



15th European Roundtable on Sustainable Consumption and Production
Bregenz, Austria
2 – 4 May 2012

SCP meets Industry

PROCEEDINGS
of the ERSCP conference Bregenz, Austria
May 2 – 4, 2012
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www.erscp2012.eu

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Preface: Welcome to Bregenz

Good morning Ladies and Gentlemen, dear colleagues and guests!

It's a pleasure for me to welcome 200 registered permanent participants and 150 temporary attendants from 39 different countries in Europe, Asia, Africa, North America, Latin America and Australia.

Welcome to Bregenz, welcome to the Festspielhaus and welcome to the ERSCP.

If you are astonished about the unusual seating here in the plenary: I can't prevent you. You may say: it symbolizes a world in transition.

Our topic Sustainable Consumption and Production is an unclear area in the middle of an unsafe world. We all have to search and to research for our way through uncertainty, if we don't want to be caught between two stools.

This is the 15th ERSCP, which is not the 10th and not the 20th – it's something in between. And Bregenz isn't Delft, where the last ERSCP took place, and it's not Istanbul, hosting the next one – it's somewhere in between. But to tell the truth, have you ever seen such a wonderful, beautiful, amazing, overwhelming in-between as Bregenz?

If you look out the window, you see a huge figure, the French revolutionist Jean-Paul Marat with a knife in his heart. It's an outstanding symbol of our consumerism which cannot survive. You can see the Bodensee, also called Lake Constance. It's not an ocean but a pretty big lake. Let me give you some figures about it. This lake covers an area of 536 km² with an average depth of 100 m and 254 m at its deepest spot. The lake contains about 50 billion m³ of water. This water is so clean that 5 million people are supplied with it and drink it untreated. The main contributor of water is the river Rhine which rises in the Swiss Alps and ends close to Rotterdam. In our region, it constitutes the border between Switzerland and Austria.

Coming back to my in-betweens – the Bodensee also belongs to it. For some scientists and lawyers in the audience, accustomed to accurate definitions, it may cause confusion that this lake isn't exactly defined in some respects.

Two examples: Firstly, the lake isn't well-defined with reference to the sea level. Switzerland refers to the Mediterranean Sea level at Marseille, Austria's definition is based on the Adriatic level at Trieste and Germany insists on the North Sea level. Here in Bregenz, we are 25 cm

higher than in Constance and 7 cm lower than in Romanshorn. For a surveyor, it's the hell. Fortunately, it's a man-made decision, not reality.

Secondly, there's no defined border between the neighbouring countries. Switzerland counts on the physical division: they draw a line between the Rhine and the Leiblach estuary and from the middle one to the Rhine emersion at Konstanz; Austria and Germany prefer the condominium theory = home waters up to 25 m depth, outside are international waters. In fact, nobody cares.

About 40 years ago, a clever salesman from Sweden took advantage of this uncertainty. He chartered the biggest ship on the lake, brought it into these international waters and sold there duty-free butter, cheese, cigarettes and alcohol. The tax and customs authorities became desperate – they couldn't stop it by law. It took a long while to find an appropriate interpretation of different laws to cut off this business.

Apropos business: The cross-fertilization of research and business was the basic idea of this Round Table. To bring these separate societal poles together in the same place proved to be tricky but will hopefully be successful as well. It's the right time now to say thanks to all our public and corporate sponsors. Yes, they spent a certain amount of money. But much more, all of them engaged themselves in terms of content to prepare and to realise this conference. So, I would like to name these partners:

- ALPLA, the world's leading producer of plastic bottles, preforms, caps and tubes in about 150 plants is represented by its CEO, Günther Lehner.
- Gebrüder Weiss, acting worldwide in transport and logistics is represented by the CFO, Wolfram Senger-Weiss.
- Haberkorn is Austria's leading industrial retailer with a portfolio of about 100.000 products. The representative is one of the three directors, Gerald Fitz.
- Omicron serves its clients from the electrical power industry in 140 countries with innovative testing and diagnostic solutions and is represented by the CEO Martin Pfanner.
- Pfanner sells its beverages in 70 countries all over the world and is engaged in Fair Trade for more than 10 years. Marie-Luise Dietrich is one of the directors there.
- Rhomberg is among the most innovative construction and infrastructure companies in the region, perhaps in Europe. The representative is the CEO Hubert Rhomberg.
- The Schwärzler fam-hotels are very famous for their family friendly concept and the Schwärzler business hotels for their professional service. They are represented by Andrea Schwärzler

- Sutterlüty is a remarkable regional retailer with 20 something supermarkets in Vorarlberg. Sutterlüty is specialised in regional products with an average share of 25%. Sutterlüty is represented by Jürgen Sutterlüty, CEO.
- The Vorarlberg Tourism Board and the tourism unit of the chamber of commerce are absolutely positive about sustainability and represented by their directors Christian Schützinger and Hans-Peter Metzler
- Our main supporter in terms of perfect service is the Festspielhaus Bregenz – awarded in many categories. The representative of the Festspielhaus is the director, Gerhard Stuebe.
- The Vorarlberger Kraftwerke plays an important role as energy supplier not only in this region and are represented by the head of public relations and marketing, Andreas Neuhauser.
- The Region of Vorarlberg has itself committed to become energy autonomous till 2050. The representative is the regional minister of economy Karl-Heinz Rüdissler.

All of them are shown at the marvellous Vorarlberg stand in the Foyer which is far away from the notorious stereotypes and kitschy clichés of alpine tourism.

Our international and national sponsors are:

- UNIDO, the United Nations Industrial Development Organisation, is the mother of 47 National Cleaner Production Centres worldwide. Many directors of these NCPCs attend our ERSCP. UNIDO is represented by the director of the Environment Management Branch, Heinz Leuenberger
- The Austrian ministry of transport, innovation and technology and its energy and environmental technology department invented and developed many remarkable research programmes of international interest. They inspired the first ERSCP as godfather and midwife at the same time – and I can't remember one single ERSCP they didn't attend. The ministry is represented by Hans-Guenther Schwarz and his team.

Last but not least I have to mention PREPARE, the European network for sustainable consumption and production. Many people say, that PREPARE is the mastermind behind the ERSCP. That's not true – PREPARE consists of many masterminds. One of them among many others is present as well: the current secretary general, Pavel Ruzicka.

We are also very proud to host the first European-American SCORAI workshop to establish a joint transnational and transcontinental research network for sustainable consumption.

At the very end, I want to stretch the in-between metaphor once again, because SCP is an in-between matter: between engineering and social sciences, between economy and behaviour, between applied and basic research, between societal and partial interests.

Our challenge during the next days is to handle these distinct approaches. I would like to encourage you to go around the pillar, look at the same issue from various points of view and aim your spotlight at the discussion topics from different angles.

Now, Ladies and Gentlemen: Enjoy your work, let's go and do it.

On behalf of the Organising Committee

Willi Sieber

Martin Schweighofer

www.erscp2012.eu

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Introduction and general conference information

Scope of the conference

The 15th ERSCP takes place in Bregenz, a liveable and loveable city situated between lake and mountains and well known for its cultural standing and its recreational value. The four-country-corner around Lake Constance (Austria, Germany, Liechtenstein and Switzerland) is one of the most prosperous and dynamic regions in Europe – in economic growth as well as in sustainable development and quality of life.

Focus

The ERSCP 2012 places special emphasis on intense and vivacious dialogue between research and business. The motto [“SCP meets industry”](#) demonstrates this approach. This particular focus is shown by the fact that 8 leading companies located in the region are sponsors and partners of the conference.

The 15th ERSCP aims at cross-fertilization and bridge-building between six main topics also the region stands for.

Topics

- **Building:** The Austrian province of Vorarlberg with its capital Bregenz is known as “Mecca” of innovative architecture which bridges tradition and modernity using regional materials in an aesthetic formal vocabulary and in an energy-efficient way.
- **Tourism:** Sustainable regional development is one of the big assets of tourism in Vorarlberg which combines culinary delights, cultural events and recreative nature.
- **Energy:** In 2010, the regional parliament decided unanimously to strive for energy autonomy until 2050 and defined a bundle of tangible measures till 2020.
- **Resources:** The regional corporate partners of the ERSCP stand in the forefront of sustainable resource and life-cycle management and are interested to discuss their efforts and results with the conference participants.
- **Lifestyles:** Changing lifestyles towards more sustainability is subject of many activities in the region, for example in the field of mobility, of housing, of energy saving, of farming and nutrition.
- **Resilience:** The aspired goal of energy autonomy in Vorarlberg is an important part of the way towards a resilient region. The parallel meeting of the 2000-Watt-cities network illustrates practical approaches to achieve this ambitious goal.

Programme overview

- Tue, 1 May SCORAI Workshop & Get together for the participants
 Wed, 2 May Opening Plenary, regular paper sessions & workshops, Prepare Evening
 Thu, 3 May Regular paper sessions & workshops, Gala Evening
 Fri, 4 May Walk the Talk & Closing, Exkursions

Wednesday, 2 May 2012	Thursday, 3 May 2012	Friday, 4 May 2012
08.00 h <i>Registration</i>	08.00 h <i>Registration</i>	08.00 h <i>Registration</i>
09.00 h - 10.30 h Opening session 1: Welcome and Keynotes	09.00 h - 10.30 h Workshops, Paper Sessions, Impromptu Meetings	09.00 h - 10.30 h Walk the Talk: All Wednesday and Thursday workshops at a glance
10.30 h - 11.00 h <i>Break</i>	10.30 h - 11.00 h <i>Break 1</i>	0.30 h - 11.00 h <i>Break</i>
11.00 h - 12.30 h Opening session 2: Round Table "Research and Industry"	11.00 h - 12.30 h Workshops, Paper Sessions, Impromptu Meetings	11.00 h - 12.30 h Walk the Talk: agreements, appointments, project generation
12.30 h - 14.00 h <i>Lunch</i>	12.30 h - 13.30 h <i>Lunch</i>	12.30 h - 13.30 h Closing Event: guided tour on the spectacular Bregenz festival arena in the lake
	13.30 - 14.00 h Poster Presentations	13.30 h - 14.30 h <i>Lunch</i>
14.00 h - 15.30 h Workshops, Paper Sessions, Impromptu Meetings	14.00 h - 15.30 h Workshops, Paper Sessions, Impromptu Meetings	14.30 h Excursions
15.30 h - 16.00 h <i>Break</i>	15.30 h - 16.00 h <i>Break .</i>	
16.00 h - 17.30 h Workshops, Paper Sessions, Impromptu Meetings	16.00 h - 17.30 h Workshops, Paper Sessions, Impromptu Meetings	
17.30 - 18.00 h Poster Presentations		
17.45 - 19.15 h Establishment of an ERSCP society – discussion on the final steps		
19.30 h PREPARE Evening: culinary and musical adventures	19.30 h Gala Evening with handing over the ERSCP to Istanbul	19.30 h Excursion Dinner on demand

Keynote speakers at the Opening Session:

- Willi Sieber, Austrian Institute of Ecology, ERSCP Chairman
- Karl-Heinz Rüdissler, Regional Minister for Economic Affairs
- Hans-Guenther Schwarz, Austrian Ministry of Transport, Innovation and Technology
["Sustainability reloaded: The Grand Challenge of Urbanisation"](#)
- Wolfgang Burtscher, Deputy Director General, Research and Innovation DG, EU-Commission
["The future of sustainability research in Europe"](#)
- Heinz Leuenberger, Director Environment Management Branch, UNIDO
["Green industry strategy"](#)

State Governor Mag. Karlheinz Rüdissler

Dear Ladies and Gentlemen,

I am pleased to welcome you here to the Festival Opera House for this year's European Round Table on Sustainable Consumption and Production. I am delighted that experts from all over the world are exchanging information and experiences on the important future issue of "sustainable economic activity".

