

# Integrating Sustainability into the Institutional Mindset

Experiences from ETH Zurich

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# content

- welcome to ETH Zurich
- institutional framework of *ETH*sustainability
- putting theory into practice:  
implementation strategy and projects of *ETH*sustainability
- lessons learned

# ETH Zurich - people



- > 14'000 students
- > 80 nations
- > 9'000 staff members
- > 370 professorships
- 21 Nobel Laureates

# ETH Zurich – research and education



- 16 departments focusing on
  - engineering sciences
  - architecture
  - system-oriented sciences
  - mathematics & natural sciences
  - management & social sciences

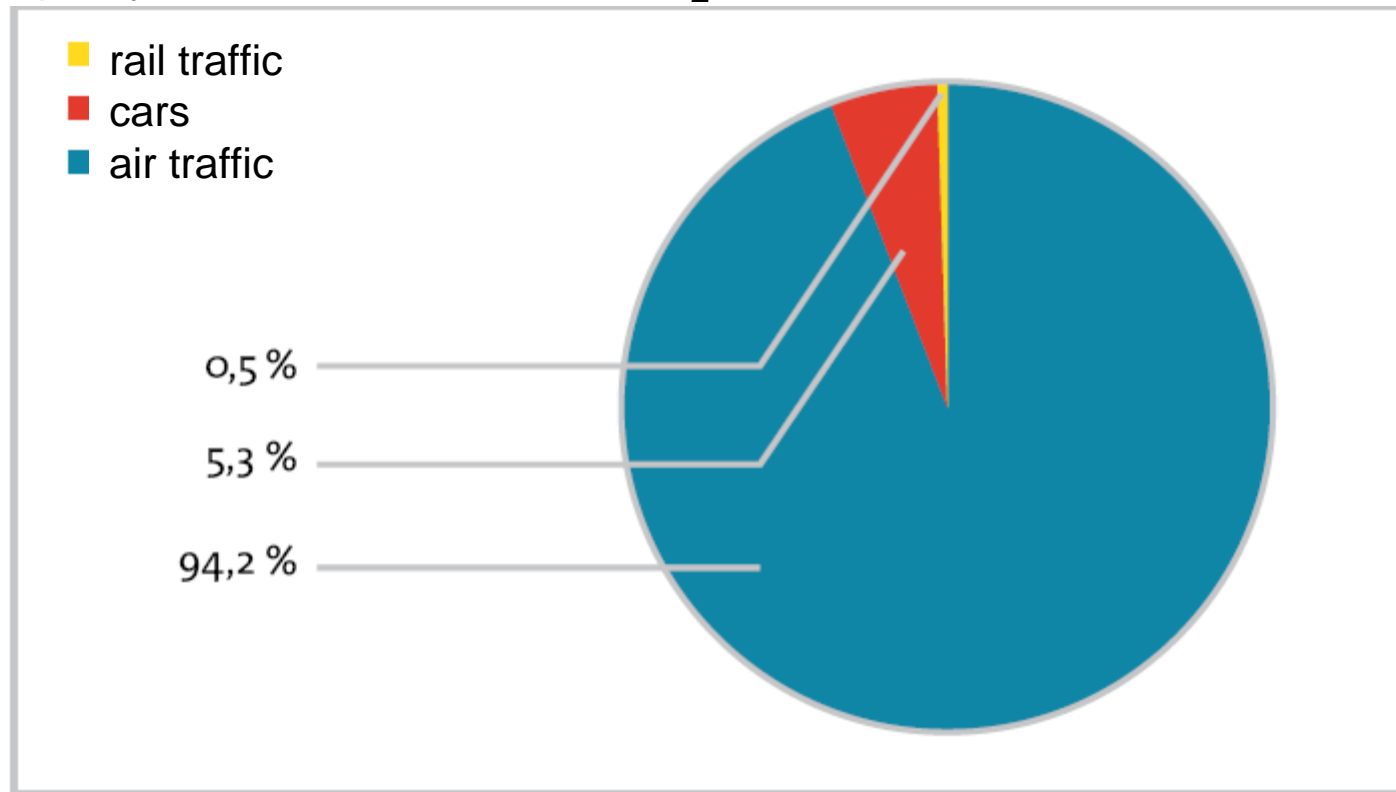
## ETH Zurich – “little town in the city of Zurich”



