29, Evening Talk.

How can complex scientific results be communicated to a broader public? Can exhibitions and publications be a useful tool to raise awareness? What is the role of museums and exhibitions in the Web 2.0 era?

The issue of marine debris and plastic pollution is a nascent research field. Early results give reason for concern, however more research is needed to understand the phenomenon and all its consequences. Nevertheless there is a consensus: marine debris is an international problem which has to be faced rigorously.

The Museum für Gestaltung Zürich (Museum of Design Zurich) is planning an exhibition on the subject, trying to inform people, raise awareness and encourage behavioural change. There are many electronic platforms, scientific studies, films and conferences about marine debris and plastic pollution, yet direct sensual experience and precise and attractively presented information is scarce.

In the session, you are invited to discuss the potential of exhibitions and illustrations as means of communication and the role of personal involvement in campaigns which aim to encourage behavioural change.

Further Reading*

[19] Marine Debris Platforms: marinedebris.noaa.gov, sgyres.org, plasticpollutioncoalition.org, projectkaisei.org.

[20] Documentary on the consequences of plastic consumption: plastic-planet.de.

[21] Electrolux „Vac from the Sea“ initiative and campaign.

* available online: bit.ly/S3read



Bernhard Wehrli

*Professor of Aquatic Chemistry
Eawag, Dübendorf, Switzerland.*

Bernhard Wehrli is professor of Aquatic Chemistry at ETH Zurich and is affiliated with Eawag, the Swiss Federal Institute for Aquatic Science and Technology. His interdisciplinary research group is analyzing biogeo-chemical cycles in rivers and lakes with the goal to improve the sustainable management of water resources.



Françoise Krattinger

*Research Associate
ZHdK, Zurich, Switzerland.*

Françoise Krattinger studied cultural anthropology and art history at Zurich University and majored in architecture at ETH Zurich. Since 2007, she has been a research associate at the Museum für Gestaltung Zürich and at the Master of Arts Education, Curating and Museum Education since 2009. She is the Co-Curator of the Plastic Garbage Project. Exhibition: 04.07. – 02.09.2012.

Energy and Waste

The Role of Thermal Processes in Energy and Materials Flow Management

Wednesday, June 29. Morning Lecture.

Thermal processes allow an efficient conversion of waste and biomass to heat, power, and fuels. Wastes can be treated in dedicated facilities or co-treated in thermal production processes. The choice of technology for a particular waste has a strong influence on the fate of materials and the energy recovery efficiency.

What happens with a mobile phone in the municipal solid waste incinerator? Is the cement kiln the ideal process for treating sewage sludge? How suitable is manure for a thermal treatment?

In this lecture we will discuss the fate of materials in different thermal processes. Case studies will include state-of-the-art incineration technology as well as new technologies, e.g. allowing an efficient conversion of microalgae to fuels or the recovery of phosphor from ashes.

Waste Management in Developing Countries

Wednesday, June 29. Morning Lecture.

This session will outline the current situation and challenges regarding solid waste management in developing countries. Specific focus will be on municipal waste and the existing and potential role of recovery & recycling as well as the potentials of carbon financing (CDM as formulated in the Kyoto Protocol). The framework of assessment and analysis will be the concept of balanced and sustainable development. The presentation of examples from developing countries will show promising approaches and technical solutions as well as highlight gaps in knowledge and need for further research and development. The session will include a video on waste recycling in Asia.

Further Reading*

[22] M. Medina, „The informal recycling sector in developing countries“. Gridlines, 2008.

[23] C. Zurbrügg, „How to Cope with the Garbage Crisis“. SCOPE, 2002.



Christian Ludwig

Professor of Chemistry

PSI Villingen /

EPFL Lausanne, Switzerland.

Christian Ludwig earned his master's and PhD in Chemistry at the University of Berne. His post-doctoral years were spent at the Department of Land, Air, and Water Resources (LAWR), UC Davis, CA (1994-1995) and at Eawag (1995-1997). Since 1997 he has worked at the Paul Scherrer Institute (PSI) where he established his own research group in 2000 at the Laboratory for Energy and Materials Cycles. In 2005 he was appointed adjunct professor at the Swiss Federal Institute of Technology Lausanne (EPFL) in the field of Solid Waste Treatment. Today, his group belongs to the Bioenergy and Catalysis Laboratory at PSI and his professorship is hosted at the Environmental Engineering Institute of EPFL.

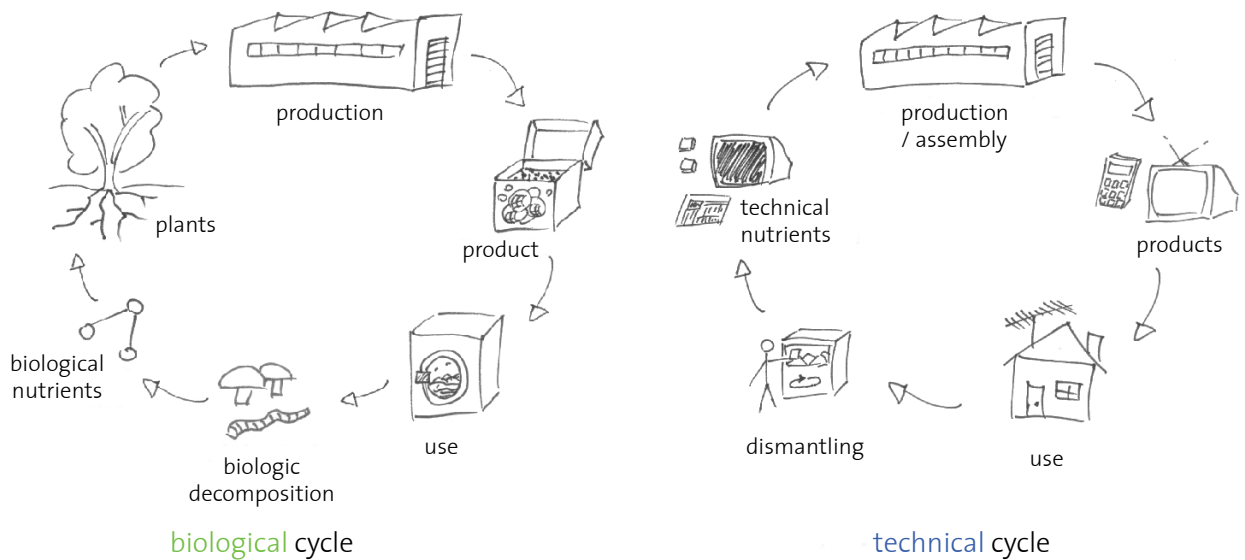


Christian Zurbrügg

Researcher

Eawag, Dübendorf, Switzerland.

Christian Zurbrügg is a senior researcher on water, sanitation and solid waste for developing countries and heads the Department of Water and Sanitation in Developing Countries at Eawag (Swiss Federal Institute of Aquatic Science and Technology). His research interests focus on the urban environment in cities of the developing world, especially the challenges of solid waste management, environmental sanitation and water supply. Beyond the technical elements of this field his interests include the economic, institutional and social issues surrounding sustainable solutions for improving urban populations' health and wellbeing through improved environmental services and infrastructure. His research experience is based on projects in a multitude of low and middle income countries in the Asian, African and Latin American regions.



The two Systems of Cradle to Cradle

Cradle to Cradle

From Concept to Implementation - Eco-effective Design and Beyond

Wednesday, June 29. Afternoon workshop.

The workshop participants experience implementing their design ideas according to the Cradle to Cradle® system. All substances and materials along the entire supply chain, from raw materials to products, will be considered. This means that when closing one development or production cycle, another one begins. This results in a high quality product and maintenance of raw material supplies. The communication network and design commitments are agreed upon amongst all players in the simulation and each participant is guaranteed full knowledge of the current situation. The final product's marketing material communicates its production process openly, allowing the consumer to decide whether to buy it or not according to his personal values.



Albin Kälin
CEO
EPEA, Switzerland.

Albin Kälin developed the world's first Cradle to Cradle® products, the Climatex® lines of fabrics. In 2005 he was appointed CEO of the scientific consultancy EPEA in Hamburg, Germany. At the end of 2009, Albin founded EPEA Switzerland. As CEO he is currently pursuing his passion, to help the Cradle to Cradle® concept spread by successfully implementing projects in all industries globally, using his core expertise in the textile industry.



Walter Eschenmoser
Management Consultant
EPEA, Switzerland.

Walter Eschenmoser works as a consultant on strategy, marketing and business development. His main focus is the building material industry.

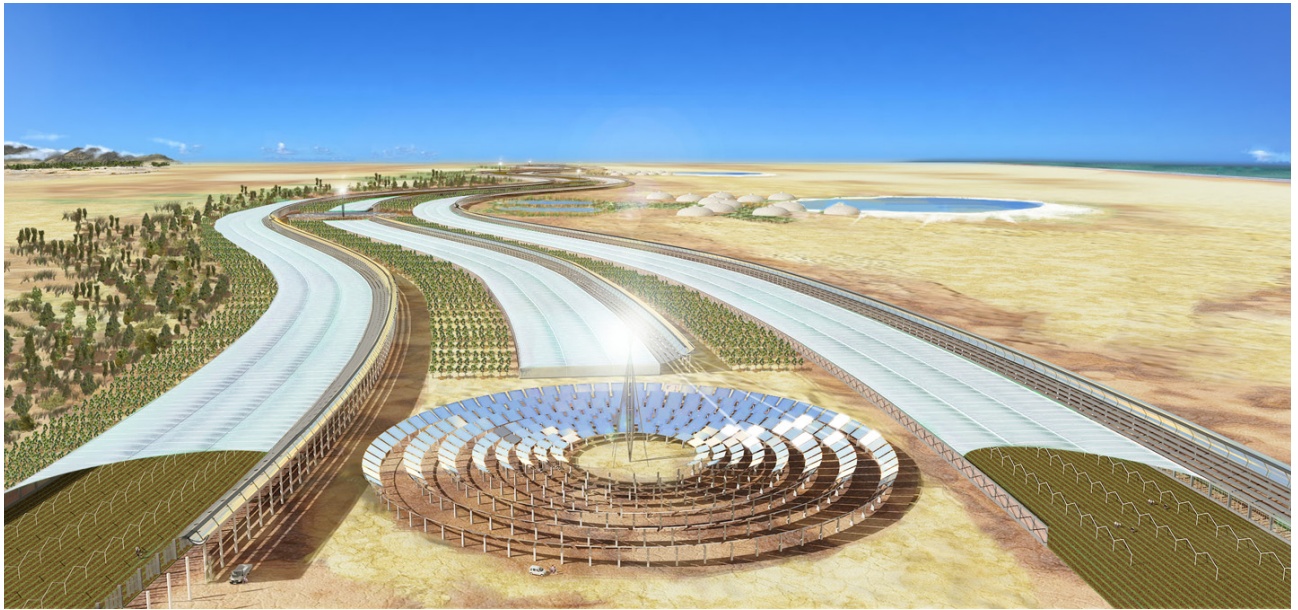
For more information about Cradle to Cradle®, feel free to browse the EPEA website, epeaswitzerland.com.