We are living in a time of major change processes that affect all areas of life. Globalisation, escalating competitive pressure on the international front, demographic change and climatic changes are posing major challenges to the economy and society. In an era when raw materials are becoming scarcer and environmental pollution is becoming more prevalent, the topic of discussion increasingly revolves around the future of energy. The foreseeable scarcity, primarily in the mineral resource area, and the necessity of reducing CO2 emissions require answers in many areas of life.

Vorarlberg is an appealing economic location with a broadly diversified industrial mix and strong international roots. Our economic structure is characterised by leading companies operating on a global scale, as well as numerous small and medium-sized businesses, which successfully position themselves on international markets, thanks to high quality and niche products.

The internationally acknowledged entrepreneurial spirit, the high-level of implementation skills in the research and development field, the proximity to economic markets in Germany, Liechtenstein and Switzerland, but also the diminutive size of our state, with flexible structures and workflows between business and administration, have made Vorarlberg into an efficient economic location.

As an extremely export-oriented federal state – almost two thirds of the regional added value is marketed internationally - Vorarlberg was also badly hit by the economic turbulence at global level in 2008 and 2009. The worldwide consequences of the economic crisis once again demonstrated the significance of sustainable economic concepts, which now need to be implemented in future: modern economic concepts, which provide companies with the best possible support in the implementation of their entrepreneurial activity and thus strengthen the economy and create long-term jobs. Economic concepts attaching great importance to the aspect of sustainability, while simultaneously allowing for ecological and social as well as economic criteria.

As a modern economic location, Vorarlberg is committed to sustainable economic development: political and administrative endeavours are aimed at continuously optimising Vorarlberg's general economic conditions, implementing modern business development programmes as stimuli for sustainable economic activity and thus creating qualified jobs that are assured in the long-term. Innovation, education and training, secure jobs and interesting professional perspectives, as well as responsible dealings with nature and the environment, are important benchmarks in our state politics. For example, our aim is to position Vorarlberg in intra-regional competition as an appealing economic location with a high quality of life and social responsibility.

Two years ago, the Vorarlberg Landtag unanimously adopted the resolution to achieve energy autonomy in our state by 2050. This ambitious plan can only succeed if economy and society pull together and each individual makes the best contribution he/she possibly can towards achieving this goal. In the coming years, the state's energy policy will mainly focus on safeguarding energy consumption and increasing energy efficiency, especially in the fields of construction, housing, mobility and production.

Tangible examples for the implementation of this policy are the mandatory passive house standard in social housing, the strong promotion of old building renovation, with the goal of achieving an annual renovation rate of 3% of the existing buildings, the consistent expansion of the local public passenger transport services in every district of our state, or the strong promotion of the use of renewable energy sources. For example, the collector surface covered by photovoltaic thermal systems has tripled from 74,000 m² to almost 220,000 m² in the last 10 years. It is precisely the alternative energy resource area that offers major future market potentials, which now need to be tapped.

Vorarlberg is not just an appealing industrial location; it is also a popular tourist destination far away from the madding crowd of mass tourism. Our state acts as a tourist refuge, due to its diminutive size and numerous natural spaces and cultural areas. The combination of lake, forest and mountain offers versatile connecting factors for year-round tourism.

Vorarlberg is committed to sustainable high-quality tourism. On the one hand, the point of investments in the tourist infrastructure is to provide our guests with a high-quality range of accommodations, restaurants, cafes and bars, recreational facilities, cable cars, hiking trails and cycle paths. On the other hand, the point is to safeguard the high quality of the landscape as competitive factor and create a balance between the regions especially developed for tourism and the untouched natural spaces that are only accessible to "gentle" tourism.

An essential aspect of our sustainability approach in the tourism sector is the intensification of the collaboration between tourism and agriculture, with the goal of offering our guests high-quality regional products. Innovative education and training approaches are also to be implemented and the tourism-related convictions strengthened as a basis for honest and open hospitality.

The goals and measures involved in the implementation of sustainable high-quality tourism in Vorarlberg are consolidated in the new tourism strategy 2020. These measures, focusing on quality, hospitality, regionalism and sustainability, will be implemented in conjunction with partners from the tourism and other sectors in the coming years.

Sustainable economic concepts can only be developed and implemented in conjunction with numerous different players. Today's congress also offers an interesting platform for an exchange of information and experiences, from which we can all benefit, not just in our state, but internationally as well. Having said that, I hope the event is a great success and that your time at the conference is both interesting and exciting.

Sustainability Reloaded

The Grand Challenge of Urbanisation

ERSCP Opening Session

2 May 2012, Bregenz

**Hans-Günther Schwarz, Austrian Federal Ministry of
Transport, Innovation and Technology**

Contents

-
- Sustainable development: answering the challenge of complexity
 - Initiatives relevant for the grand challenge of urbanisation
 - Examples of programmes, projects and calls

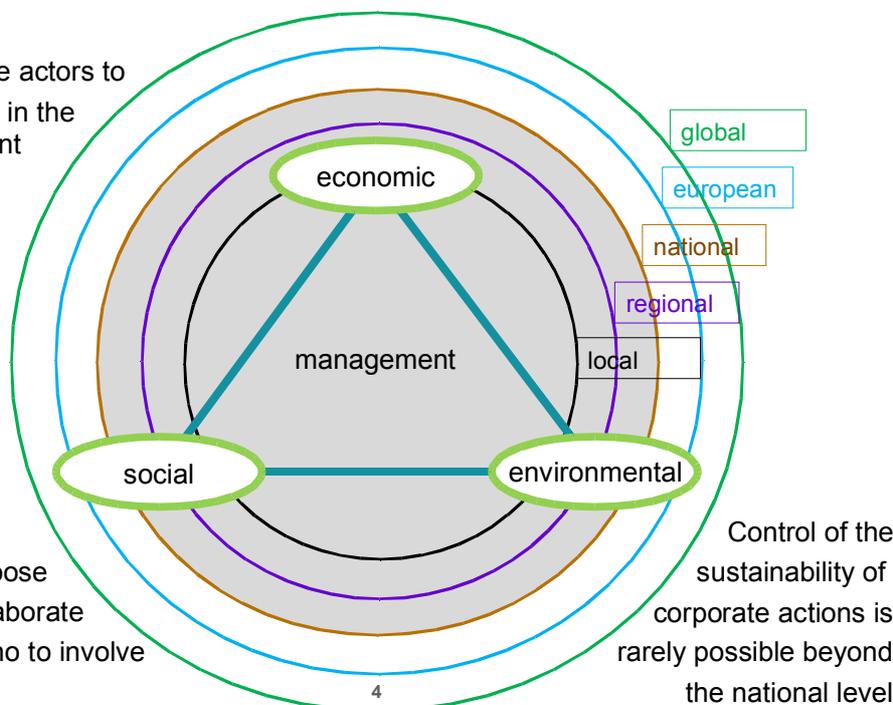
From Problem Solving to Management of Complexity

- Environmental technologies
 - technological innovation + environmental research & protection
- Cleaner production, pollution prevention, technologies for sustainable development
 - new technologies + sustainable economic & environmental benefits, upstream management of value creation chain
- Sustainable development, corporate social responsibility
 - economic + social + technological innovation & sustainable benefits,
- Smart Cities, Urban Innovation
 - responses to grand societal challenges, new governance models, involvement of multiple actors, integrated multi-dimensional planning processes, systems approach

Corporate Social Responsibility

Who are the actors to be involved in the management of CSR?

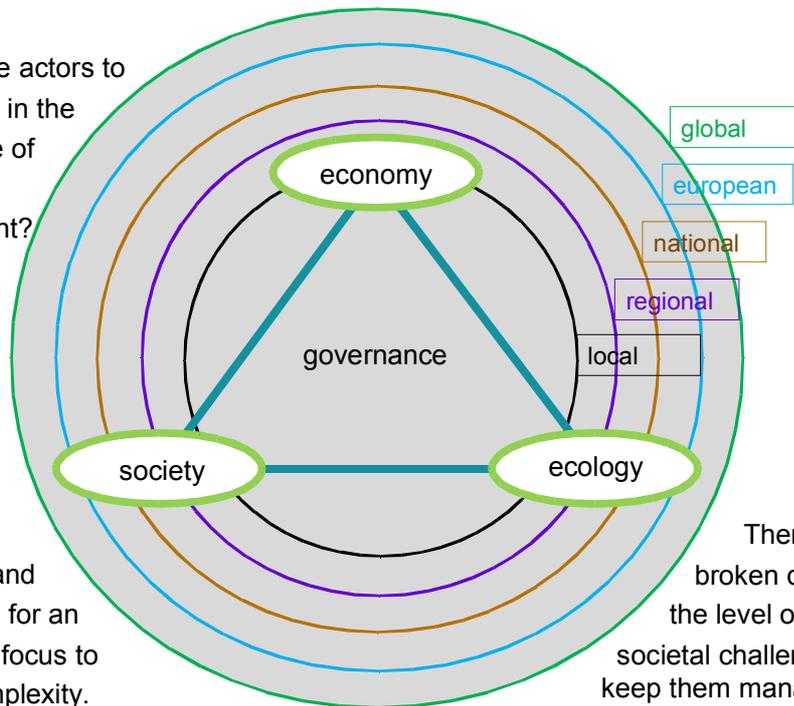
Companies have to choose who to collaborate with and who to involve