- 65.6 GWh for heating year<sup>-1</sup>  
= heating for 8200 family homes
- 102 GWh electricity year<sup>-1</sup>  
= consumption of about 35'000 persons

## ETH Zurich – “1000 times around the globe”

- per year: about 50 million km by airplane = 1150 x around the globe
- per year: 24'000 tonnes CO<sub>2</sub> in total



# THERE IS A NEED FOR ACTION TOWARDS SUSTAINABILITY

Part 2:  
institutional framework of *ETH*sustainability

# Sustainability at ETH Zurich – a historical view



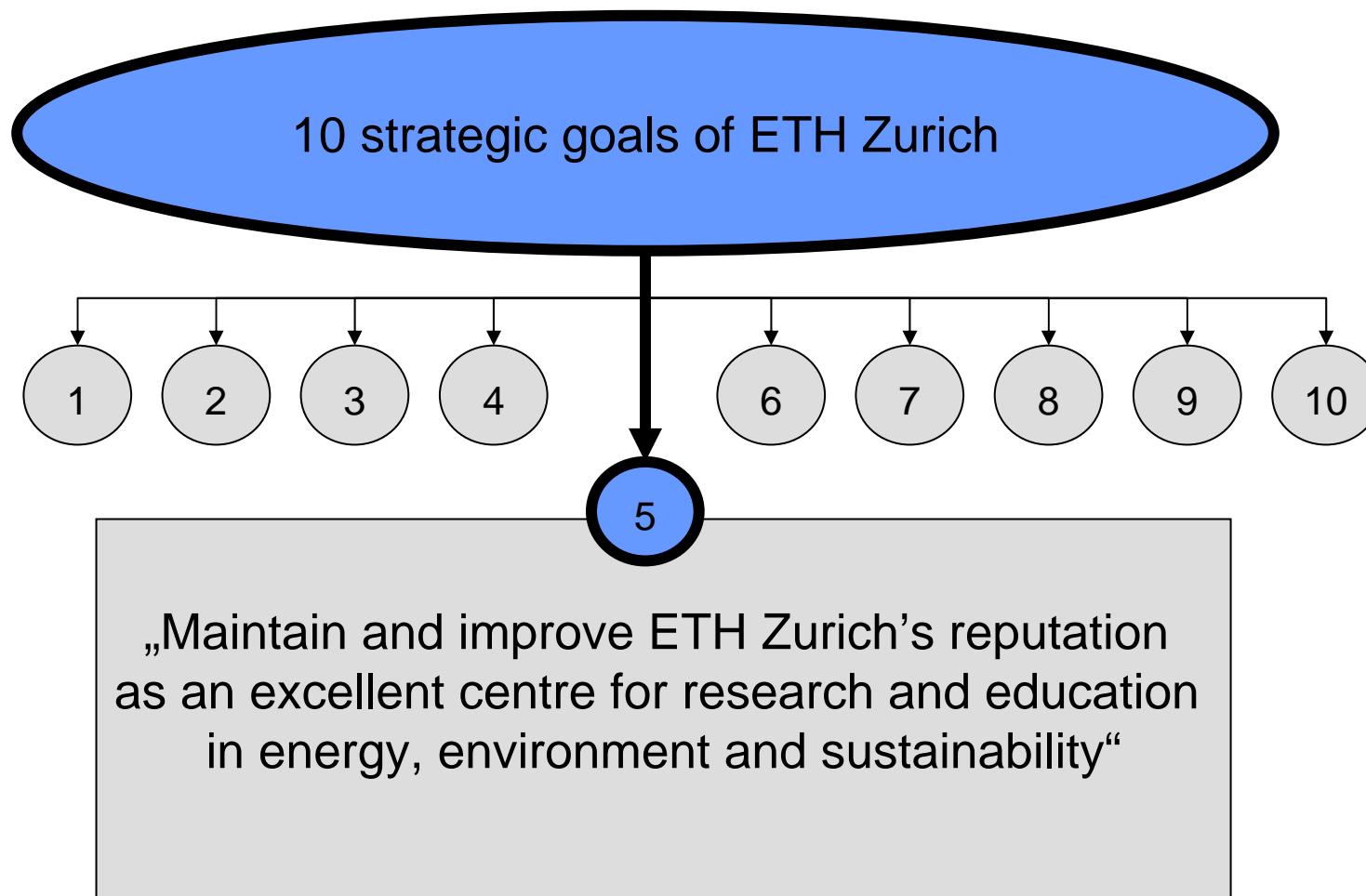
- > 20 years: Dep. Environmental Science
- 1997: AGS funding member
- 2001: [project21]
- 2002: YES courses (now spin-off)
- 2003: Science City
- 2005: Energy Science Centre
- 2008: environmental management system