Andreas Schlaepfer
Project Partner
EPEA, Switzerland.

Andreas founded Schlaepfer Associates in 2010. The company delivers innovative services with a focus on sustainability in the building and construction sector. As a member of the network of EPEA Switzerland he also represents the Cradle to Cradle® concept in these areas.

* available online: bit.ly/S33read



The Sahara Forest Project

Biomimicry

Workshop and Lectures

Thursday, June 30. All Day.

The main learning outcomes will be an overall understanding of biomimicry and how it is distinct from other biology-based design approaches, a detailed understanding of ecosystems-thinking and how this can be applied to designing systems that approach zero waste. We will discuss the overlaps between biomimicry and Cradle to Cradle and what this implies for materials used in design. Also covered will be the understanding of how to integrate a range of biomimetic approaches on one project.

We will start with an introduction to biomimicry followed by questions and answers. Then, we will have a detailed talk about designing out waste by applying ecosystems thinking. Afterwards, we will role-play an ecosystem thinking group game. Finally, we will talk about new developments in biomimicry materials and have a look at integrated biomimicry – [The Sahara Forest Project](http://saharaforestproject.com) (saharaforestproject.com).

Further Reading*

- [24] Hawken, Lovins and Lovins, „[Natural Capitalism](#)“, 1994.
- [25] J. Benyus, „[Biomimicry – Innovation Inspired by Nature](#)“, TED Talk 2005; „[Sustainability in 7](#)“, Core77 2011.
- [26] D. MacKay, „[Sustainable Energy - Without the hot air](#)“, UIT Cambridge Ltd, 2009.
- [27] R. Allen, „[Bulletproof Feathers](#)“, Chicago U. Press, 2010.



Michael Pawlyn

Director

Exploration Architecture, London, UK.

Michael Pawlyn set up Exploration Architecture in 2007 to focus on biomimicry – an emerging discipline offering innovative architectural solutions inspired by nature. From 1997 to 2007 he worked with Grimshaw and was part of the core team that designed the Eden Project. In 2009 he opposed renowned environmental sceptic, Bjorn Lomborg, and more recently delivered a TED talk. He has taught at the Bartlett, AA, and at Schumacher College. His areas of interest include innovative structures and processes inspired by nature, industrial ecology and biomimetic technologies with near-to-mid-term applicability. He is currently working on the ambitious ‘Sahara Forest Project’ and an RIBA book titled ‘Biomimicry in Architecture.’

* available online: bit.ly/S33read

Evening Talks

Being a Sustainability Pioneer.

Friday, June 1.

A sustainability pioneer, Claude Martin will talk about his initial motivation to become involved in what was then called the environmental protection movement. His WWF career started in the early 1970s, when he lived in Central India studying the ecology of the threatened barasingha deer. From 1975 to 1978 he served as director of national parks in Ghana, before becoming director of WWF-Switzerland in 1980. In 1990 he joined WWF International as Deputy Director General. Three years later, he was appointed Director General of WWF International. What were the challenges he faced during his career, what kept him going and which were his greatest successes? Where does he see mankind's great challenges of the future and how can young people get involved in finding solutions for them? His story will be followed by a group discussion where Claude Martin talks with the students about their role in society.



Claude Martin

*Former Director General
WWF International.*

A Swiss national, Claude Martin was born in Zurich in 1945. In his position of Director General of WWF International, he initiated several new approaches in conservation, as well as international partnerships, for example with the World Bank and business/industry groups. From 1995-2006 Claude Martin has been a member of the China Council for International Cooperation on Environment and Development (CCICED). Since 2006 he is the chairman of the International Sustainability Innovation Council of Switzerland – ISIS, the Chancellor of the International University in Geneva, and a board member of several other environmental organizations. Claude Martin holds a MSc and PhD in zoology from the University of Zurich.

FREITAG. Recycled Bags!

Saturday, July 9.

About the company:

„FREITAG has been manufacturing bags and accessories for women and men since 1993. Our materials are used, having seen service on the road. They are well-travelled truck tarpaulins, unravelled seat belts, bicycle inner tubes beyond repair, recycled airbags. Tough stuff - which makes our products tough, too. As for us, we are Swiss, which means we are acutely quality-conscious. We apply our recycled materials in a totally new way, insisting on superlative design and functionality. Every FREITAG product is made from original tarpaulins of different colours, markings and contours. So every FREITAG product is a one-off. „

from: freitag.ch



Daniel Freitag

*Co-Founder
FREITAG, Zurich, Switzerland.*

Daniel Freitag and his brother Markus began FREITAG in their apartment in Zurich, hand making messenger bags out of old truck tarpaulins, bicycle inner tubes, air-bags, and seat-belt webbing. He used his background in graphic design and personal desire for a sturdy, functional, and water-repellant bag to inspire his first handmade bags. From the two-brother operation in 1993, FREITAG grew to its present size of 120 employees and world-wide distribution. The company is still based in Zurich.



Still from the Movie [Little Big Berlin](#)

Creative Workshop

Workshop

Saturday, July 9. All day.

SHORT DESCRIPTION

The workshop will use design fictions to explore different contexts and new uses in relation to wood furniture, washing machines and food packaging.

LEARNING OBJECTIVES

We use stories to make sense of the world and our relationship to it. Technology driven product development tends to design into a blank space. Instead of focussing on what is technologically possible, we will put people first and draw from personal quirks, desires and fears. We will introduce story-telling and fictional design to explore possible situations, rituals and investigate unexpected implications.

FORM OF TEACHING

Following a general introduction, students will be divided to work in groups of three. Each group will work with one of the three case studies (wood furniture, washing machines and food packaging). Throughout the day we will have tutorials with each group presenting at the end.

Further Reading*

[28] Gunnar's website, thegreeneyl.com.

[29] Bernhard's website, berndhopfengaertner.net.

[30] Jörg's website, joerghuelsmann.de.

* available online: bit.ly/S3read



Gunnar Green

*Designer
Berlin, Germany.*

Gunnar Green is a designer at TheGreenEyl, which he co-founded. He holds an MA in Design Interactions from the Royal College of Art in London and a Diplom in Visual Communication from the Berlin University of the Arts. Gunnar divides his time between teaching, commissioned and self-initiated work. He currently lectures at the Bauhaus University Weimar and the University of the Arts Bremen.

His work has been exhibited internationally at the Japan Media Arts Festival in Tokyo, Design Museum London, Jewish Museum Berlin, Ars Electronica in Linz and the MoMA, New York, among other places.



Bernhard Hopfengärtner

*Designer
Berlin, Germany.*

Bernard Hopfengärtner holds an MA in Design Interactions from the Royal College of Art, London and a BFA in Media Art from the Bauhaus-Universität Weimar. Hopfengärtner's work investigates the relationship between science, technology and society, using various media including video, audio, programming, and installation. His work has been exhibited at, amongst others, the Wellcome Trust, London and the Science Gallery, Dublin. Upcoming Exhibitions will be at the MoMA, New York and National Museum of China, Beijing.



Gunnar - „parasite“



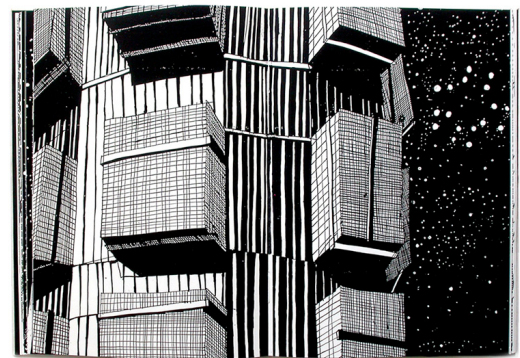
Bernhard - „hello world“



Jörg Hülsmann

*Illustrator
Berlin, Germany.*

Jörg Hülsmann, born 1974, studied illustration in Düsseldorf and Hamburg, Germany. Since 2003 he has worked as a freelance illustrator for book publishers, magazines and newspapers, including S. Fischer, Suhrkamp, Dumont, Büchergilde Gutenberg, Frankfurter Rundschau. He is also developing free book projects. His adaption of Italo Calvino's 'The invisible cities' has been awarded by the German Book Arts Foundation as one of the most beautiful German books and was exhibited internationally. He works in Berlin, where he lives with his wife and two children.



Jörg - „Die unsichtbaren Städte“

CASE STUDIES

WEEKS TWO AND THREE

During the second two weeks of the course we will break into three groups and apply the skills learned during the input sessions. The groups will focus on washing machines, food packaging, and wood furniture respectively, through practical work, talks and site visits.



Food - unpacked

Food Packaging

Learn all about state of the art resource-efficiency in food packaging during production and distribution.