Sustainable Development



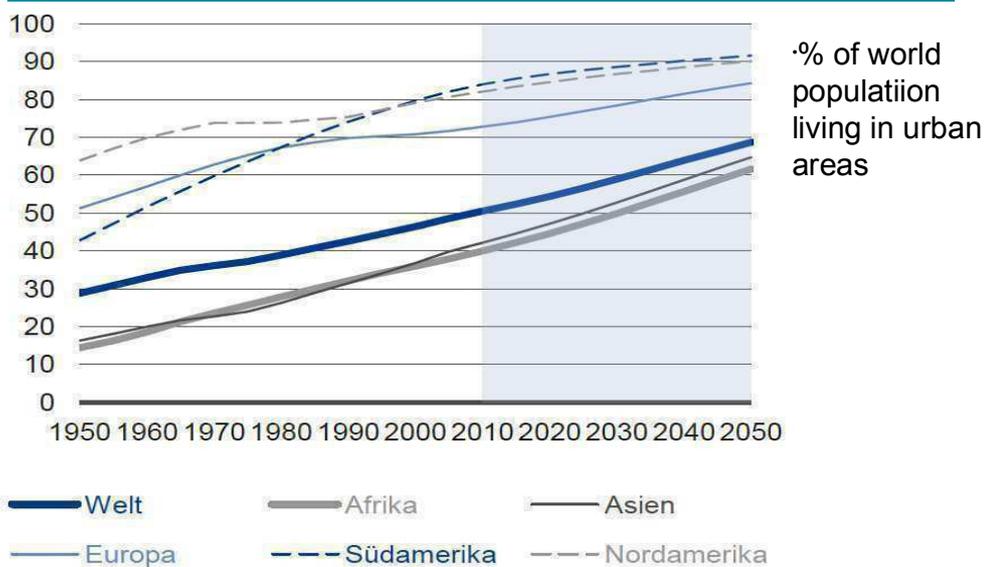
Who are the actors to be involved in the governance of sustainable development?



Multitude of themes and actors asks for an increase in focus to reduce complexity.

Themes are broken down to the level of „grand societal challenges“ to keep them manageable

Urbanisation as a Grand Challenge



Quelle: UN Population Division

Initiatives Relevant for the Grand Challenge of Urbanisation



- Technology initiatives on energy efficiency (example: Austrian RDI programme „Building of Tomorrow Plus“)
- European Industrial Initiative on Smart Cities as part of the European Strategic Energy Technology Plan (SET-Plan)
- European Joint Programming Initiative Urban Europe

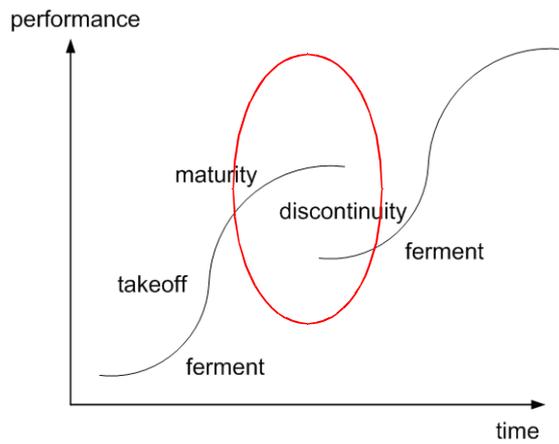
7

Urban Development: Managing Complexity



- use of radical innovation
- development of appropriate technologies
- from technologies to urban test beds and living labs: expansion from technologies to systems
- design of smart systems
- adoption of integrated planning approaches

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Source: AIT

Radical innovation

- passive → active
- static → dynamic systems
- local → urban wide implementation
- single technologies → integrated approach
- methodology: urban test beds and living labs

Examples of technologies and programmes

▪ **Strategic Energy Technology Plan (SET-Plan)**

– **European Industrial Initiative on Smart Cities and Communities**

- European Smart Cities Stakeholder Platform
 - Smart Cities Member States Initiative (currently 21 MS + AS)
- European Energy Research Alliance joint programme on Smart Cities
- in-kind contributions of approx. 180 person years per year from more than 40 RTOs

▪ **Joint Programming Initiative (JPI) Urban Europe**

- JPIs are guided by the European Council, without Commission money
- currently 16 MS + AS
- 2 joint calls planned for 2012 and 2013
- thematic focus beyond energy
- coordinated by Austria

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The European Industrial Initiative on Smart Cities within the SET-Plan

- Addressing technologies and solutions for
 - energy efficiency
 - integration of renewable energy sources (on-site and off-site)
 - demand side management
 - Connection between CO₂ emissions and urbanisation
- ⇒ Main challenges:
- complexity of technological interactions
 - national diversity of administrative situations
 - subsidiarity as a European policy issue

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Example of a national RDI Programme on energy efficiency:

„From Zero-Energy to the PLUS-Energy Building of Tomorrow“

🏠 running from 2008 to 2012

🏠 www.hausderzukunft.at



Plus signifies ...

- 🏠 **PLUS** from buildings to urban districts
- 🏠 **PLUS** from individual to industrial serial production
- 🏠 **PLUS** from concepts to demonstration buildings
- 🏠 **PLUS** for leadership in advanced building technologies
- 🏠 **PLUS** for buildings as producers of net energy
- 🏠 **PLUS** for international networks
- 🏠 **PLUS** for transfer of knowledge and training



Definition PLUS-Energy

Haus der Zukunft PLUS

“**PLUS-Energy Buildings**“ rely on networked energy production within their urban district and, within the network, produce more renewable energy on an annual basis than they consume in terms of primary energy.



PLUS Urban Districts

Haus der Zukunft PLUS



From buildings to urban districts:

- ☒ integration of solar energy production
- ☒ sustainable urban transport
- ☒ smart energy grids



Quelle: www.eco.at



Technology Centre aspern IQ

Haus der Zukunft PLUS

Aspern: Vienna's lake city – sustainable urban district



Technologiezentrum Aspern IQ (Bildquelle: Wirtschaftsagentur Wien)

- sustainable district development, networked production of renewable energy, sustainable design of public space and micro climate, monitoring of energy consumption and quality
- demonstration building: **PLUS**-Energy Building Technology Centre aspern IQ



PLUS-Energy Office Tower

Haus der Zukunft PLUS

Austria's largest **PLUS**-Energy office tower at Vienna University of Technology



- ≈ demonstrating technical and economical feasibility of **PLUS**-Energy office buildings
- ≈ largest facade-integrated PV system in Austria
- ≈ high visibility and demonstration quality



e80^3-Buildings

Haus der Zukunft PLUS



- PLUS energy building refurbishment with active prefab roof and facade elements, integrated building equipment and grid integration
- focus on buildings from 1950-1980
- demonstration project Kapfenberg

- 80% Energieeffizienz
Reduktion des Energiebedarfs
- 80% Anteil Erneuerbarer Energie
am Gesamtenergieverbrauch
- 80% Reduktion der CO₂ Emissionen



The Future of Fin de Siècle

Haus der Zukunft PLUS

Innovative refurbishment of Fin de Siècle buildings



- construction of passive house quality roof truss apartments
- development of window and facade elements which provide high energy efficiency
- economic and technological feasibility
- portfolio management tool
- demonstration buildings in Vienna



•Bildquellen: Ulreich, Gassner & Partner, e7 / BLUEWATERS



LifeCycleTower, Dornbirn (Vorarlberg)

Haus der Zukunft PLUS

- hybrid wood-structure with up to 30 floors
 - 90% reduction in overall CO₂ balance
 - recyclability of building materials
 - less material resources
- innovative systems concept
 - short construction time through industrial prefabrication
 - little noise or dust exposure during construction phase
 - cost certainty
 - minimisation of errors during the construction process
- high quality of life for occupants
 - individualised apartment design
 - pleasant indoor climate



Quelle: www.creebyrhomburg.com



Smart Cities Concept



ICT & energy technologies are merging
Intelligent energy management on regional & city level

New integrated planning approach

- Energy Planning
 - Smart Grids
 - Active Buildings
 - Supply Technologies
 - Mobility
-
- New Business Models
 - New innovation processes (test beds, stakeholders dialogues, etc.)

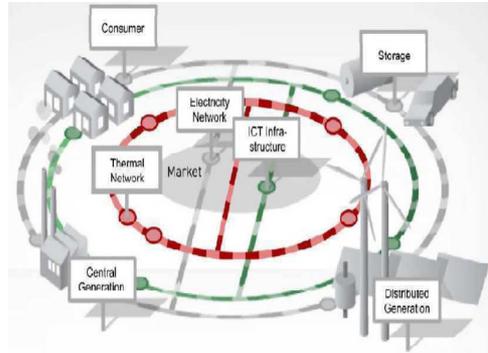


Source: AIT, B. Bach

The Smart Cities Planning Approach

Smart Cities require new approaches:

- Fully integrated design and intelligent management of energy systems
- From a single technology perspective to a multi technology perspective
- Multi-stakeholder involvement
- Transdisciplinary approaches



- Paradigm shifts in the sectoral innovation system required!
- Transformation of energy innovation system to gain a competitive advantage for the realisation of Smart Cities