But: there was always  
a lack of integration

# 2008-2011:

# New philosophy to integrate sustainability into ETH Zurich's strategy and development plan

## 2008-2011: strategy and development plan



**5**

Oct. 2008: new office of *ETH*sustainability  
mandate from ETH board  
director reports directly to the president

**WHAT?**

4 fields of activities: education, research, outreach and campus sustainability

**HOW?**

coordinating, focusing, and implementing of existing and new initiatives

**WITH WHOM?**

Within ETH Zurich and in coordination with external partners

# responsibilities – steering board



- Ralph Eichler, President ETH Zurich

- Prof. P. Edwards ecosystems
- Prof. L. Guzella energy systems
- Prof. V. Hoffmann economy
- Prof. VM Lampugnani architecture
- Prof. S. Springman natural hazards
  
- Dr. Ch. Bratrich managing director



# HOW TO PUT THE STRATEGY INTO PRACTICE?

Part 3:  
vision and implementation concept of *ETH*sustainability

Vision of *ETH*sustainability:

## „Anticipating solutions for a sustainable future.“

- ETH Zurich is a leading university with an excellent interdisciplinary environment and strong global partnerships producing

- (a) radical technological innovations,
- (b) cutting-edge scientific discoveries
- (c) a new generation of future leaders

to anticipate solutions for a sustainable future and inform decision-makers.

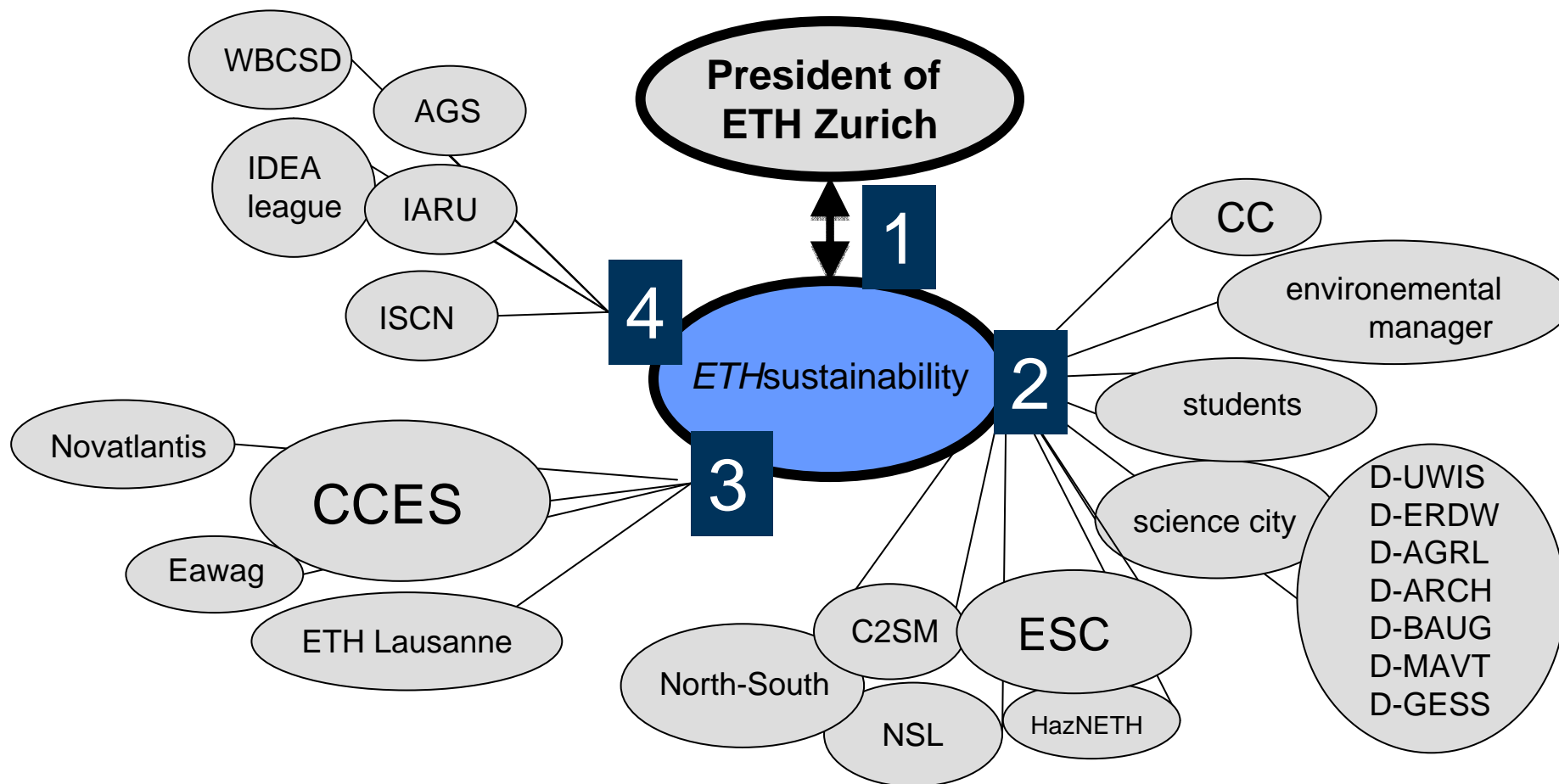
- 1 - coordinating**
- 2 - focusing**
- 3 - implementing**