INTRODUCTION

Through three interrelated case studies, students will learn about packaging systems sustainability and resource efficiency. They will visit SIG allCap, an innovative packaging company, as well as BINA, a leading Swiss food manufacturer. Furthermore, they will learn about resource efficiency, how to conduct an LCA and about recycling, system optimization and innovation to achieve a sound understanding of how the food packaging industry works to apply their knowledge to work on a case study question.

LEARNING OBJECTIVES

Students will become familiar with the sustainability issues of the food packaging industry, both in the general and through specific product and packaging type examples. They will also apply the knowledge they gained during the first week regarding LCA, cradle-to-cradle design, biomimicry, the reasons behind sustainable design, as well as creative design in general. They will present their findings regarding optimal packaging design to the rest of the school at the end of the program.

CASE STUDIES

- _ Innovative Food Packaging, awtec/Coop
- _ Single-portion coffee packaging, Nestlé
- _ Aseptic fluid-packaging, SIG Combibloc

EXCURSIONS

- _ SIG allCap, Neuhausen
- _ BINA, Bischofszell
- _ awtec, Zurich

LECTURES

Roland Hirsch, EMPA.

„Sustainability and the Objectives of Packaging“

Stefan Munz, BINA.

„Sustainable Packaging in Retailing“

Martin Amann, Institute of Limbic Communication.

„Packaging: guidance or seduction?“

Panel discussion „Alternative Resources and Bio Materials“ with Migros, EMPA and SIG.

Supervisors



Ingo Bueren

*Director of Science and Technology
IPI, Schaffhausen, Switzerland.*

Ingo Bueren is currently the Director of Science and Technology at the International Packaging Institute (IPI) in Schaffhausen, Switzerland. He is a professor of Packaging Design at the Stuttgart Media University, member of the Advisory Board at the School of Packaging at Michigan State University in Lansing, Michigan, and adjunct professor at Kasetsart and Naresuan Universities in Thailand. Before joining academia, Dr. Bueren held several managerial positions in the packaging industry in Europe, the US and Asia. He earned an Engineering degree in Metallurgy after completing his studies in physics, chemistry and material science.



Ursula Probst

*Professor of Packaging Technology
Stuttgart Media University, Germany.*

Ursula Probst received her Diploma and PhD at the University of Freiburg (Institute of Crystallography). She then became a researcher in material science at Aérospatiale in France and at the University of Konstanz. Since 2003 she has worked as a professor at the packaging department at the University of Applied Science – Media University at Stuttgart. She lectures in Material Science, rigid packaging, environmental science and recycling.

Further Reading*

[31] J. Gustavsson, et al. „Global Food Losses and Food Waste“, FAO 2011.

The study highlights the losses occurring along the entire food chain, and makes assessments of their magnitude. Further, it identifies causes of food losses and possible ways of preventing them. The results of the study suggest that roughly one-third of food produced for human consumption is lost or wasted globally, which amounts to about 1.3 billion tons per year. This inevitably also means that huge amounts of the resources used in food production are used in vain, and that the greenhouse gas emissions caused by production of food that gets lost or wasted are also emissions in vain.

[32] „A Guide to Packaging Material Flows and Terminology“, GreenBlue 2009.

According to the Sustainable Packaging Coalition’s Definition of Sustainable Packaging, one of the criteria to achieving sustainable packaging is that materials must be effectively recovered at the end of their useful life, and then re-used in industrial or biological cycles. To make this happen, it is critical to connect packaging design and manufacture with the available end-of-life recovery systems, creating a “closed loop” material system. Often, however, in the United States, the two ends of the packaging supply chain — the packaging designers and the recyclers — do not communicate effectively with each other, materials are sent to landfill, or otherwise wasted, and a closed-loop system is never realized. One of the barriers to effective communication along the packaging supply chain is the lack of a common lexicon for packaging materials. This absence of commonly understood terminology hinders discussions along the supply chain. A comprehensive list of packaging material types would help to close this communication gap and allow for more productive discussions along the supply chain. To help solve this problem, the Guide to Packaging Material Flows and Terminology defines the major packaging materials and introduces the various terms and synonyms that are applied to the materials during the life cycle phases of production, use and collection, and reprocessing. The Guide also presents the current life cycle of each material in graphic form to demonstrate the flow of the packaging material from resource extraction to its eventual fate at end-of-life, highlighting the existing gaps standing in the way of an ideal closed-loop system.

[33] „Sustainable Packaging Indicators and Metrics Framework“, GreenBlue 2009.

Publication of the Sustainable Packaging Indicators and Metrics Framework Version 1.0 (Metrics Framework) is the outcome of an 18-month project that the Sustainable Packaging Coalition (SPC) undertook to develop a set of common indicators and metrics to help companies measure progress against the criteria articulated in the SPC Definition of Sustainable Packaging. The framework is divided into four sections – Introduction, understanding Indicators and Metrics, user guidelines and the Indicators and Metrics Modules. There is a stand-alone module for each of the key criteria of the SPC Definition, specifically material use, energy use, water use, material health, clean production and transport, cost and performance, community impact and worker impact. Since the Metrics Framework provides a comprehensive palette of indicators and metrics that address the breadth of the SPC Definition, not all of the indicators and metrics are relevant for all organizations, all packaging types or all supply chain functions. Organizations should select those that are most relevant to their goals and operations. The user guidelines section includes a detailed discussion on the selection and use of the indicators and metrics and suggestions for getting started.

* available online: bit.ly/S3read

Outline

WEEK 2

Monday, July 4th

_ Introduction to the definition of food packaging: Ursula Probst

_ Sustainability and the objective of packaging: Roland Hischier

_ Introduction to Case Study I: Adrian Burri, awtec

_ Introduction to Case Study II: Urs Schenker, Nestlé

Tuesday, July 5th

_ Introduction to Case Study III: Gregor Pawlitzki

_ Excursion to SIG allCap, Neuhausen

Wednesday, July 6th

_ Sustainability and ecology: Roland Hischier

_ Case study work: Ursula Probst

Thursday, July 7th

_ Excursion to BINA, Bischofszell

_ Sustainable packaging in retailing: Stefan Munz

_ Packaging-guidance or seduction?: Martin Amann

Friday, July 8th

_ Alternative Resources, Bio-Materials-Panel Discussion: Migros, EMPA, SIG

_ Case study work: Ursula Probst

WEEK 3

Monday, July 11th

_ Excursion to awtec: Adrian Burri

Tuesday, July 12th

_ Discussion of results: Ursula Probst

Wednesday, July 13th

_ Work on presentations

Thursday, July 14th

_ Work on presentations

Friday, July 15th

_ Final presentations



Washing Machines - stacked

Washing Machine

Take one apart and discover its every last secret. will you be able to put the pieces back together?

INTRODUCTION

The main goal of this case study is to conduct a Life Cycle Assessment (LCA) on a washing machine. The LCA will include the dismantling of old devices, determining material composition of washing machines, and a comparison of energy consumption during the use phase for old and new devices. Furthermore, students will learn how LCA can be conducted digitally using appropriate software. During the case study, students will visit V-Zug, a Swiss domestic appliances producer with a strong focus on innovation and environmental performance, and discuss with developers on-site their own findings as well as challenges and opportunities in the washing machine market.

LEARNING OBJECTIVES

Students will learn to understand the life cycle inventory of items in a washing machine. They will model the LCA of a washing machine by defining functional units, establishing an inventory of the materials inside a washing machine, and measuring energy and water requirements of a washing machine. They will also participate in an excursion to V-Zug, where they will gain insight into the design, manufacturing and marketing of washing machines as well as increase their knowledge about the environmental effects of washing machines through trips to a recycling company and drinking water reservoir. Finally, they will present their findings to the group, gaining valuable team work and presentation skills.

CONTENT

- _ Water and energy measurements of the washing machines
- _ Literature search for filling data gaps
- _ Determination of washing behavior
- _ Dismantling of a washing machine (old and new)
- _ Life Cycle Impact Assessment of washing machines, inclusive introduction to LCIA methods
- _ LCA of washing machine
- _ Literature review
- _ Preparation of research plan
- _ Planning of the measurement day
- _ Introduction to SimaPro, implementation of gathered inventory data
- _ Scenario analysis, sensitivity analysis, uncertainty analysis
- _ Preparation of presentation and report
- _ Final presentations

- _ Visit to V-Zug
- _ Excursion to recycling company (Immark) or drinking water reservoir

Supervisors



Ronnie Juraske

*Postdoctoral Researcher-Environmental Engineering
ETH Zurich, Switzerland.*

Ronnie Juraske is currently a postdoctoral researcher at the Institute of Environmental Engineering at ETH Zurich. His work mainly deals with life cycle impact assessment (LCIA) including fate, exposure, and effect analysis, with a special focus on human toxicity and eco-toxicity modeling of chemicals like biocides and pesticides in the frame of life cycle assessment (LCA). In 2002 he earned an Engineering degree in Biotechnology from the Mannheim University of applied Sciences, Germany. From 2003 to 2007 he completed his PhD at the University of Tarragona, Spain. Between 2005 and 2006 he was a visiting scientist at the University of Nijmegen, The Netherlands.



Tobias Walser

*PhD Candidate in Environmental Engineering
ETH Zurich, Switzerland.*

Tobias Walser is currently a PhD candidate at the Institute of Environmental Engineering at ETH Zurich. His work mainly deals with life cycle impact assessment with a focus on fate and exposure measurements and the modeling of engineered nanoparticles. In 2009 he obtained a master's degree in Environmental Science from ETH Zurich, Switzerland. In 2009 he completed the certificate of Teaching Ability at ETH Zurich. Between 2007 and 2008 he was an intern at the Centre for Hydrology and Ecology in Edinburgh (UK) and Novartis International, Basel (Switzerland).

Further Reading*

[34] C. Benoit, B. Mazijn, „Guidelines for Social Life Cycle Assessment of Products“, UNEP/SETAC 2009.

The Guidelines for Social Life Cycle Assessment of Products provides a map, a skeleton and a flash light for stakeholders engaging in the assessment of social and socio-economic impacts of products life cycle.