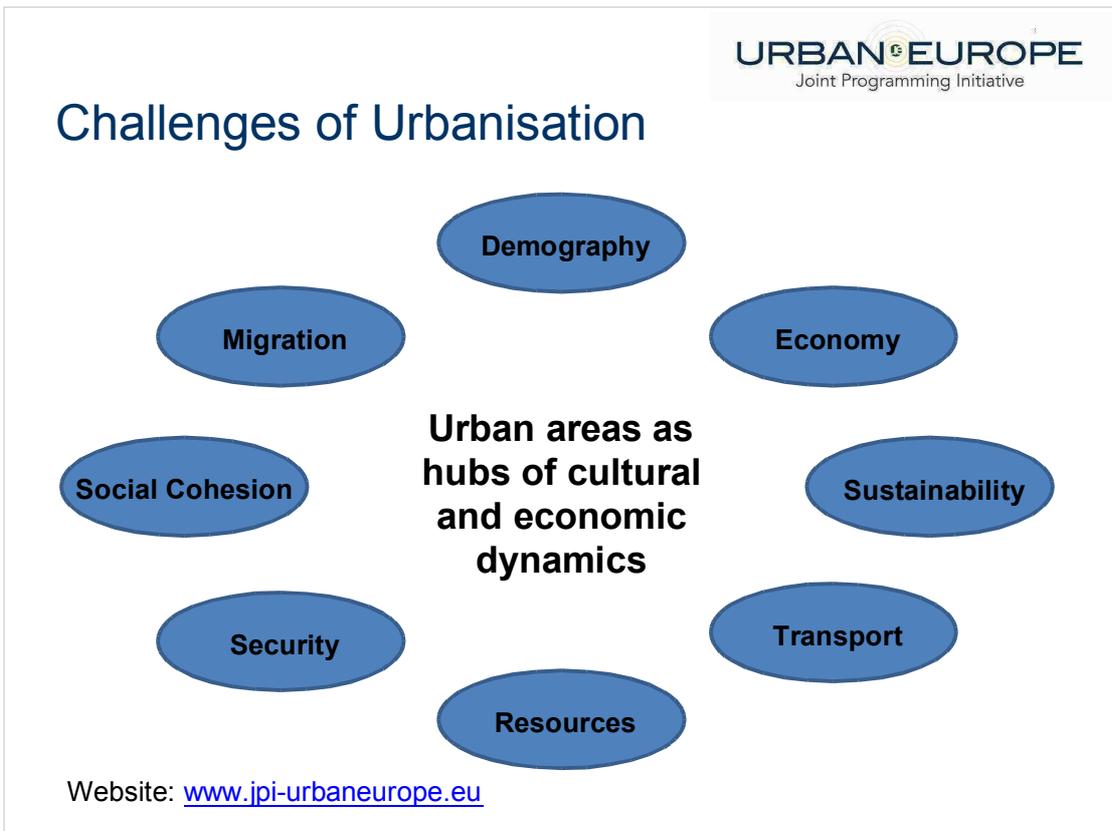
Source: AIT, B. Bach

Systems Integration

- Smart energy grids
- Heating and cooling networks
- Intelligent energy management, load transfers, demand side management
- E-Mobility and integration into grid
- Active buildings, plus-energy-buildings
- Energy harvesting, renewable energy
- Polygeneration
- New innovation processes and business models



www.smartcities.at



Vision of the JPI Urban Europe

“Global Urban Challenges – Joint European Solutions”

Participants: 16 Member States and Associated States (in alphabetical order): Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Ireland, Italy, Malta, Netherlands, Norway, Portugal, Spain, Sweden, and Turkey
Belgium, Portugal and Spain are observers (status: March 2012)

Budgets and Instruments

- The JPI Urban Europe has the potential to become the largest funder of urban-related R&D in Europe
- Pilot Phase: 2012 - 2013, Implementation Phase: 2014 – 2020
- Themes will evolve from fundamental to more applied research over the years
- Implementation instruments:
 - **Forward looking activities**
 - **Databases and exchange of information**
 - **Alignment of national R&D programmes**
 - **Trans-national joint calls**
 - **Collaborative R&D programmes of the Urban Europe Research Alliance**

Pilot Calls 2012-2013

- Call 2012 (mid June 2012 to end of September 2012)
 - Urban complexity – focus urban living labs
 - Urban diversity and social cohesion
 - Urban systems and networks
- Call 2013
 - Urban complexity – focus urban modelling
 - Urban adaptability and proficiency
 - Urban indicators and standardisation

www.jpi-urbaneurope.eu

Requirements for projects

- Integration of multiple challenges
- Cross sectoral
- Multi-disciplinary
- Human-centered, systems approach
- Basic research – Applied research – Implementation
- Scientific excellence – relevance for cities and industry

Summary



- Sustainable development is in itself a challenge of complexity
- Policy themes related to the grand societal challenges of our time require a systems approach with sustainability as a cross-cutting theme in the background
- Innovative solutions need integrated planning tools and new methodologies of multi stakeholder governance

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Thank you for your Attention!



Hans-Günther Schwarz
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Horizon 2020 - The Future of Sustainability Research in Europe

Wolfgang Bartscher, DG Research and Innovation

15 th European Roundtable on Sustainable Consumption and Production, Bregenz, Austria, 2012, May 2-4

HORIZON 2020

Research and Innovation

Mankind is facing huge societal challenges



Population
+50% by 2050



Food
+70% by 2050



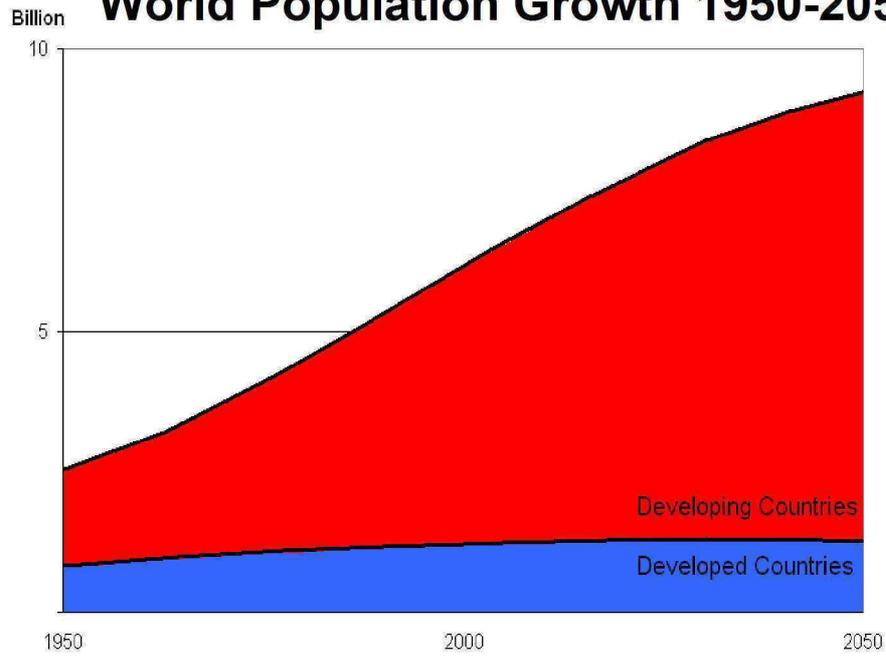
Energy
+100% by 2050



Climate
+2° by 2050

Research and Innovation

World Population Growth 1950-2050

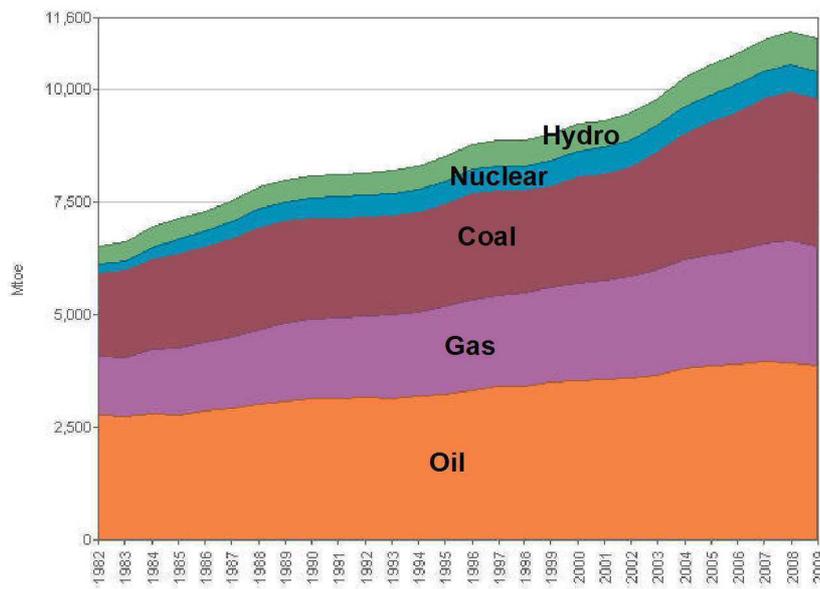


Source: World Population Prospects, United Nations Secretariat

3

Research and Innovation

Global Energy Consumption (Mtoe) 1982 - 2009



Source: BP Statistical Review of World Energy

4

Research and Innovation



Research & innovation are key to solving these challenges

- Research and innovation have a pivotal role to play in addressing societal challenges, precisely because science and technology can provide solutions
- For example, in finding solutions to the challenge of a secure and sustainable energy supply while avoiding environmental degradation, science and technology can play a key role by providing new technologies to reduce energy consumption, and by developing renewable sources of energy.
- Also, when tackling the health care challenge - including the consequences of an ageing population - science and technology can help to develop better medication and treatment, improve prevention and diagnosis, and deliver solutions for age-related illnesses

for Research and Innovation



The Multiannual Financial Framework 2014-2020: Commission's proposals 29 June 2011

Key challenge: stabilise the financial and economic system while taking measures to create economic opportunities