# coordinating

1. regular exchange with the board of ETH Zurich
2. bridging internal information: among departments, competence centres, students and environmental manager
3. cooperation with partners from the ETH domain
4. participation in international alliances

# contact and exchange



## 2. focusing

4 fields of activities + 3 focus themes

## 4 fields of activities

according to  
ETH Zurich's  
strategy and  
development plan  
2008-2011

education

research

outreach

campus  
sustainability

## 3 focus themes

global relevance – interdisciplinary solutions – core competence of ETH Zurich  
(under discussion)

sustainable  
energy systems

- solutions for mitigating carbon emissions and carbon free technologies

sustainable world food  
and water systems

- transforming agriculture production for feeding 9 billion people

sustainable  
urban systems

- reinventing cities for achieving greater sustainability

# implementing

fields of activities	education	research	outreach	corporate sustainability
focus themes				
energy systems				
world food and water systems				
urban future				

# implementing

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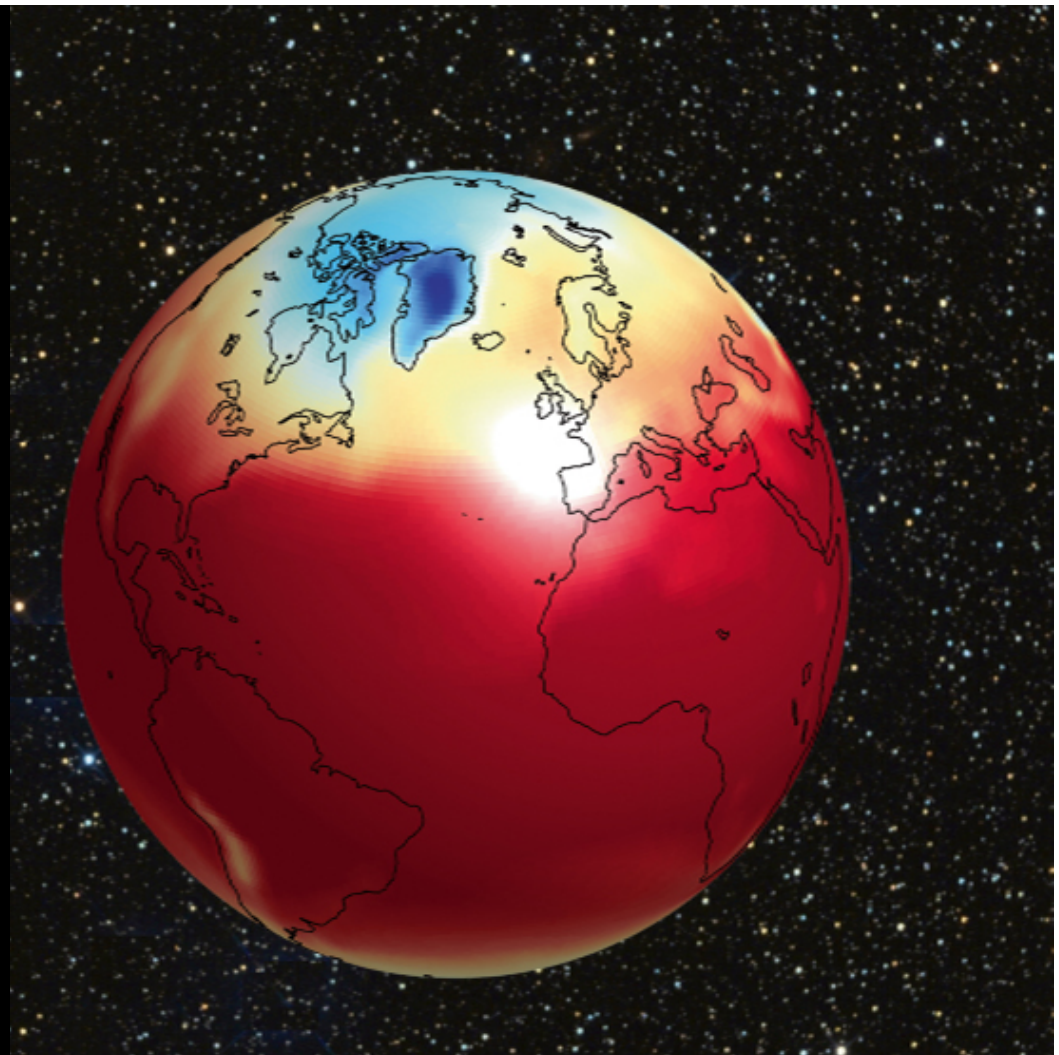
„focus of the year”