Social Life Cycle Assessment is a technique available to account for stories and inform systematically on impacts that otherwise would be lost in the vast and fast moving sea of our modern world.

[35] „Life Cycle Management: How business uses it to decrease footprint, create opportunities and make value chains more sustainable“, UNEP/SETAC 2009.

Life cycle management is a business management approach that can be used by all types of businesses (and other organizations) to improve their products and thus the sustainability performance of the companies and associated value chains. A method that can be used equally by both large and small firms, its purpose is to ensure more sustainable value chain management. It can be used to target, organize, analyze and manage product-related information and activities towards continuous improvement along the life cycle.

[36] „Product Life-Cycle at Electrolux.“

Electrolux uses product life-cycle analysis to gauge and reduce our environmental impacts. And with over 70% of the total impact of an appliance occurring during its use, Electrolux can make its biggest contribution through a product-led approach.

[37] „Environmental assessment of consumer electronic products“, WRAP, 2009.

A review of high volume consumer electrical products through Lifecycle Assessments, to compare their relative environmental impacts and identify future trends.

[38] H. Baumann, A. Tillman, „The Hitch Hiker’s Guide to LCA“, Studentlitteratur AB, 2004.

The environmental life cycle of a product consists of all the stages, from raw material extraction through production and use to waste management. Life Cycle Assessment (LCA), then, is the assessment of the environmental impact

of a product throughout its life cycle. The holistic perspective that LCA provides on the environmental performance of products has made it a central concept for both environmental management in industry and environmental policy-making in public government.

[39] I. Rüdener et al. „Eco-Efficiency Analysis of Washing Machines“, Öko-Institut e.V., 2005.

Due to technological advance during the last 10 to 15 years of both washing machines and detergents, significant reductions of energy and water consumption could be realised in the field of private laundry. Although new developments in chemistry of detergents or sensor technology in washing machines (e.g. detection of the load of the washing machine or the staining of laundry) may result in additional savings, future savings of energy and water consumption might be lower compared to the savings realised in the past years. Against this background Electrolux and B/S/H Bosch und Siemens Hausgeräte jointly commissioned Öko-Institut e.V. to carry out this study.

[40] „Evaluation Of Environmental Impacts In Life Cycle Assessment“, UNEP, 2003.

The mission of UNEP’s Division of Technology, Industry and Economics (UNEP DTIE) is to help decision makers in governments, industry and local authorities develop and adopt policies, strategies and practices that are cleaner and safer, and make efficient use of natural resources; ensure adequate management of chemicals; incorporate environmental costs, and reduce pollution risks to people and the environment.

Within the Division, the Production and Consumption Unit aims to reduce the environmental consequences of industrial development and the pollution arising from the ever-increasing consumption of goods and services. The Unit’s sustainable consumption activities apply a life cycle approach to consumer’s needs. The focus is on understanding the driving forces behind consumption – using them to inspire cost-effective improvements, thereby raising the quality of life and reducing environment damage.

* available online: bit.ly/S33read

Outline

WEEK 2

Monday, July 4th

- _ Introduction to the case study
- _ Literature review, important steps in LC of washing machines, preparation of research plan, planning of the measurement day
- _ Come together, wrap up the day, plan upcoming tasks

Tuesday, July 5th

- _ Water and energy measurements of the washing machines; literature search for filling data gaps, determination of washing behaviour, country specific (washing loads, temperature, detergents use, etc.)
- _ Definition of the functional, unit and continuation of the morning's work
- _ Come together, wrap up the day, plan upcoming tasks

Wednesday, July 6th

- _ Dismantling of the washing machine (old and new)
- _ Introduction to SimaPro implementation of gathered inventory data
- _ Come together, wrap up the day, plan upcoming tasks

Thursday, July 7th

- _ Life Cycle impact Assessment of washing machines, inclusive introduction to LCIA methods
- _ Excursion to V-Zug

Friday, July 8th

- _ LCA of washing machine, export of analyzed SimaPro dataset, wrap up of first week, planning of upcoming week

WEEK 3

Monday, July 11th

- _ Introduction to second week, scenario analysis, sensitivity analysis, uncertainty analysis
- _ Application of scenario analysis, sensitivity analyses and uncertainty analysis on washing machine case study
- _ Come together, wrap up the day, plan upcoming tasks

Tuesday, July 12th

- _ Excursion to recycling company or drinking water reservoir
- _ Completion of missing case study points
- _ Come together, wrap up the day, plan upcoming tasks

Wednesday, July 13th

- _ Preparation of presentation and report
- _ Come together, wrap up the day, plan upcoming tasks

Thursday, July 14th

- _ Preparation of presentation and report
- _ Come together, wrap up the day, plan upcoming tasks

Friday, July 15th

- _ Final Presentations



Beat Karrer - „Spira“

Wooden Furniture

Because Knut (bit.ly/swedishKnut) is a great Swedish holiday and wood is one of the most sustainable materials.

INTRODUCTION

Through learning about different tools as well as through working in a team, a more holistic view on the term ‘sustainability’ will be evolved and put into practice by using furniture as a case study.

LEARNING OBJECTIVES

Highlighting the economical, cultural, environmental and social aspects of sustainability in all its variations is the first intention of this case study. To do so, students will work on a concrete object and learn to approach a complex scope as a whole group by working on the various topics in small teams. Therefore the interchange of the ideas and possible product improvements found in the whole group is of major importance.

In terms of content, students will learn to apply life cycle thinking, the principles of sustainable design as well as using different working methods. Furthermore, testing, refining and validating the approaches by putting them into practice through building models or prototypes will accompany the conceptual work.

Apart of the internal discussions and presentations, the insights gained will be gathered together and communicated in a written guideline document.

CONTENT

- _ General introduction
- _ Introduction to a life cycle assessment software tool (SimaPro Software)
- _ Principles of Sustainable Design (Lifecycle Design Strategies (LIDS) wheel)
- _ Interacting in a multicultural and multidisciplinary team
- _ Methodologies for the improvement of the different aspects for sustainable product design
- _ Practical implementation of the concepts (models, prototypes)
- _ Working out guidelines and recommendations for sustainable product design
- _ Presentation of the results
- _ Excursions, Lectures, Work

Supervisors



Beat Karrer

*Product Designer and Owner
Studio Beat Karrer, Zurich, Switzerland.*

Where does a product designer get his ideas? From new materials that encourage challenging new applications, new production techniques that make the previously unthinkable possible, and by observing everyday life revealing unsatisfied needs.

It is in this arena that Zurich designer Beat Karrer together with his team develops new products which resound favourably with his renowned clientele such as Anthologie Quartett, Ballfinger and Designerslabel (Germany), Boffi and Corian/DuPont (Italy), Offecct (Sweden), Burri, Röthlisberger, Kidsmodern and Tossa (Switzerland) or TossB (Belgium). As well as among the juries of international competitions in Belgium, Germany, Spain and Switzerland that awarded Beat Karrer with several prizes for his designs which often are unusual in their approach yet very functional and practical in their daily application.

Today, Beat Karrer is also an active visiting teacher, lectures all over Europe, participates in juries and leads workshops, e.g. for the Vitra Design Museum. Beat Karrer's ideas have appeared in many publications and books.



Misch Sutter

*Product Designer
FORMPOL, Zurich, Switzerland.*

Misch Sutter (1970) grew up in a small village near Solothurn and spent most of his spare time outdoors due to his curiosity for nature.

In order to better understand the ecosystem with its complex relations and interdependencies, Misch decided to study Environmental Sciences at ETH. During his time at ETH, his awareness regarding the harmful effects of products and processes grew and finally influenced his decision to study Industrial Design at the Zurich University of Arts (ZHdK). He wanted to be part at the very beginning of the product development process, rather than trying to solve the negative effects on the environment after the fact. His intention was to create more sustainable products and processes. To this end, he started working at the design company Formpol in 2000, where he still develops and designs products for everyday life.

Besides work, Misch is part of a network of environmentally conscious designers and holds lectures or acts as an examiner.

Misch lives with his family in a large settlement in Zurich and is a part of the neighborhood association.

Supervisors



An De Schryver

*Postdoctoral Researcher for Ecological Systems
ETH Zurich, Switzerland.*

An De Schryver (1982), works as post-doc researcher for ecological systems design at the Institute of Environmental Engineering of ETH Zurich (Switzerland). After finishing her master in Environmental Biology (2004) at the Free University of Brussels (Belgium) she started to work at PRé Consultants, as a Life Cycle Assessment consultant. At PRé Consultants she has contributed in several projects involving branch associations and European Union projects. Her research field encompasses life cycle assessment of products and impact assessment development. In 2008 she started a PhD at the Radboud University of Nijmegen in the field of Life Cycle Impact Assessment, more specific on value choices in human health modelling. In 2010 she finished her PhD and started to work as a post-doc at ETH to analyse the wood value chain and its improvement potentials from an environmental point of view.



Ernst-Jan van Hattum

*Industrial Designer / Owner
XStern Zurich, Switzerland.*

Ernst-Jan van Hattum is an industrial designer and holder of several patents. Of Dutch origin, he currently resides in Switzerland where he enjoys mountaineering.

Since 1997 until 2008, he has served as Chairman of the O2 Global Network Foundation, the governing body behind the O2 Global Network on Sustainable Design, with now more than 82 O2 representatives in 53 countries and an e-mailing list with over 1800 subscribers.

After receiving his MSc Industrial Design Engineering in 1989 from the Technical University of Delft, the Netherlands, Ernst-Jan worked as R&D Manager and Industrial Designer for Promech Sorting Systems BV, a producer of sorting systems for clothing, books, CDs and other products, which are used within the logistic centres of companies such as Sears, GAP (USA), Benetton (Italy) among others.

In 1989, Ernst-Jan began applying Ecodesign principles to his work and designed a low-energy, 95% recyclable sorting system that was selected as best practice example of Dutch Ecodesign and was presented by the Ministry of Economic Affairs in a video for entrepreneurs entitled "The Profit of Environmental Product Development".