1. Smart & inclusive growth (€491bn)



2. Sustainable growth, natural resources (€383bn)

3. Security and citizenship (€18.5bn)

4. Global Europe (€70bn)

5. Administration (€62.6bn)

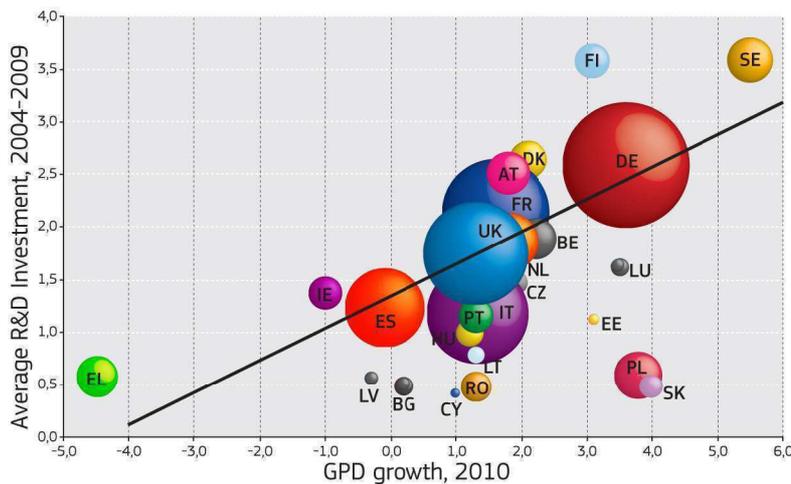
**Total:
€ 1,025bn**

Research and Innovation

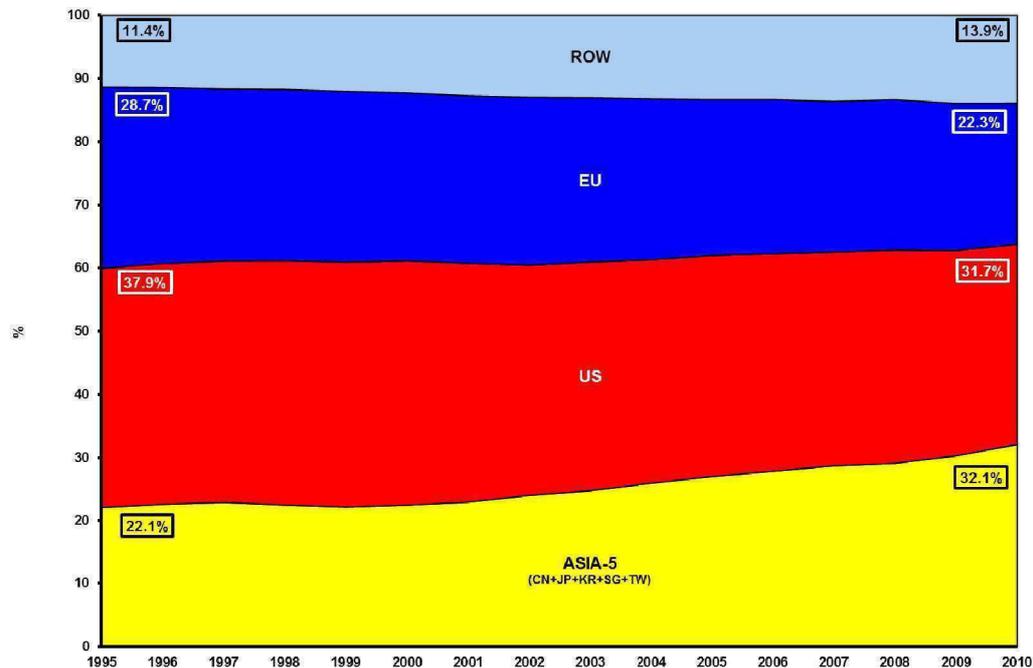
What is Horizon 2020

- Commission proposal for a 80 billion euro research and innovation funding programme (2014-2020)
- A core part of Europe 2020 (smart, sustainable and inclusive growth"), Innovation Union & European Research Area:
 - Responding to the economic crisis to invest in future jobs and growth
 - Addressing people's concerns about their livelihoods, safety and environment
 - Strengthening the EU's global position in research, innovation and technology

Investment in R&D is part of the solution to exit from the economic crises



Worldwide R&D expenditure 1995-2010 in %



What's new

- **A single programme** bringing together three separate programmes/initiatives*
- **Coupling research to innovation** – from research to retail, all forms of innovation, not only technological
- **Focus on societal challenges** facing EU society, e.g. health, clean energy and transport
- **Simplified access**, for all companies, universities, institutes in all EU countries and beyond.

*The 7th Research Framework Programme (FP7), innovation aspects of Competitiveness and Innovation Framework Programme (CIP), EU contribution to the European Institute of Innovation and Technology (EIT)



Three priorities:

1. Excellent science
2. Industrial leadership
3. Societal challenges

Research and
Innovation



Excellence Science

- World class science is the foundation of tomorrow's technologies, jobs and well-being
- Europe needs to develop, attract and retain research talent
- Researchers need access to the best infrastructures

Research and
Innovation

Proposed funding (million euro, 2014-2020)

European Research Council Frontier research by the best individual teams	13 268
Future and Emerging Technologies Collaborative research to open new fields of innovation	3 100
Marie Curie actions Opportunities for training and career development	5 572
Research infrastructures (including e-infrastructure) Ensuring access to world-class facilities	2 478

Industrial Leadership

- Strategic investments in key technologies (e.g. nanotech) underpin innovation across existing and emerging sectors
- Europe needs to attract more private investment in research and innovation
- Europe needs more innovative SMEs to create growth and jobs

Proposed funding (million euro, 2014-20)

Leadership in enabling and industrial technologies (ICT, nanotechnologies, materials, biotechnology, manufacturing, space)	13 781
Access to risk finance Leveraging private finance and venture capital for research and innovation	3 538
Innovation in SMEs Fostering all forms of innovation in all types of SMEs	619 complemented by 6 829 (expected 15% of societal challenges + LEIT) and 'Access to risk finance' with strong SME focus

Tackling societal challenges

- Concerns of European citizens and key EU policy objectives (climate, energy, health, transport) cannot be answered without research & innovation
- Promising solutions need to be tested, demonstrated and scaled up, and brought to the market
- Breakthrough solutions come from multi-disciplinary collaboration, both public and private



Proposed funding (million euro, 2014-2020)

<i>Health, demographic change and wellbeing</i>	<i>8 033</i>
<i>Food security, sustainable agriculture, marine and maritime research & the bioeconomy</i>	<i>4 152</i>
<i>Secure, clean and efficient energy*</i>	<i>5 782</i>
<i>Smart, green and integrated transport</i>	<i>6 802</i>
<i>Climate action, resource efficiency and raw materials</i>	<i>3 160</i>
<i>Inclusive, innovative and secure societies</i>	<i>3 819</i>

**Additional €1 788m for nuclear safety and security from the Euratom Treaty activities (2014-2018). Does not include ITER.*



Horizon 2020 enhances research and innovation for sustainability

Sustainability – facilitating social and economic development within the limits of what the planet can actually provide

Sustainable development is an overarching objective of Horizon 2020 and is integrated in virtually all parts of the proposal

60% of the total Horizon 2020 budget will be related to sustainable development

It is expected that around 35% of the Horizon 2020 budget will be climate related expenditure

Support all forms of eco-innovation that will facilitate the transition to green economy. For this, actions to strengthen eco-innovative technologies, processes, services and products and to boost their market uptake will be supported





Europe's experience in sustainable research & innovation

Europe suffers from an "innovation gap" because it has been unable to convert its technological leadership into innovative and competitive leadership:

- EU imports of solar power parts are over 7 times its exports.
- EU wind power imports grow rapidly while exports, which rose strongly between 2000 and 2006, have fallen.
- The EU is the leading biodiesel producer in the world, accounting for about 95% of global production, as well as a bioethanol producer. But EU biofuels exports, posting average annual growth of 5.3% since 2000, have fallen after 2006.
- Germany is the world's leading exporter of environmental goods, ahead of the US, Japan and China, but nearly 60% of German exports of environmental goods go to other EU Member States.

for Research and
Innovation



Sustainable research and innovation under the food security, agriculture and bio economy challenge

Challenges

70% increase of the world food supply to feed the 9 billion global population by 2050

Global green house gases emissions from agriculture are projected to increase up to 20% by 2030 in a business as usual scenario

Ensure sufficient supplies of raw materials and energy in the light of decreasing fossil carbon (oil and liquid gas production expected to decrease by about 60 % by 2050)

Bio waste (estimated at up to 300 million tonnes per year in the Union, of which up to 40% is land filled) represents a huge problem and cost despite its high potential added value)

30% of all food produced in developed countries is discarded. Major efforts are needed to reduce this amount by 50% in the Union by 2030



Sustainable research and innovation under the food security, agriculture and bio economy challenge

Broad line of research and innovation activities

Sustainable agriculture and forestry to supply sufficient food, feed, biomass and other raw materials while coping with climate change conditions and preserving the natural environment

Sustainable and competitive agri-food sector for safe and healthy diet, inter alia to achieve food safety and security for all European and eradication of the hunger in the world, reduce water and energy consumption in food processing, transport and distribution and reduce food waste

Sustainable and competitive bio-based industries to accelerate the conversion of fossil-based European industries to low-carbon, resource efficient and sustainable ones. A shift to biological raw materials and biological processing methods could save up to 2,5 billion of CO² equivalent per year by 2030



Sustainable research and innovation under the secure, clean and efficient energy challenge

Challenges

Reduction of greenhouse gas emissions by 20% below 1990 levels by 2020, with a further reduction to 80-95% by 2050. This entails reducing CO² emissions by over 90% by 2050 in the power sector, by over 80% in industry, by at least 60% in transport and by 90% in the residential sector and services

Renewables should cover 20% of final energy consumption in 2020 coupled with a 20% energy efficiency target

80% of Europe's energy supply still relies on fossil fuels, while the energy sector produces 80% of total EU greenhouse gas emissions.

The EU spends about 2.5% of its gross domestic product (GDP) on importing energy, a share that is likely to increase.





Sustainable research and innovation under the secure, clean and efficient energy challenge

Broad line of research and innovation activities

- Reducing energy consumption and carbon footprint through smart and sustainable usage through i.a. development of near-zero-emission buildings and mass take up of energy efficient approaches
- Low-cost, low-carbon electricity supply through i.a. full potential of wind energy (reduction of costs by 20% by 2020), cost-competitive solar energy systems (objective of cost reduction by 50%), development of potential of geothermal, hydro, marine and other renewable energy options
- Alternative fuels and mobile energy sources, i.a. advanced second generation biofuels, highly efficient combined heat and power from biomass, development of new alternative fuels
- A single, smart European electricity grid integrating the intermittent renewable energy sources with the aim that by 2020 our grids distribute about 35% of electricity from renewables.



Sustainable research and innovation under smart, green and integrated transport challenge

Challenges

- Transport sector is a major contributor to greenhouse gas emissions, generating up to a quarter of all emissions. Transport still relies almost entirely (96%) on fossil fuels.
- Cutting 60% of CO₂ emissions from transport by 2050 (would grow by 35% by 2050 under a business as usual scenario)
- Halving the use of "conventionally-filled" cars in cities and achieving CO₂-free city logistics in major urban centres by 2030
- Low-carbon fuels in aviation should reach 40% by 2050
- Passenger-kilometres are predicted to double over the next 40 years and grow twice as fast for air travel
- Congestion costs would increase by about 50% to nearly € 200 Bio annually





Sustainable research and innovation under smart, green and integrated transport challenge

Broad line of research and innovation activities

- Resource efficient transport that respects the environment in particular through development and deployment of a new generation of electric and other low or zero emission vehicles, including through breakthroughs in engines, batteries and infrastructure
- Better mobility, less congestion, more safety and security
- Socio-economic research and forward looking activities for policy making

research and innovation



Sustainable research and innovation under the Climate action, resource efficiency and raw materials challenge

Challenges

- Cut greenhouse gas emissions by 80-95 % by 2050 compared to 1990 levels, otherwise risk that climate change could cost the world at least 5% of GDP each year and cause huge consequences on human well being in general
- Raw materials, water, air, biodiversity and terrestrial, aquatic and marine ecosystems are under pressure. For example, without improvements, water demand is projected to overshoot supply by 40% in 20 years time. 1000 km² of some of the most fertile and valuable ecosystems are lost every year in the Union, while a quarter of fresh water is wasted.
- Based on current trends, the equivalent of more than two planet Earths will be needed by 2050 to support the growing global population
- Supply of raw materials to the Union is coming under increasing pressure threatening European competitiveness

research and innovation



Sustainable research and innovation under the Climate action, resource efficiency and raw materials challenge

Broad line of research and innovation activities

- Fighting and adapting to climate change through the development of innovative, cost-effective and sustainable adaptation and mitigation measures targeting both CO² and non-CO² gases
- Sustainably managing natural resources and ecosystems to establish a sustainable balance between human needs and the environment
- Ensure the sustainable supply of non-energy and non-agricultural raw materials through i.a. cost-effective and environmentally friendly exploration, processing, recycling and recovery of raw materials including finding alternatives for critical raw materials and improvement of societal awareness and skills on raw materials
- Enabling the transition towards a green economy through eco-innovation



Thank you for your attention!