# implementing – examples

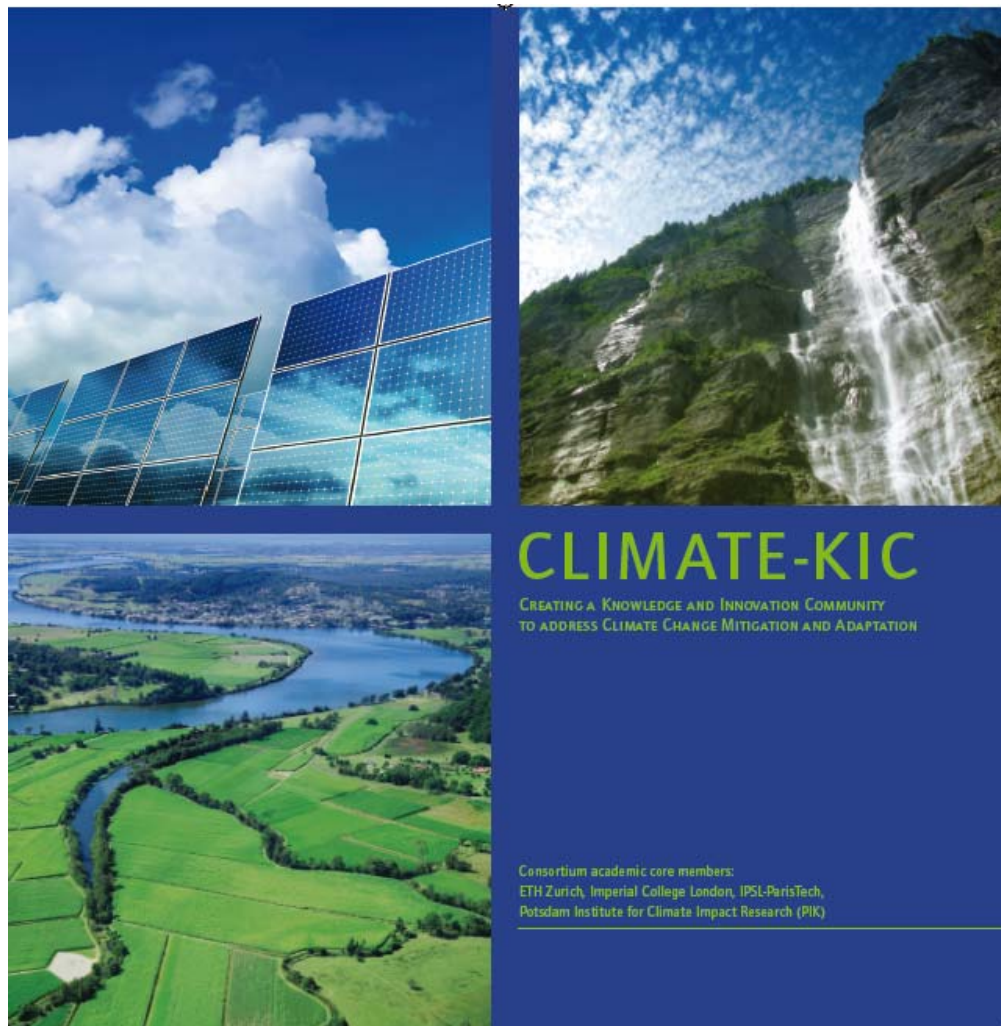
fields of activities	education	research	outreach	corporate sustainability
energy systems	Climate KIC			ecoworks
world food and water systems			Mainau exhibiton	
urban future		AGS conference		