Through his privately owned business XStern (www.XStern.com), near Zurich, he offers services in Design and Innovation for Sustainability and organizes practical workshops for both private industry and academic institutions with a whole-systems approach.

Further Reading*

[41] P. White et al. „Okala Ecodesign Guide,“ with support by Eastman Chemical, Whirlpool and IDSA/EPA, 2010.

Okala provides an introduction to ecological and sustainable design for practicing and beginning designers. Okala means „life sustaining energy“ in indigenous Hopi language. It envisions a future where we recognize the value of global ecology and work to insure its protection. The Okala guide revised in late 2009 with emphasis on usability to practicing designers and design students.

[42] A. Fuad-Luke, „ecoDesign: The Sourcebook,“ Chronicle Books, 2010.

From a solar electric bus to fashions made from recycled inner tubes, EcoDesign: The Sourcebook showcases some of the most innovative, environmentally friendly products and prototypes from around the world. The 700-some designs include furniture, appliances, vehicles and electronics. Each entry in this encyclopedic reference features a photograph and brief description, as well as information about the various components of the product. The book is edited by Alastair Fuad-Luke, who teaches green design at Falmouth College of Arts in England, and includes a resource guide that lists designers, manufacturers, green organizations and „eco strategies.“

[43] M. Crul and J. Diehl, „Design4Sustainability.“ UNEP and TU Delft, 2009.

Design for Sustainability (D4S) aims to improve product efficiencies, quality, and increase local and export market opportunities while simultaneously increasing environmental performance. In many developed countries, because of a high level of awareness, D4S efforts are linked to the broader concepts of product-service mixes, systems innovation and other life cycle-based efforts. In developing economies, due to limited awareness, more immediate technical support is needed to introduce the D4S concept. However, successful implementation of D4S requires working in partnership. This publication is an example of one such effort.

[44] treehugger.com

TreeHugger is the leading media outlet dedicated to driving sustainability mainstream. Partial to a modern aesthetic, we strive to be a one-stop shop for green news,

solutions, and product information. We publish an up to the minute blog, weekly and daily newsletters, weekly radio interviews, and social media.

[45] inhabitat.com

Inhabitat.com is a weblog devoted to the future of design, tracking the innovations in technology, practices and materials that are pushing architecture and home design towards a smarter and more sustainable future. Inhabitat was started by NYC designer Jill Fehrenbacher as a forum for investigating emerging trends in product, interior, and architectural design. Managing Editor Mike Chino and Senior Editor Yuka Yoneda lead the editorial team, while Rebecca Paul steers business operations.

[46] O2.org, International Network on Sustainable Design.

The O2 Global Network is an international network established to inform, inspire and connect people interested in sustainable design. Network members are involved in industrial design, architecture, styling, graphic design, fashion, innovation and the arts. Included as well are people from academies, universities, public authorities, private companies, NGOs and knowledge centers. The O2 Global Network foundation was established in 1994 as an independent organization with the aim of keeping everyone in O2 linked and communicating with one another. This is achieved primarily through the use of electronic media: a website and an electronic mailing list.

[47] worldchanging.com

Worldchanging.com is a nonprofit media organization dedicated to solutions-based journalism about the planetary future. Since 2003, Worldchanging has brought together a global network of independent journalists, designers and thinkers to cover the world's most innovative solutions to the planet's problems, and inspire readers around the world with stories of new tools, models and ideas for building a bright green future. It brings awareness to issues like refugee aid, renewable energy and innovative solutions for improving building, transportation, communication and quality of life. Worldchanging connects readers ready to change the world with the latest ideas on how to do it.

* available online: bit.ly/S3read

[48] S. Byggeth and E. Hochschorner, „Handling trade-offs in Ecodesign tools for sustainable product development and procurement,“ 2005.

Trade-off situations often occur in the product development and procurement processes when alternative solutions emphasize different aspects that have to be balanced against each other. Ecodesign tools can be used in both product development and purchasing, for example to prescribe design alternatives, assess environmental impacts or to compare environmental improvement alternatives. However, it is not always clear what should be chosen in trade-off situations. In this study, 15 different Ecodesign tools were analyzed to ascertain whether a valuation is included in the tools, in what way the tools give support in different types of trade-off situations and whether the tools provide support from a sustainability perspective.

[49] G. Clark et al., „Design for Sustainability: Current Trends in Sustainable Product Design and Development,“ Sustainability, 2009.

The Design for Sustainability (D4S) concept outlines methodologies for making sustainable improvements (social, economic and environmental) to products by applying elements of life cycle thinking. D4S builds on the work of ecodesign to include economic and social concerns, and its methodology includes both incremental and radical innovation. The United Nations Environment Programme and the Delft University of Technology, the Netherlands, in concert with key partners, work to support, illustrate, and diffuse targeted D4S demonstration efforts, including the European Commission-funded Cleaner Production for Better Products project in Vietnam, that are needed to change unsustainable consumption and production patterns.

[50] O. Michelsen, „Eco-efficiency in redesigned extended supply chains; furniture as an example.“ NTNU, 2007.

This paper shows how the eco-efficiency concept can be used to evaluate value and environmental performance when considering different scenarios for redesigning extended supply chains (ESCs). Results from a case study on furniture production in Norway are used to illustrate the concept.

An extended supply chain includes all processes necessary for production, use and end-of-life treatment of a product. The environmental performance of the products was

assessed using LCA, and value performance was measured as life cycle cost. Instead of calculating absolute values using a traditional eco-efficiency ratio, relative values for different scenarios were calculated and presented graphically in an XY-diagram. This clearly visualises the alternatives that have the best environmental and value performance.

[51] S. Tyskeng and G. Finnveden, „Comparing Energy Use and Environmental Impacts of Recycling and Waste Incineration,“ Journal of Environmental Engineering, 2009.

What is the most appropriate way to manage waste flows has been discussed for many years, and to make a fair evaluation of the effects of the various handling methods, it is important that the evaluation be as comprehensive as possible. There are many tools for analyzing environmental effects of waste systems [Finnveden et al. 2007b]. The choice of tool depends on what effects are of interest and the type of system to be studied. Systems analysis has gained much attention in the waste management sector during recent years. This is illustrated, for example, in the European Union's thematic waste strategy in which life-cycle thinking and life-cycle analyses are mentioned as important tools [Commission of the European Communities 2005].

Life-cycle assessment [LCA] is a method for evaluating the environmental impact of a product or service from cradle to grave, i.e., from extraction of raw materials to production, use, and waste handling. The concept of "product" should be interpreted broadly here, so that various types of services, e.g., waste handling, can be studied as well. An international standard for life-cycle assessment [ISO 2006] provides a framework, terminology, and certain methodological recommendations. LCA is also described in textbooks [e.g., Baumann and Tillman 2004] and in the scientific literature [e.g., Rebitzer et al. 2004; Pennington et al. 2004; Finnveden et al. 2009].

[52] F. Werner, et al., „Post-consumer wood in environmental decision-support tools,“ 2002.

Environmental decision-support tools, such as life cycle assessment or material flow analysis, only support the decision-making process if, in addition to the causalities of the systems under study, their role within sustainable development is adequately depicted. This article outlines the basis of the two requirements for post-consumer wood in Switzerland.

* available online: bit.ly/S33read

Outline

WEEK 2

Monday, July 4th

- _ Introduction to case study
- _ Presentation on sustainable design and LIDS
- _ Presentation on „Chairs“
- _ Team building and topic selection
- _ Idea generation/concept phase
- _ Database research

Tuesday, July 5th

- _ SimaPro presentation
- _ Brainstorming
- _ Database research
- _ Evaluation of possible improvements

Wednesday, July 6th

- _ Excursion to designcollection
- _ Group discussion
- _ Brainstorming and database research
- _ Evaluation of possible improvements

Thursday, July 7th

- _ Database research and evaluation of possible improvements
- _ Design work
- _ Excursion to company

Friday, July 8th

- _ Design work and model building
- _ Intermediate presentation

WEEK 3

Monday, July 11th

- _ Design work, model building, and testing of improvements
- _ Presentation on „Design“

Tuesday, July 12th

- _ Design work, model building, and testing of improvements

Wednesday, July 13th

- _ Design work, model building, and testing of improvements
- _ Group discussion

Thursday, July 14th

- _ Design work, model building, and testing of improvements
- _ Prepare documentation photographs

Friday, July 15th

- _ Final presentations

PARTICIPANTS

STUDENTS AND TEAM

This section gives you an introduction to the people you will be spending the next three weeks with -- like a printed version of Facebook! Feel free to read through and don't be shy introducing yourselves to one another!



Flag-fusion of the Participating Students

Participating Students

30 students, 18 nations and 18 disciplines.

Participants come from a diverse array of backgrounds, both academically and geographically. Below are their profiles, backgrounds and what they hope to gain from the summer school. We hope you leave after the three weeks with all those expectations fulfilled - and maybe some unexpected ones too.

You were chosen to attend this summer school because of your motivation, skills and experiences. You're experts in various fields and we would like you to share your expertise with the rest of the group.

We are looking forward working and learning with you.

Food Packaging

Carolina Denny Villami Velasquez,
Grégoire Meylan, Hannah Williams,
Jonathan Krones, Martina Galler,
Max Parknäs, Melanie Haupt, Natasha Chan,
Nicolas Nägeli, Rafael Schmitt and Stefano Castelanelli.

Washing Machine

Charles Bourrier, Filippo Corsini,
Klaus Fuchs, Maheshi Danthurebandara,
Rubina Singh, Severin Olloz,
Simonne Rufener and Sofia Poulidikou.

Wooden Furniture

Caio do Valle Bosso, Christian Marti,
Christina Chin, Dominique Jaquemet,
Gege Wang, Liane Sayuri Honda, Mark Simmons,
Nicky Chang, Pascal Hendrickx,
Rafael Laurenti and Saranya Seetharaman.