Find out more:

www.ec.europa.eu/research/horizon2020





Green Industry

Green Industry Initiative



Heinz Leuenberger, PhD
Director, Environmental Management Branch, EMB
May 2012



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Green Industry

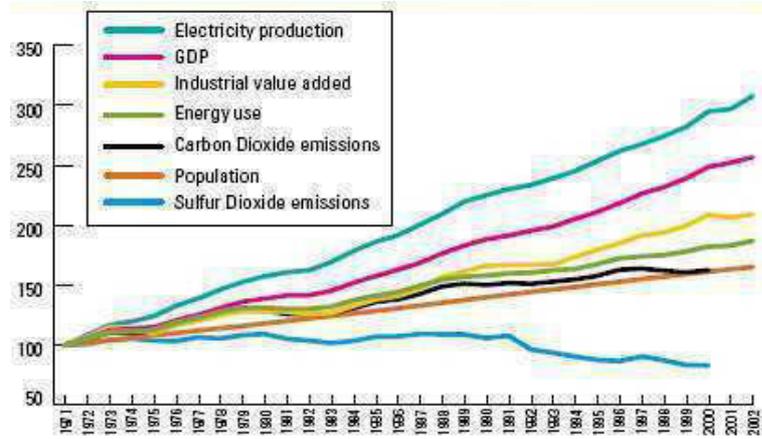
Context

- Many industries use more materials and energy than their production processes require, due to continued use of obsolete and inefficient technologies and methodologies.
- Producers and consumers have adopted patterns of production and consumption that do not take into consideration the limits of the planet's available resources and its assimilative capacity for emissions, a situation further complicated by continued population growth.
- Climate change is one main consequence, but loss of biodiversity, land degradation and desertification, air pollution, surface and groundwater pollution, chemical contamination are also important.
- Current production systems are therefore unsustainable: they do not allow today's needs to be met without jeopardizing the ability of future generations to meet theirs.

Source: State of the world, 2008
Innovation for a Sustainable Economy, Worldwatch Institute



Global Trends: Growth in economy, energy and emissions

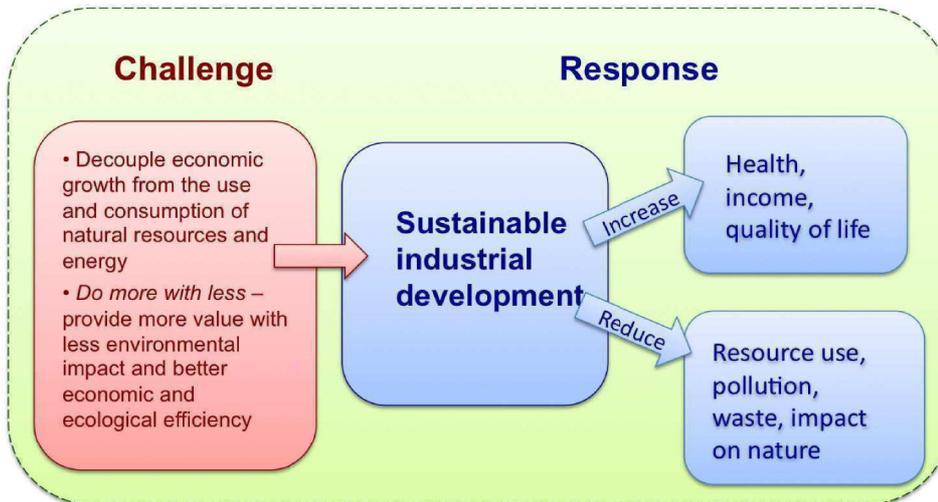


Note: Index: 1971=100

Source: UNDESA-DSD, based on data from World Bank, World Development Indicators 2005, and Stern, D., 2005.

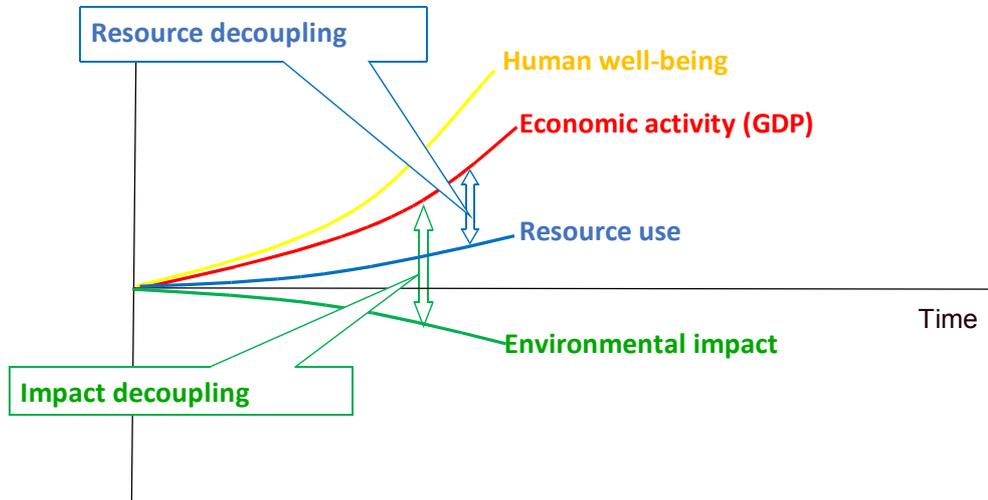


The Challenge

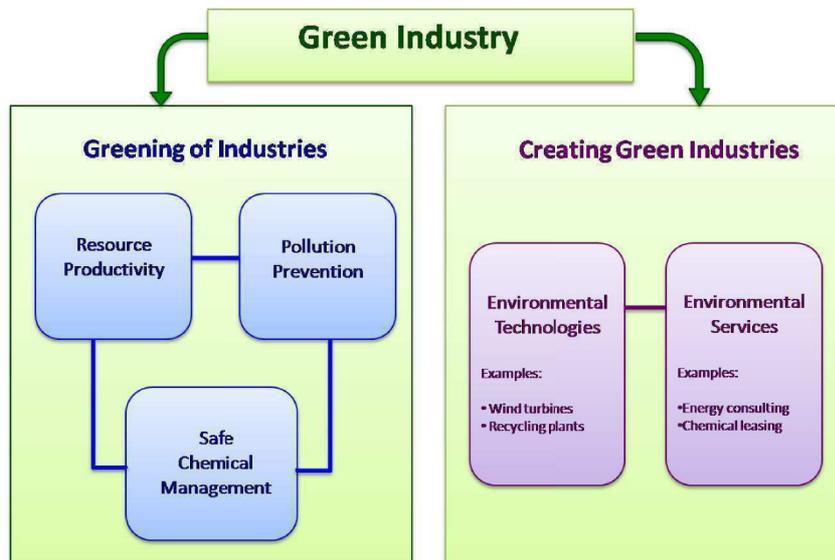




Two Aspects of “Decoupling”



Source: International Resource Panel
Decoupling natural resources use and environmental impacts from economic growth, 2011





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Green Industry

Greening of Industries

- **Ensuring that all industries, regardless of sector, size or location, continuously improve their resource productivity / eco-efficiency.**
- **Aimed at reducing the environmental impacts of processes and products through using:**
 - Use resources more efficiently;
 - Phasing out toxic substances;
 - Substituting fossil fuels with renewable energy sources;
 - Taking increased producer responsibility;
 - Reducing the overall risks.



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Green Industry

Green Industry

Green Industries

- **Includes industries with core business activities focused on the provision of environmental goods and services, such as:**
 - Waste management, recycling and resource recovery;
 - Manufacturers of renewable and energy-efficient technologies and equipments;
 - Providers of environmental advisory, analytical, monitoring and other services;
 - Including providers of cleaner production services;
 - Manufacturers of clean and/or pollution control technologies and equipments.



Green Industry and Decoupling

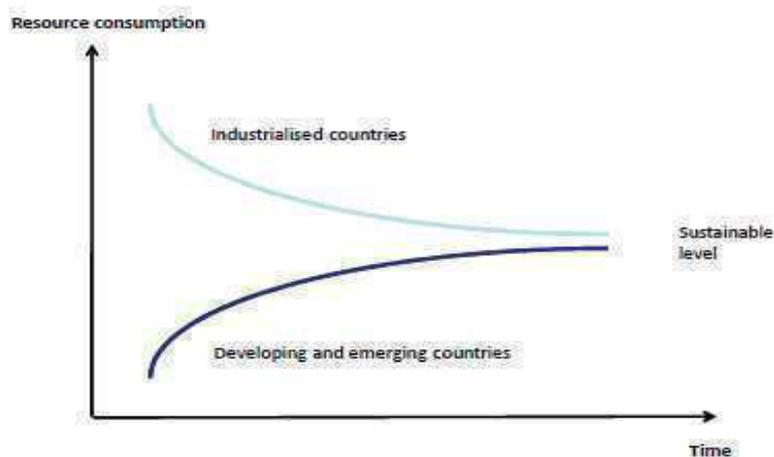
Green industry supports and encourages:

- **Absolute decoupling** (an absolute reduction in total resource use, even as GDP continues to grow) for **developed countries**.
- **Relative decoupling** (a reduction in the resource intensity of the economy i.e. the rate of increase in resource use is lower than the rate of increase in GDP) for **developing countries**.