## focus of the year: crossmedia work and events in preparation for KOP15

- coordination:  
*ETHsustainability*
- climate: C2SM
- adaptation: CCES
- mitigation: ESC
- communication: CC



# education: Knowledge and Innovation Community (KIC)



## KIC cooperation:

- ETH Zurich
- Imperial College London
- IPSL ParisTech
- Potsdam Institute for Climate Impact Research (PIK)
- Utrecht-Delft-Wageningen

## **ETHsustainability:**

responsible to coordinate  
ETH Zurich's input to education

## research: workshops and conference on urban future



THE  
**AGS**  
The Alliance for Global Sustainability

Urban Futures:  
the Challenge of  
Sustainability

Student Summit for  
Sustainability  
organised in conjunction  
with the AGS meeting

### Alliance for Global Sustainability

- ETH Zurich
- MIT
- Tokyo University
- Chalmers University of Technology

### *ETH*sustainability:

- supporting ETH team and CCES
- exhibition and video

## outreach: exhibition of Lindau Nobel Laureate Meetings “water and discoveries”



- coordination & funding: *ETH*sustainability
- concept & design: D-ARCH
- partner: Eawag, Science City

# campus sustainability: ecoworks - ETH platform to reduce CO<sub>2</sub> emissions



- coordination & funding: environmental manager & *ETH*sustainability
- steering board: coordinators, ETH vice president, VSETH, [project21], AGS
- partner: Eartheffect

# SUMMARY

part 4:  
What are our lessons learned so far?

## summary - education

- pick opportunities – climate KIC
- unique position – creative pool of talented students
- joint action depends on volunteer initiatives – bottom up rather than top down

## summary - research

- local (e.g. CCES) and international partnerships are essential
- combining fundraising and agenda development mobilises faculty
- lack of evaluation criteria for research in interdisciplinary teams
- cross-cutting projects are still stumbling blocks for a scientific career

## summary - outreach

- “focus of the year” and cross-media work allows effective bundling of activities
- outreach activities are valuable tools to build networks among disciplines
- professional communication expertise is crucial – not every scientist is a naturally born communicator

## summary – campus sustainability

- new initiatives need time for dissemination
- campus sustainability is more than infrastructure
- fascinating potential to demonstrate initiative

## summary – institutional framework

- trust
- real buy in from the Board –  
not lip services
- clear mandate, strategy, and TORs

**people make a difference!**

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## SUSTAINABILITY AT ETH ZURICH

■ thank you



<http://www.sustainability.ethz.ch/>

<http://www.umwelt.ethz.ch/>

# Ecological footprint ETH Zurich (2008 usage)

2008	Tendency (next 10 years)
▪ Electricity 102 GWh	↑↑
▪ Fossil fuels 42 GWh	↓↓
▪ Gas/petrol 100 m <sup>3</sup>	↓
▪ CO <sub>2</sub> -Emissions (total) 24'000 to (incl. flight-km)	↓↓
▪ Air miles 50 mio km	↑
▪ Drinking water 280'000 m <sup>3</sup>	↓
▪ Paper 64 Mio Pages A4	↓↓
▪ Wastes 2'000 to	↓
▪ Hazardous wastes 86 to	↑

# Science City

## Buildings and nature: In spite of density, retain free space



The building strategy is coordinated with the long-term space utilization planning of the ETH Office for Properties. The objective is to adjust new or already planned buildings closely to the urban planning and utilization strategy. In concrete terms, this means that the master plan rules and the use requirements are discussed within the Science City team during the planning of new buildings and that the area program for new architecture competitions is developed jointly.

Four construction projects are current: the Information Science Laboratory, the Sport Center, the Life Science Platform and the Academic Guest House.