Caio do Valle Bosso, Brazil

BSc in Industrial Design from Senac, São Paulo, Brazil.

I am very happy to be part of the ETH Sustainability Summer School. I hope to collaborate and to share my knowledge with all participants. I believe that it will be a fantastic experience to work with everyone, to blend different cultures and at last to achieve an excellent result together.

I am Brazilian but I'm going to move to London for one year starting from the 26th May. Last year, I graduated in Industrial Design – Product Design at the Centro Universitário Senac in São Paulo.

Caio will participate in the wood furniture workshop.



Charles Bourrier, Switzerland

MSc Student in Product Design at ECAL, Lausanne, Switzerland.

About to graduate as a product designer, I always wanted to learn something more about design, I wanted to go beyond design and see the object through a new perspective regarding the sustainable aspect and get an approach to the tools of sustainability through the eyes of companies and engineers. However I don't think this is our role as designers to make sustainable objects, the law shall be changed in order to improve this. As a designer I do want to take in consideration the sustainable aspect of my future products and therefore learning tools in order to achieve this. And the opportunity to spend a good time and exchange our point of view with students from all around the world eating (maybe) a good cheese fondue is pretty motivational.

Charles will participate in the washing machines workshop.



Christian Marti, Switzerland

MSc Student Spatial Development and Infrastructure Systems at ETH Zurich, Switzerland.

Besides the great opportunity to develop ideas and possibilities for a sustainable future, this summer school gives the chance to meet and work with interesting people from all over the world in an atmosphere different from the university's every-day normality. I hope to gain knowledge and insight of waste, life cycles and wooden furniture as well as topics yet to be determined and I am looking forward to inspiring discussions and great ideas originating from the interdisciplinary and international background of the participants.

Christian will participate in the wood furniture workshop.



Christina Chin, Singapore

BSc Student in Industrial Design at NUS, Singapore.

I was drawn towards the ETH Summer School Program because of my strong interest in green design - making my designs sustainable.

I hope to learn extensively in terms of optimizing material and creating loop systems through design.

I also hope to gain as much as I can, not only from what is taught at the Summer School, but also through interactions with my fellow coursemates from a wide range of backgrounds.

Christina will participate in the wood furniture workshop.



Carolina Denny Villamil Velásquez, Colombia

MSc Student in Sustainable Product Service System Innovation at BTH, Karlskrona, Sweden.

I am very interested to get a lot of skills in order to develop sustainable products, and in the future spread this knowledge to other designers and industrial communities in Colombia; with the purpose to produce eco-friendly innovations.

I am very animated about all the activities and the knowledge that we will get this summer. I consider that the feedback and the good experience to interact with people from many nationalities is invaluable; I expect to have different perspectives of how to solve the sustainability challenges of product development. Learning a lot from other points of view, I will be able to put them in practice in a very sustainable way.

Carolina will participate in the food packaging workshop.



Dominique Jaquemet, Switzerland

MSc Student in Environmental Sciences with a Focus on Human-Environment Systems at ETH Zurich, Switzerland.

I am interested to go one step further than LCA and learn how to include the LCA thinking already in the design process of products. I would like to come into contact with product designers and contribute my LCA knowledge, into an ongoing product design process. Also I hope to learn more about product design in general. I am looking forward to get to know other people's way of thinking about environmental issues.

Dominique will participate in the wood furniture workshop.



Filippo Corsini, Italy

MSc in Economics and Waste Management from SSSUP Pisa, Italy.

Next September I will start a Ph.D. program concerning the management of the reverse supply chain of electronic waste. The study will integrate Life Cycle Assessment and environmental LCC evaluation for a comparative analysis of end of life strategies in the field of e-waste. Therefore my attraction to the ETH Summer School arises not only from my deep interest in the learning goals of the program but also for the fact that it will be a great chance to gain a valuable knowledge for my future.

Filippo will participate in the washing machines workshop.



Gege Wang, China

BSc Student in Urban Planning with Minor in Arts at Peking University, China.

I would like to know more and try to work with interesting wooden furniture, also looking forward to meeting friends from all over the world. I was born and now living in Beijing, China, major in urban planning and minor in arts at Peking University.

Gege will participate in the wood furniture workshop.



Grégoire Meylan, Switzerland

PhD Student Environmental Sciences with a Focus on Human-Environment Systems at ETH Zurich, Switzerland.

This summer school fits perfectly into my PhD studies as I am investigating future options for Swiss waste management. The program is diverse and attractive (e.g. inputs from experts, case studies). I wish to develop my skills in the concepts and methods linked to waste management, green product design and material life cycles as well as learn more about new technologies in the field. I also look forward to meeting people from different cultural and scientific horizons that are interested in resource and waste management.

Grégoire will participate in the food packaging workshop.



Hannah Williams, United Kingdom

BSc Student in Economics and Political Science at LSE, London, United Kingdom.

My name is Hannah-Polly, I am currently a third year Economics and Political Science undergraduate at the London School of Economics, with a place to study Global Governance and Ethics at University College London next year. As the Environment and Ethics Officer of the LSE's Student Union, I have been heavily involved in improving both the availability of green facilities at LSE, and attitudes towards green initiatives. At the summer school, I hope to share experiences with others, and consider issues from new view-points.

Hannah will participate in the food packaging workshop.

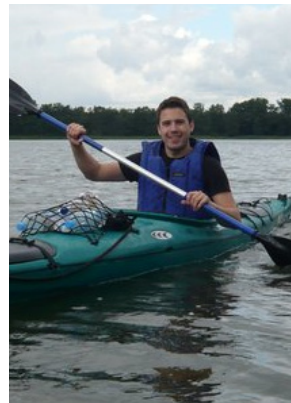


Jonathan Kroner, United States

Phd Student in Engineering Systems with a Research Focus on Industrial Ecology and Urban Sustainability at MIT, Cambridge, United States.

My motivation to attend the ETH Sustainability Summer School is the same as that which motivates my entire career: a belief that industrial ecology illuminates the best way to transform our relationship with the natural world, promote environmental sustainability, and improve the human condition. My viewpoint is that society's relationship with its material resources speaks loudly about its core values--our wasteful and dismissive attitude towards the physical stuff that enables our way of life is a disorder I seek to remedy through an improved understanding of the industrial ecosystem, innovative product design, and inspired governmental and corporate policies. I selected the food packaging track of the Summer School because packaging materials are arguably the most prevalent and tangible single-use materials we encounter in our daily lives. Incorporating industrial ecology principles in their use and design can help to change people's attitudes towards materials and waste. I am also excited for the program because the international, multi-disciplinary cohort pursuing a shared vision of sustainability is a microcosm of what is required for us all to move towards a better, more empathetic, world.

Jonathan will participate in the food packaging workshop.



Klaus Fuchs, Germany

MSc Student in Management, Technology and Economics at ETH Zurich, Switzerland.

Everybody is talking about the electric car and solar power: But what really can be improved - with the technology we have today - is the way, we use and reuse our resources. I want to learn more about the practical application of recycling and its global impact and get to know people with the same interest. From „All just rubbish?“ I am expecting a challenging and intensive learning experience with many new insights outside the classroom.

Klaus will participate in the washing machines workshop.



Liane Sayuri Honda, Brazil

MSc Student in Design at USP, São Paulo, Brazil.

Since I was a kid I'm in love with nature and, as I grew up, the human negative actions over it always made me uneasy. I believe design can change people's reality and then contribute to achieve the ecological sustainability. To study eco-design along with students from all over the world, each one with his/her own habits and points-of-view, is an incredible and extremely exciting opportunity to me. I expect to learn a lot, not only about eco-design, but about everything that is within my reach, to live wonderful experiences and take all of it back to my country.

Liane will participate in the wood furniture workshop.



Maheshi Danthurebandara, Sri Lanka

PhD Student in Integrated and sustainable Landfill mining Management at KU Leuven, Belgium.

My motivation to take part of this summer school is my interest in exploring the horizons of new dimensions of environmental sustainability. So I am looking forward to learn new concepts, theories and also to have a practical experience about Life Cycle Assessment. Furthermore; I wish to share the knowledge and experiences among the people who are coming from different continents and to have the maximum benefit of the event.

Maheshi will participate in the washing machines workshop.



Mark Simmons, Canada

MSc Student in Sustainable Product Service System Innovation at BTH, Karlskrona, Sweden.

I was born, mostly raised and completed my bachelor of Industrial Design in Ottawa, Canada. I'm currently studying towards a master's of Sustainable Product-Service System Innovation at the Blekinge Institute of Technology in Karlskrona, Sweden.

I love to design and create things, but I hate the feeling that I'm potentially contributing to society's unsustainable consumption of material goods. I would like to understand the total impact of the products I design on society and the environment so I can create products and user experiences that are sustainable and meaningful. I'm really looking forward to this program and think it's going to be a great opportunity to further my understanding and ability to design solutions for a sustainable future!

Mark will participate in the wood furniture workshop.



Martina Galler, Switzerland

MSc Student in Food Science at ETH Zurich, Switzerland.


My name is Martina Galler. I'm Swiss and live in Zurich. I am just about to finish my Master's degree in food science here at ETH Zurich. I will take part in the food packaging work shop as it is related to my study field. Also, I'm looking forward to meet new people from all around the world.

Martina will participate in the food packaging workshop.


I want to deepen my knowlegde and experience in all three fields offered by the summerschool and feed them into the project! Im also exited to be inspired by working with a new team around this issue!
I want this course not only to be a place of learning but one that serves as a calalyst for change!
I look forward to learning, dreaming and making dreams into reality!

The latest two month I have been working in a cross-diciplinari team creatin a a sustainable business model, involving multiple stakehold-ers in a joint venture that can be replicable all over the world, addressing one of our modern worlds most pressing challenges, waste.


I study at the international School:




A KaosPilots work within the fields of creative business-, leadership-, project- and process design. A KaosPilot is a change maker, who takes the initiative to start up new activities, projects and businesses. A KaosPilot acts dynamically and with an eye for alternatives within social systems, organizations and networks in order to solve assignments, as well as to create new opportunities.