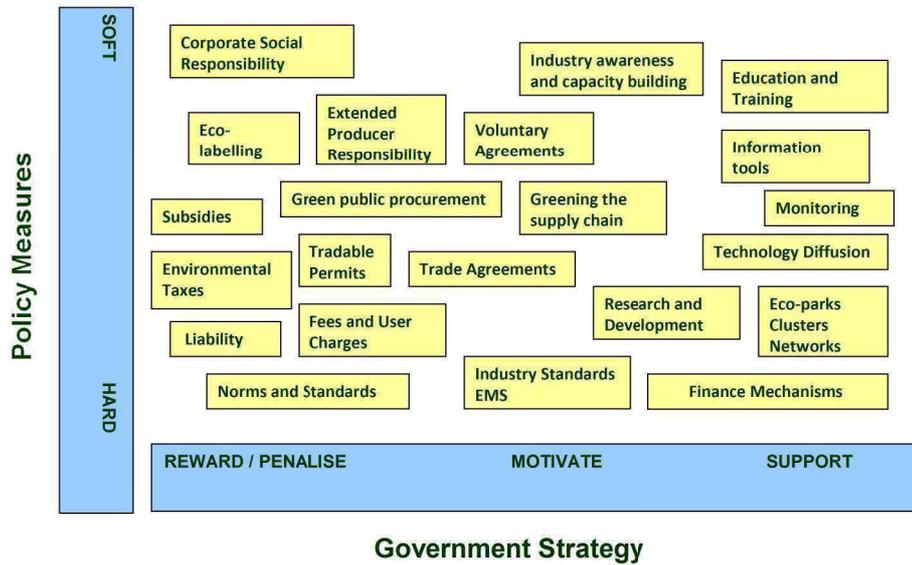
Contraction and Convergence

Seri, WRF, Davos, 2011





Policy Matrix for the Greening of Industries



Source: UNIDO, 2011: Policies for supporting green industry



Benefits of Green Industry

Economic

- Increase resource productivity and reduce production costs
- Create an enabling environment for technology development and innovation
- Increase competitiveness
- Open up new markets
- Develop new businesses

Social

- Secure jobs and reduce poverty
- Create **new** skills and capacity
- Improve occupational health and safety conditions
- Improve health and safety of communities

Environmental

- Reduce environmental pollution
- Reduce resource depletion
- Reduce degradation of ecosystems
- Mitigate climate change
- Promote climate resilience



Global Mandate

- A Green Industry Platform is under development and will be launched at Rio+20
 - Corporate Sustainability Forum, 18 June 2012
- **Multi-stakeholder**
 - Governments, corporations, academia, NGOs and UN Agencies
 - Led by UNIDO
- **Voluntary commitment** to promote the scaling-up and mainstreaming of Green Industry
- **Information sharing** – latest policies and technologies
 - Interim Advisory Board Meeting – 3 May 2012



Thank you very much

ERSCP Conference History

15th ERSCP, 2-4 May 2012

SCP meets Industry

Organised by Austrian Institute of Ecology (in collaboration with various (international) partners), Bregenz/Vienna, Austria

www.erscp2012.eu

14th ERSCP, 25-29 October 2010 (together with 6th EMSU conference)

Knowledge Collaboration & Learning for Sustainable Innovation

Organised by TNO, Delft University of Technology and The Hague University of Applied Sciences (in collaboration with various (international) partners

Delft, the Netherlands

www.erscp-emsu2010.org

13th ERSCP, 8-10 June 2009 (together with GIN, the Greening of Industry Network)

Joint Actions on Climate Change

Organised by Aalborg University, Denmark

Aalborg, Denmark

<http://www.jaocc.net>

12th ERSCP, September 2008

Organised by the German Federal Ministry of Education and Research

Berlin, Germany

<http://www.fona.de/erscp2008>

11th ERSCP, June 2007

Organised by the FHNW School of Life Sciences, Institute for Ecopreneurship

Basel, Switzerland

10th ERSCP, October 2005

Organised by the VITO (The Flemish Institute for Technological Research)

Antwerp, Belgium

9th ERSCP, May 2004

Organised by the IHOBE (the Environmental Performance Agency of the Basque Government)

Bilbao, Basque Country (Spain)

8th ERCP, October 2002

Organised by the CIT (Cork Institute of Technology – Clean Technology Centre)
Cork, Ireland

7th ERCP, May 2001

Organised by the IIIIEE (International Institute on Industrial Environmental Economics, Lund University)
Lund, Sweden

6th ERCP, October 1999

Organised by the Hungarian Cleaner Production Centre
Budapest, Hungary

5th ERCP, October 1998

Organised by the INETI (The National Institute of Industrial Engineering and Technology)
Lisbon, Portugal

4th ERSCP, October 1997

Organised by the Technical Institute of Oslo, Norwegian Ministry of Environment and Norwegian EPA
Oslo, Norway

3rd ERCP, October 1996

Organised by the County of Vestsjælland, Kalundborg Business Council, Society of Danish Engineers and Danish EPA
Kalundborg, Denmark

2nd ERCP, October 1995

Organised by the Erasmus University and the Dutch Ministry of Economic Affairs
Rotterdam, The Netherlands

1st ERCP, October 1994

Organised by the City of Graz and the Technical University of Graz
Graz, Austria

Forthcoming Conferences

16th ERSCP & 7th EMSU, 4 – 9 June 2013

Bridges for a more sustainable future: Uniting Continents and Societies

Organised by Bogazici University: Sustainable Development and Cleaner Production Center,
Istanbul, Turkey

www.erscp-emsu2013.org

Conference Organisation

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Zugasti Ibon, PROSPEKTIKER, San Sebastian (ES)

Presented Workshop and Papers

Topic Buildings

Workshops	Proposed by
Futourismus - approaches to sustainable hotels of the future	Beate Lubitz-Prohaska, Austrian Institute of Ecology; Austria
Lighting for sustainable business development	Reine Karlsson, TEM Lund
Sustainable Buildings and Constructions: Recent ideas, strategies and initiatives	Robert Lechner, Austrian Institute of Ecology, Austria
Sustainable construction for public buildings - ecofriendly choice of building materials	Dietmar Lenz, Umweltverband Vorarlberg, Austria
The battle of towers – skyscrapers and sustainability?	Julia Lindenthal, Austrian Institute of Ecology, Austria

Papers and Posters	Author
Characterisation of the Multidimensional Performance Risks Associated with Building Energy Retrofits	Niall Dunphy
Energy relevant aspects of building and future of Housing and Settlement-Structures in Austria	Sabine Haselsteiner
Urban Transition - an experimental approach	Stig Hirsbak
Smart buildings and smart cities	Ingrid Kaltenegger
The role of banks in the uptake and implementation of energy renovations of buildings	Davide Maneschi
Changing practices of built environment professionals to face sustainability challenge. Analysis of two Scandinavian case studies	Valeria Montrucchio, Davide Maneschi
Requirements and limitations of climate neutral buildings	Johanna Pucker
The Life Cycle Energy Consumption of Zero-Energy Houses	Marlies Vanholm

Topic Tourism

Workshops	Proposed/presented by
Dream Destination – experience economy in tourism	Bjarne Rasmussen, Region Zealand
Sustainability in tourism businesses: labels, toolkits, learning networks	Andrea Schwaerzler, Schwaerzler Hotels

Papers and Posters	Author
Towards an eco-efficient hotel industry.	Dirk Hengevoss
The Green Hospitality Programme, Ireland, continues to significantly reduce waste, improve resource efficiency and highlight the green agenda for the Irish Hospitality Sector.	James Hogan

Topic Energy

Workshops	Proposed/presented by
Climate protection or perspectives for a good life	Adi Gross, Energy Department Vorarlberg, Austria
Solar food - Sustainable energy systems in the food processing industry	Marcus Hummel, TU Wien, Austria
E-Mobility in practice	Joerg Petrasch, Illwerke/VKW, Austria

Papers and Posters	Author
Innovations for biodiversity assessments in planning and industry: integrating ecological models and ecosystem services	Birgit Aue
Energy poverty – from a global perspective to Austria	Thomas Berger
Sustainable Energy Autarky for New City Development	Han Brezet
An Environmental Life Cycle Assessment Analysis of Lignocellulosic Bioethanol as an Alternative Transportation Fuel	Basak Buyukbay Daylan

Papers and Posters	Author
The Challenges Associated with Lignocellulosic Bioethanol Production and Consumption Considering Renewable Energy Policies in Turkey	Nilgün Ciliz
Policy instruments to reduce electricity consumption in private households: Is efficiency enough?	Christian Dehmel
Can Energy supply companies play a role in local energy savings programs?	Kasper Dirckinck-Holmfeld
Buoyancy energy	Giovani Ferreira de Almeida
Determination and Analysis of Factors Enabling the Development of an Eco-City	Christina Fountzoula
Transition pathways for a UK low carbon energy system: combining demand-side and supply-side measures	Timothy Foxon
Improvement of energy efficiency in the steel industry by utilization of low temperature waste heat	Johannes Fresner
Energy use from a consumption perspective - How can it be done and what is it good for?	Michael Hartner
RESYS project - a few clicks to regional energy autarky	Sabine Haselsteiner
Implementing low carbon technologies in Macedonian agro industry	Atanas Kochov, Tashko Rizov
How to Change Everyday Routines towards Low Carbon Lifestyles: Preliminary Findings from a Field Test	Oskar Marg
Energy Storage in Concentrating Solar Technologies – Current Research and Future Integration into the Smart Energy Economy	Jörg Petrasch
Preparing for an energy-scarce future: questions and answers for the communal level and beyond	Ernst Schriefl
GIZ PROKLIMA - Sustainable Technology Cooperation - Cooling in Developing Countries	Bernhard Siegele
Energy recovery from biodegradable waste in grain processing industry	Jurgis Staniskis

Topic Resources

Workshops	Proposed/presented by
Network footprinting - a holistic approach to assess environmental impacts	Wolfgang Pekny, Footprint Austria
Bridging Asia and Europe with sustainable supply chains	Frans Verspeek, SWITCH Asia
Future of packaging	Andrea Bruckner and Iris Koestinger, Austria
Critical raw materials for the high technology sector	Stefan Luidold, University of Leoben, Austria
Future of the European Textile Industry	Thomas Bechtold, University of Innsbruck, Austria
Food Waste - a societal challenge	Gabi Berndorfer, Austrian Institute of Ecology
TrustIn - Design of training programme on sustainable innovation (buildings, food, mobility, energy related products)	Stig Hirsbak, Aalborg University, Denmark, Peter Glavic, Univ. of Maribor, Slovenia

Papers and Posters	Author
Life cycle analysis and carbon footprint, uses and limitations in public procurement	Aure Adell
Carbon Footprint of Murau Beer	Susanne Aichmayer
Adaptation to Climate Change in Industry: Demonstration Projects for Water Saving Through Eco-Efficiency Approach	Emrah Alkaya
Natural colorants in textile dyeing – New interpretation of an old concept	Thomas Bechtold, University of Innsbruck, Austria
Value-chain Voluntary Agreements to improve resource efficiency and save energy: the new VinylPlus approach	Brigitte Dero, Erica Lo Buglio
Perspectives from the World and Turkey Focusing on Haydarpasa and Martas Port Waste Reception Facilities	Neslihan Dogan-Saglamtimur