Hello! Im Max!



Words that fits me are:



Im from Sweden



Max Parknäs, Sweden
Student at Kaospilots, Århus, Denmark.

Max will participate in the food packaging workshop.



Mélanie Haupt, Switzerland

MSc Student in Environmental Engineering at ETH Zurich, Switzerland.

The topic of waste management and ecological system design are major courses in my master program at ETH Zurich. This summer school offers the possibility to work together with people from all over the world on global challenges in exactly this field. The combination of different backgrounds, culturally and occupationally, sounds really exiting to me. I'm looking forward to exchange ideas, to have fruitful discussions and to learn more about the challenges in the design of environmentally friendly food packaging.

Mélanie will participate in the washing machines workshop.



Natasha Chan, Malaysia

BSc Student in Management at LSE London, United Kingdom.

Although I am not majoring in a field that is directly related to sustainability, I am extremely active in environmental student groups and currently working on a project to develop reusable mugs. Hence I'm really excited to have this opportunity to formally learn more about the area, engage with other individuals who share a similar passion and hopefully apply the knowledge gained from this experience to my reusable mug project.

Natasha will participate in the food packaging workshop.



Nicky Chang, China

MSc Student in Architecture at Yale University, New Haven, United States.

Nicky Chang is a second year Master of Architecture candidate at Yale University School of Architecture. Nicky attended Williams College and Columbia University Graduate School of Architecture and Planning for undergraduate study in Art History and Architecture. Prior to coming to Yale, she practiced as an architect and furniture designer in New York and Shanghai.

Nicky will participate in the wood furniture workshop.



Nicolas Nägeli, Switzerland

BSc in Agricultural Science at ETH Zurich, Switzerland.

Why did I send my application? - simply because I like to discuss, share options, learn new things, get in touch with people and contribute my part on solving the world's future problems. I'm looking forward to having an enriching experience that broadens my horizon.

Nicolas will participate in the food packaging workshop.



Pascal Hendrickx, Switzerland

MSc Student in Architecture at ETH Zurich, Switzerland.

I really believe in strong interdisciplinary collaboration and collective thinking having the potential to create cutting-edge solutions. Furthermore I'm looking forward to get to know many interesting people from different parts of the world.

Pascal will participate in the wood furniture workshop.



Rafael Schmitt, Switzerland

MSc Student in Material Science at ETH Zurich, Switzerland.

I am Swiss and German, live in Switzerland and I am studying Materials Science at ETHZ. I am looking forward to meet people from different cultures with various backgrounds to discuss the global challenge of green product design. I hope that we as a team will be able to find -maybe unconventional- solutions to that problem of our materialistic society..

Raphael will participate in the food packaging workshop.



Raphael Laurenti, Brazil

MSc Student in Industrial Ecology at KTH, Stockholm, Sweden.

Hey ETH S3 (Sustainability Summer School) mates :, this is Rafael Laurenti from Brazil, currently living in Stockholm and pursuing a PhD on Industrial Ecology at the Royal Institute of Technology (KTH). My PhD thesis is about Radical Systems eco-innovation and the transition towards sustainability. What particularly attracts me in this area is not the redesigning of existing products to lessen their environmental load, but instead, the actual possibility of changing the current non-sustainable production-consumption system to a novel emerging generation of intrinsically sustainable goods that could become socially appreciated, overcoming the cultural and behavioural inertia of the consumers, whilst radically favourable for the environment. This transition also includes issues like social equity (elimination of social negative externalities) from the production system) as well as prosperity without growth (ideas from Professor Tim Jackson). My expectation is that the ETH S3 would give me further theoretical and, principally, valuable practical background to understand the steps through which these changes could possibly be achieved. Also, I feel so fortunate for being party of this great international team! It will definitely be a fantastic experience for knowledge and cultural exchange.

Looking forward for meeting you all!

Raphael will participate in the wood furniture workshop.



Rubina Singh, India

BSc Student in Engineering at the ANU, Canberra, Australia.

I am a final year Bachelor of Engineering student, at the Australian National University (ANU), majoring in renewable energy technologies and am keen on pursuing a career in sustainable product development which motivated me to apply for this course. I feel that the program will allow me to learn about green product design and waste management, which are outside of my immediate field of study. It will also be an excellent opportunity for me to learn about crucial issues such as that of sustainable waste management at one of the World's leading research Universities. I am an Indian currently living and studying in Australia.

Rubina will participate in the washing machines workshop.



Saranya Seetharaman, Singapore

BSc Student in Industrial and Systems Engineering at NUS, Singapore.

My name is Saranya and even though I am Singaporean, I was born in Japan and am of Indian origin. I am interested in sustainability and like designing (in terms of engineering, I can't really draw well). When I saw this program, I felt it was the right combination of both my interests and upon further reading, my interest was peaked even further. I hope I will be able to enhance my skills and develop new ones through this program, and make many new friends along the way.

Saranya will participate in the wood furniture workshop.

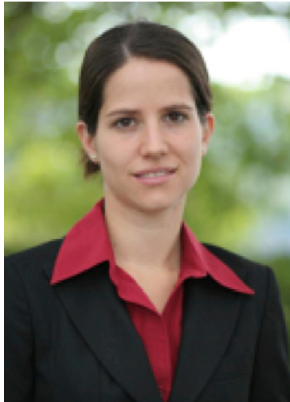


Severin Olloz, Switzerland

MSc Student in Computer Science at ETH Zurich, Switzerland.

For the ecoworks project that I'm going to implement at the ETH Zurich during the next semester, I require some theoretical and practical background about waste recycling. The Summer School, which focuses exactly on this topic, fits therefore perfectly my needs. I expect that the school will provide me with concentrated knowledge about today's waste challenges, their potential solutions and Life Cycle Assessment. I'm interested in getting new and profound inputs which later support me realizing my project. On the other hand, I'm really looking forward to meet new people with different backgrounds and working fields. Our discussions and work results will be exiting and informative for sure - especially because of the unusual environment the school will provide. In other words, it will be a great time!

Severin will participate in the washing machines workshop.



Simonne Rufener, Switzerland

MSc Student in Development and Cooperation at ETH Zurich, Switzerland.

I am Currently carrying out an 8 month project assignment in the Basel Convention (SBC) e-waste Project in Accra. The main goal of the Basel Convention is to protect developing countries from electric and electronic waste imported from western countries. It is of mayor importance to see the e-waste problem, and waste problematic in general, as a holistic issue. Therefore, from the participation at the 2011 Sustainability Summer School I expect gaining a broader perspective on waste and enlarging my network within this field.

Simonne will participate in the washing machines workshop.



Sofia Poulidou, Greece

PhD Student in Environmental Strategies Research at KTH Stockholm, Sweden.

My name is Sofia Poulidou and I am from Greece. I have studied Environmental Engineering and Industrial Ecology (MSc) in Greece and Sweden respectively.

At the moment I live in Sweden where I am a PhD student at the Royal Institute of Technology (KTH) in Stockholm. My research area is on Planning and Decision Analysis with focus on Environmental Strategies Research.

Part of my project is connected to the LCA methodology and DfE tools in general and for this reason I decided to take part in this summer school. I have already some experience in LCA and I think this workshop will be a good opportunity for me to expand as well as use my knowledge. Moreover, I found the idea of meeting and working with other students coming from all over the world very exciting. And Zurich is of course a very attractive destination.

I am looking forward to meet you all and have a really good time in Zurich!!!

Sofia will participate in the washing machines workshop.



Stefano Castelanelli, Switzerland

MSc Student in Management Technology and Economics at ETH Zurich, Switzerland.

My aim is to actively promote and implement the concepts of sustainability in the production of goods and services – in particular in the chemical industry and related branches. The ETH Summer school program and the packaging case study represent the best opportunity for me to get an in-depth knowledge and first-hand experience in this challenging field.

My expectations are simply to get a lot of green inputs, meet people who think and work for the same big dream of a sustainable society, and have a good and productive time during the packaging case study.

Stefano will participate in the food packaging workshop.

Student Suggested Reading*

[53] R. George, „The Big Necessity,“ Metropolitan, 2008.

With irreverence and pungent detail, George breaks the embarrassed silence over the economic, political, social and environmental problems of human waste disposal. The book shows how even advanced technology doesn't always meet basic needs.

[54] N. Shedroff, „Design Is the Problem: The Future of Design Must be Sustainable,“ Rosenfeld Media, 2009.

Product design can have a tremendous impact on the world in terms of usability, waste, and resources. In Design Is the Problem, Nathan Shedroff examines how the endemic culture of design often creates unsustainable solutions, and shows how to ensure that design processes lead to more sustainable products and services.

[55] J. Chapman, „Emotionally Durable Design: Objects, Experiences and Empathy,“ EarthScan, 2005.

In today's unsustainable world of goods, where products are desired, purchased, briefly used and then promptly landfilled to make way for more, consumption and waste are rapidly spiralling out of control with truly devastating ecological consequences.

[56] J.M. Benyus, „Biomimicry,“ Harper Collins, 2003.

Innovations, whether in farming, composite science, or computing, are a product of human creativity. Science writer Benyus (Beastly Behaviors, LJ 9/1/92) uses these subjects and others to demonstrate how nature's solutions to situations have been the creative jumping-off points for individuals seeking solutions, developing, or simply revitalizing processes or products.

[57] K. Robert, „The Natural Step Story,“ New Society Publishers, 2002.

As a cancer specialist, Karl-Henrik Robèrt faced a stream of parents who would sacrifice anything to save their children. Yet that same selflessness did not seem to extend to saving the environment. For debate on how to achieve sustainability was divided, with no agreement on universal principles. But Robèrt's experience convinced him that consensus on how to meet the most basic requirements of life should be possible.

[58] G. Pauli, „Blue Economy,“ Paradigm Publications, 2010.

The Blue Economy principles permit to respond to the basic needs of all with what we have. It stands for a different

way of designing business by using the resources available in cascading systems, where the waste of one product becomes the input to create a new cash flow.

[59] P.T. Anastas, J.C. Warner, „Green Chemistry,“ Oxford Science Publications, 1998.

„Green chemistry is the utilization of a set of principles that reduces or eliminates the use or generation of hazardous substances in the design, manufacture and application of chemical products.‘ Measure by measure, [Anastas] and Warner fill this abstract and fairly broad definition with life.

[60] V. Papanek, „Design for the Real World,“ Academy Chicago Publishers, 2005.

The completely revised second edition of Design for the Real World, which has since its first appearance twenty years ago, become a classic. Translated into twenty-three languages, it is one of the world's most widely read books on design. In this revised edition, Victor Papanek examines the attempts by designers to combat the tawdry, the unsafe, the frivolous, the useless product.

[61] S. Guilbert, „New Packaging Materials Based on Renewable Resources,“ Food Engineering Series, 2011.

More and more in our daily lives new words are appearing with specific prefixes, such as “green-,” “eco-,” or “bio-,” that refer to sustainable management. One of the major concerns and questions is where are we now in the “bio-plastics” world?

[62] The Natural Step. „4 principles for Sustainability,“ 2011.

The Natural Step is a non profit organization founded with the vision of creating a sustainable society.

[63] storyofstuff.com

The Story of Stuff Project tries to amplify public discourse on a series of environmental, social and economic concerns to build a more sustainable and just world.

[64] The Journal of Industrial Ecology. Wiley Online Library. browse online: bit.ly/journalie

[65] StEP E-waste Summer School, 2010.

Reports and Presentations are publicly available.

* available online: bit.ly/S3read



The ETH Sustainability Student Workshop

Organisation

ETH Sustainability

Coordinating Office for Sustainability at ETH Zurich.

The ETH Zurich is a leading international university that anticipates solutions for sustainable future, in an excellent and interdisciplinary environment and in partnership with other strong global partner organizations. This leads to a distinguished systems knowledge and pioneering technical innovations; a new generation of leaders and decision-makers, practical ideas for everyday sustainability in teaching and research and reinforced knowledge and technology transfer to promote the application of academic findings to the private sector and to public administration.

MISSION

The ETH Zurich provides all its students and employees with an environmentally friendly and socially responsible teaching, research and working environment. Furthermore: the ETH Zurich makes its students sensitive of the demands of sustainable development. It conveys to them an independent spirit, which allows them to implement sustainable actions in a competent and practical manner; the ETH Zurich supports the constructive collaboration of different fields of study to develop sustainable solutions for the most significant social problems; the ETH Zurich places great emphasis on practicing sustainability in the everyday activities of teaching and research. It sponsors people, projects and initiatives that contribute to reducing the ecological footprint of teaching and research activities, which improves the working environment.



Christine Bratrich

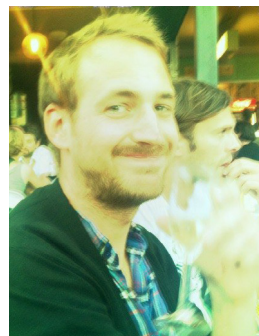
*Director ETH Sustainability
ETH Zurich, Switzerland.*

Dr. Christine Bratrich accepted the position as director of ETH Sustainability in October 2008. Interdisciplinary research and applied projects on the topic of sustainability as well as interactions with interest groups in business, politics, and NGOs have characterized her career. As Head of the Danube/Freshwater Programme at WWF International from 2004-2008 she was responsible for coordinating more than 20 conservation and restoration projects in Central and Eastern Europe. Before she completed her PhD at ETH Zurich and Eawag where she worked on key elements for successful river restoration projects. From 1997-2001, she was part of the project management of the Eawag project on «greenhydro».



Catherine Lippuner
Summer School Organizer
ETH Sustainability
ETH Zurich, Switzerland.

Catherine has been a part of the ETH Sustainability team since May 2009. Before joining ETH Sustainability, she organized the Student Summit for Sustainability '09 in cooperation with the organizing committee of the AGS annual meetings. During her studies, she was engaged in both the managing board and as a project leader with the ETH Zurich student organization [project 21] and the international World Student Community for Sustainable Development. She completed her studies with two Master's degrees in microbiology from the University of Zurich and in international public health from the Free University of Amsterdam.



Lex Schaul
Student in Architecture
ETH Zurich, Switzerland.

After having participated in last year's ETH Sustainability Summer School in Addis Ababa, Ethiopia, Lex joined the organizational team and now contributes as a program assistant. He is particularly interested in the intersection of the creative fields and science. After his Master's degree in engineering from the Swiss Federal Institute of Technology Lausanne in 2007, he has worked in the research domain of digital photography and printing. Currently, he is pursuing a degree in architecture from ETH Zurich.



Jimmy Murphy
Environmental Studies Major
Yale University, USA.

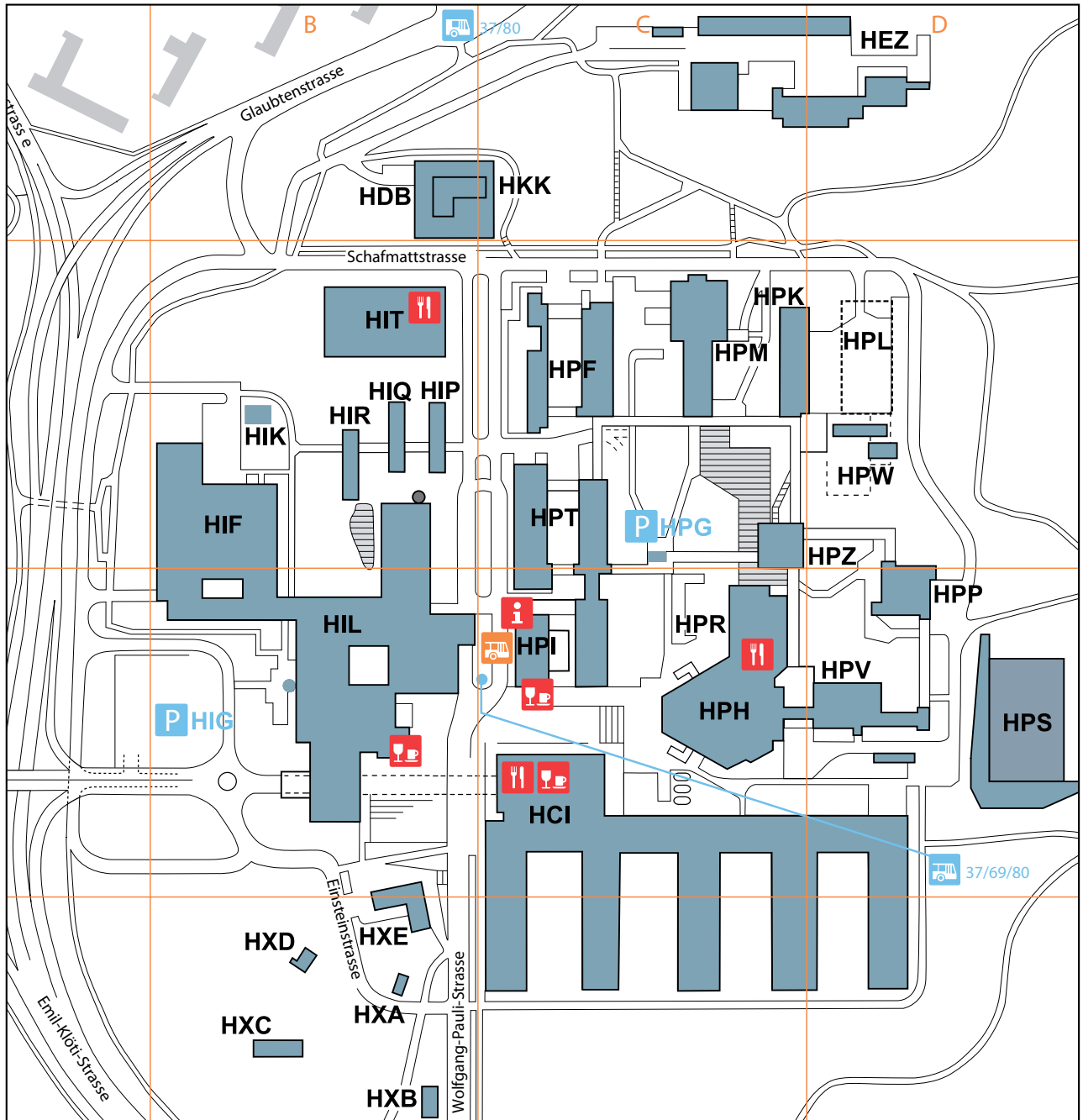
Jimmy is a student at Yale University and a summer intern with ETH Sustainability. He is majoring in Environmental Studies with a concentration in Urban Studies, focusing on sustainable development, planning, and transportation. At Yale, he is a co-director of the Student Taskforce for Environmental Partnership (STEP), a branch of the Office of Sustainability that employs student sustainability leaders in each residential college to promote sustainable living and make green infrastructure changes.








Vera Narodnitzkaia
Director of Programmes,
Finance and Operation
The Club of Rome, Switzerland.

After spending a number of years in research and education, Vera Narodnitzkaia moved to international development cooperation and worked for the International Committee for Economic Reform and Cooperation, the German Foundation for Legal Cooperation and the International Decade for Natural Disaster Reduction. She held senior position at the UN University for Peace as Programme Director leading educational and conflict prevention activities in Central Asia and the Caucasus. Prior to joining the Club of Rome, she served at the UN Office for Peacebuilding in Tajikistan. Vera holds a Master's degree in Physics.

ETH Zurich - Campus Höggerberg (Science City)



-  Bus stop
-  ETH shuttle "Science City Link"
-  Canteen
-  Cafeteria
-  Science City Welcome Desk (phone +041 44 633 64 44)

All buildings and parking garages are handicapped accessible. For more information contact Science City Welcome Desk.

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