Papers and Posters	Author
Chemical leasing in printing sector	Lakmini Edirisinghe
ECOPROFIT - Model of preventive environmental management and sustainable development for companies and communities	Johannes Fresner
PATRES (Public Administration Training and coaching on Renewable Energy Systems)	Johannes Fresner
Resource Efficiency	Peter Glavic
Intention to buy organic products with additional sustainable attributes	Isabella Hämmerle
Open Footprint Puzzle Process	Hellmut Koerber
Sustainable and Efficient Production of Biopolymers from Industrial Waste Streams	Martin Koller
Polymer Paper based on Renewable Resources	Stephan Laske
Land resource conflicts due to renewable energies: How to consider the social dimension	Gudrun Lettmayer
Creativity and organisational learning as means to foster sustainability	Rodrigo Lozano
Analysing corporate sustainability at utility companies: a case study from Slovenia	Rodrigo Lozano, Rebeka Lukman
Environmental business consultancy – an internal view	Markus Meissner
Rethinking growth in the light of Contraction and Convergence	Simon Milton, Edina Vadovic
Network Footprinting - a holistic approach to assess environmental impacts	Wolfgang Pekny
Investigating the life-span of cork products through a longitudinal approach with users – Interim results	Ana Carina Pereira
Mineral fillers for active packaging	Markus Piontek
Efficiency of using Chemical Leasing approach in Pest and Disease control in Agriculture – Evidence from the Potato Cultivation	Heenatigala Viraj Priyantha Wijewardhana
InEDIC – Innovation and Ecodesign in the Ceramic Industry: Overview and results of an European training and demonstration project	Cristina Rocha

Papers and Posters	Author
Running on two wheels instead of one: Complementary economic systems towards sustainable consumption	Marlyne Sahakian
Implementation of the Chemical Leasing Business Model in Metal Cleaning	Vojislavka Satric, Lionel Montémont
The challenges of food wastage to European Society	Felicitas Schneider
Can Austria „feed“ itself in a post-fossil world? Supplying Austria autonomously with food, energy, wood materials and substitutes for synthetic materials on a regenerative basis	Ernst Schriefl
Climate effects of the Austrian pork meat production	Gregor Sellner
The role of sustainable textile labels in the business-consumer dialogue	Eivind Sto
Immaterial consumption patterns	Gerhard Vogel, Jennifer Grundtner
Assessing Sustainable Agricultural Practice: The GLOBAL 2000 approach	Martin Wildenberg

Topic Lifestyle

Workshops	Proposed/presented by
Communication and marketing of sustainable products	Olatz Errazkin, Prospektiker, Spain
Sustainable consumption during times of crisis 1st Trans-Atlantic SCORAI Workshop	Philip Vergragt, Tellus-Institute, USA
Responsible Management	Gabi Faber-Wiener and Barbara Coudenhove-Kalergi, Responsible Management, Austria
From Re-Use to Smart-Use	Markus Meissner, Austrian Institute of Ecology
Foresight as an Instrument to enhance sustainable development	Doris Wilhelmer, AIT Austrian Institute of Technology GmbH
Pathways, scenarios and backcasting for sustainable and low-carbon lifestyles	Jaco Quist, TU Delft, The Netherlands
Future workspace and its sustainable challenges - New work spaces in European offices	Didi Lenz, Bene AG Office Furniture, Austria

Workshops	Proposed/presented by
Implementation barriers of SCP	Thomas Schoenfelder, Atmoterm, Poland

Papers and Posters	Author
Exploring the added value of quasi-ethnographic case studies on the emergence and upscaling of grassroots innovations: some lessons to be learned from the InContext research project.	Tom Bauler
Implication of Sustainable Lifestyles: Results from an EU-wide impact evaluation	Bettina Brohmann
The ecological footprint of green and brown consumers. Introducing the behaviour-impact-gap (BIG) problem	Maria Csutora
Creating and testing visions of the future: the use of back-casting scenarios in promoting sustainable change in organizations	Adina Dumitru
The user values as indicators of sustainable consumption shift	Aija Freimane
Low Carbon at Work: changing large-scale organizations to achieve a low-carbon Europe	Ricardo Garcia-Mira
CleanEuro - a method of self-reflection of personal consumer behaviour	Sabine Haselsteiner, Lukas Scherak
Corporate Social Responsibility on SMEs	Oihana Hernaez
Multidisciplinary dialogue for sustainable lighting	Reine Karlsson
Design and Validation of Educational Resources for Household Sustainable Consumption	Marta Isabel Palhim Cardoso
Evaluation of Transnational Household Sustainable Consumption Indicators: Opportunities for Improvement and Innovation	Tomas Ramos
Why behave sustainably? Including altruistic motivations for lifestyle changes	Felix Rauschmayer
Implementation barriers of the SCP - Polish experiences	Thomas Schoenfelder

Papers and Posters	Author
White certificate system in Poland as market mechanism to support energy efficiency in energy industry	Thomas Schoenfelder
Plattform Footprint – Using personal allowances to go beyond the efficiency-debate	Michael Schwingshackl
Pathways to Sustainability:CRISP approach	Zaneta Stasiskiene
Designing Effective Visioning Workshops	Walter Wehrmeyer
The Community Arena: Application of transition governance in local communities	Julia M. Wittmayer
Contemporary patterns of sustainable lifestyle and attitudes for behaviour change in the Hungarian society	Agnes Zsoka

Topic Resilience

Workshops	Proposed/presented by
The dual challenge for global material supply chains	Paul Pichler, Potsdam Institute for Climate Impact Research, Germany
Sustainability management beyond growth	André Reichel, Zeppelin University, Germany
Resilient regions	Robert Lukesch, OEAR; Austria
Global change phenomena and megatrends towards 2050	Michael Cerveny, OEGUT, Austria
System Design for Sustainability	Carlo Vezzoli, Design and system innovation for sustainability (DIS) and Learning Network on Sustainability, Politecnico Milano, Italy

Papers and Posters	Author
Sustainable mobility culture: An approach for capacity development in Eastern Europe	Tomas Hefter

Papers and Posters	Author
Nobody was Dirty: Interrupting inconspicuous consumption in laundry routines	Tullia Jack
Indicating resilience of energy systems - A novel assessment framework	Julian Matzenberger
Risks and Vulnerabilities in Global Metabolic Networks	Peter-Paul Pichler
Towards sustainable consumption practices: methods and results of cases in nutrition and bathing	Jaco Quist
Knowledge for Sustainable Consumption Policies – Experiences from CORPUS, a European Project on Knowledge Brokerage	Gerd Scholl
Product-Service System Design for Sustainability	Carlo Vezzoli
The Role of SME's in a Resilient of Society	Gyula Zilahy

Most of the Abstracts, Papers, Posters and Presentations are available on the official website of the ERSCP 2012: www.erscp2012.eu/papersposterspresentations.htm

Posters – Overview

The following posters have been presented at the ERSCP 2012 and are provided from the authors to be included in these proceedings (in alphabetical order of the authors).

[*Dogan-Saglamtimur N., Subasi E.:* „Perspectives from the World and Turkey focusing on Haydarpasa and Martas Port waste reception facilities“](#)

[*Ferreira de Almeida G.:* „Buoyancy Energy“](#)

[*Freimane A.:* „The user values as indicators of sustainable consumption shift“](#)

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[*Hämmerle I., Bernhard Freyer B.:* „Intention to buy organic products with additional sustainable attributes“](#)

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[*Montrucchio V., Maneschi D.:* „Changing practices of built environment professionals to face sustainability challenges. Analysis of two Scandinavian case studies.“](#)

[*Pekny W., Schwingshackl M.:* □“P□□a□t□t□f□o□r□m □□□F□o□o□t□p□r□i□n□t – Using □personal□ allowances□ to □go □beyond□ the□ efficiency-debate“](#)

Full Papers – Overview

In this proceedings the following papers are provided in a „full“ version by the authors/ presentors (in alphabetical order of authors).

[Adell Querol A., Esquerrà i Roig J.; “Life Cycle Analysis and Carbon Footprint, uses and limitations in Public Procurement“](#)

[Alkaya E., Böğürçü M., Ulutaş F., Demirer G.N. ; “Adaptation to Climate Change in Industry: Demonstration Projects for Water Saving Through Eco-Efficiency Approach”](#)

[Aravossis K., Fountzoula Ch.; “Determination and Analysis of Factors Enabling the Development of an Eco-City“](#)

[Aue B., Hotes S., Wolters V.; „Innovations for biodiversity assessments in planning and industry – Integrating ecological models and ecosystem services”](#)

[Berger T.; “Energy poverty – from a global perspective to Austria“](#)

[Brohmann B., Fritsche U.R.; „Implication of Sustainable Lifestyles: Results from an EU-wide Impact Evaluation“](#)

[Csutora M.; “The ecological footprint of green and brown consumers. Introducing the behaviour-impact-gap \(BIG\) problem.“](#)

[Daylan B., Ciliz N., Mammodov A., Tükenmez A.S.; “An Environmental Life Cycle Assessment Analysis of Lignocellulosic Bioethanol as an Alternative Transportation Fuel“](#)

[Dunphy N. P. and Henry A.M.M.; „Characterisation of the Multi-dimensional Performance Risks Associated with Building Energy Retrofits“](#)

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[Fresner J., Krenn Ch., Freiberger S., Bärnthaler J., Obernosterer R., Tomasi F., Mercatelli L.; „PATRES and PINE - Two projects to promote energy efficiency and renewable energy“](#)

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[Schriefl E., Fischer T., Skala F.; „Preparing for an energy-scarce future: questions and answers for the communal level and beyond.“](#)

[Schriefl E., Lauk Ch., Kalt G., Kranzl L., Schörghuber St.; „Can Austria „feed“ itself in a post-fossil world?“](#)

[Van Holm, M., Himpe, E., Trappers, L., Debacker, W., Janssens, A., Delghust, M., Moens, J.; "The Life Cycle Energy Consumption of Zero-Energy Houses.“](#)

[Vezzoli C.; „From „Appropriate Technologies“ to „Appropriate Stakeholders Interactions“: System Design for Sustainability, a promising approach to couple eco-efficiency with social equity and cohesion“](#)

[Vogel G., Grundtner J.M.; „The goal of the EU is to decouple economic growth from resource utilisation. Immaterial consumption patterns provide economically and ecologically viable solutions to tackle this challenge.“](#)

[Wehrmeyer W.; Fudge S.; Stasiškienė Z.; van de Lindt M.; Emmert S.; Kondili E.; Papathanasopoulou E.; "Designing Effective Visioning Workshops"](#)

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[Yildirim H., Izbul E., Buyukbay B., Ciliz N.; "The Challenges Associated with Lignocellulosic Bioethanol Production and Consumption Considering Renewable Energy Policies in Turkey"](#)

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[Zsóka A.; „Contemporary patterns of sustainable lifestyle and attitudes for behaviour change in the Hungarian society“](#)

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