

The Adoption of Eco-Innovations by Households in Germany

Christian Loewe
Federal Environment Agency
06813 Dessau-Rosslau
Germany

**Presentation
at
OECD Conference on
„Household Behaviour and Environmental Policy“
Paris, 3 – 4 June 2009**

Overview

- Eco-Innovation: from concept towards policy making
- Eco-Innovation oriented environmental policy in Germany
- Eco-Innovation and Households: basic considerations
- Implications

Eco-Innovation: from concept towards policy making

- Since the end of 80ties: Scientific debate on ecological modernization of the economy and society
- Polarization of discussion/ pluralization of concepts on Eco-Innovation:
 - Incremental approaches
 - Structural and social/cultural change (system approach)
- Mid 90ties: Sustainability became basic orientation for environmental policy in Germany
 - Promoting Eco-Innovation as strategical concept within various policy frameworks
 - SD-Strategy, HighTec-Strategy, Integrated Energy and Climate Programm, Master Plan Environmental Technology, SCP/IPP

The structural challenges

- Need to satisfy the economic and material demands of a growing world population and deal with real social/economic problems
 - Globalization of markets and competition
 - Employment opportunities
 - Overcoming resource scarcity
 - Social justice/fairness
- Need to take resolute action to halt climate change, minimize resource use, contain pollution and reduce environmental risks
 - By 2020: CO₂-reduction by 40%, doubling resource productivity
- **Policy response: Innovation oriented environmental policy**
 - Integration of innovation policy, economic policy and environmental policy
 - Ecological Industrial Policy as core strategy to promote Eco-Innovation
 - Green (lead) markets and environmental technology
 - Integrated Product Policy and Sustainable Consumption

What are "green" future markets?

ENERGY/RESOURCE EFFICIENCY



SUSTAINABLE WATER MANAGEMENT



Enabler technology

BIOTECHNOLOGY



RENEWABLE ENERGY



SUSTAINABLE MOBILITY



NANOTECHNOLOGY



A Closer Look at “Green” lead markets

Energy efficiency:	Heat insulation, smart metering, electric motors, home appliances, ...
Sustainable water management:	Distributed water management, ...
Sustainable mobility:	Efficient engine technology, lightweight construction technology, ...
Power generation:	Renewable energy, energy storage technologies, ...
Material efficiency:	Raising efficiency and improving durability of products, using alternative (renewable) materials, re-design and reparability, waste minimization ...
Waste management/ recycling:	Automatic separation, ...

Global market volume for environmental technologies sums up to 1.000 bn. EUR (2005)

Power generation

100



Sustainable water management

190



Energy efficiency

450



Sustainable mobility

180



Material efficiency

40



Waste management

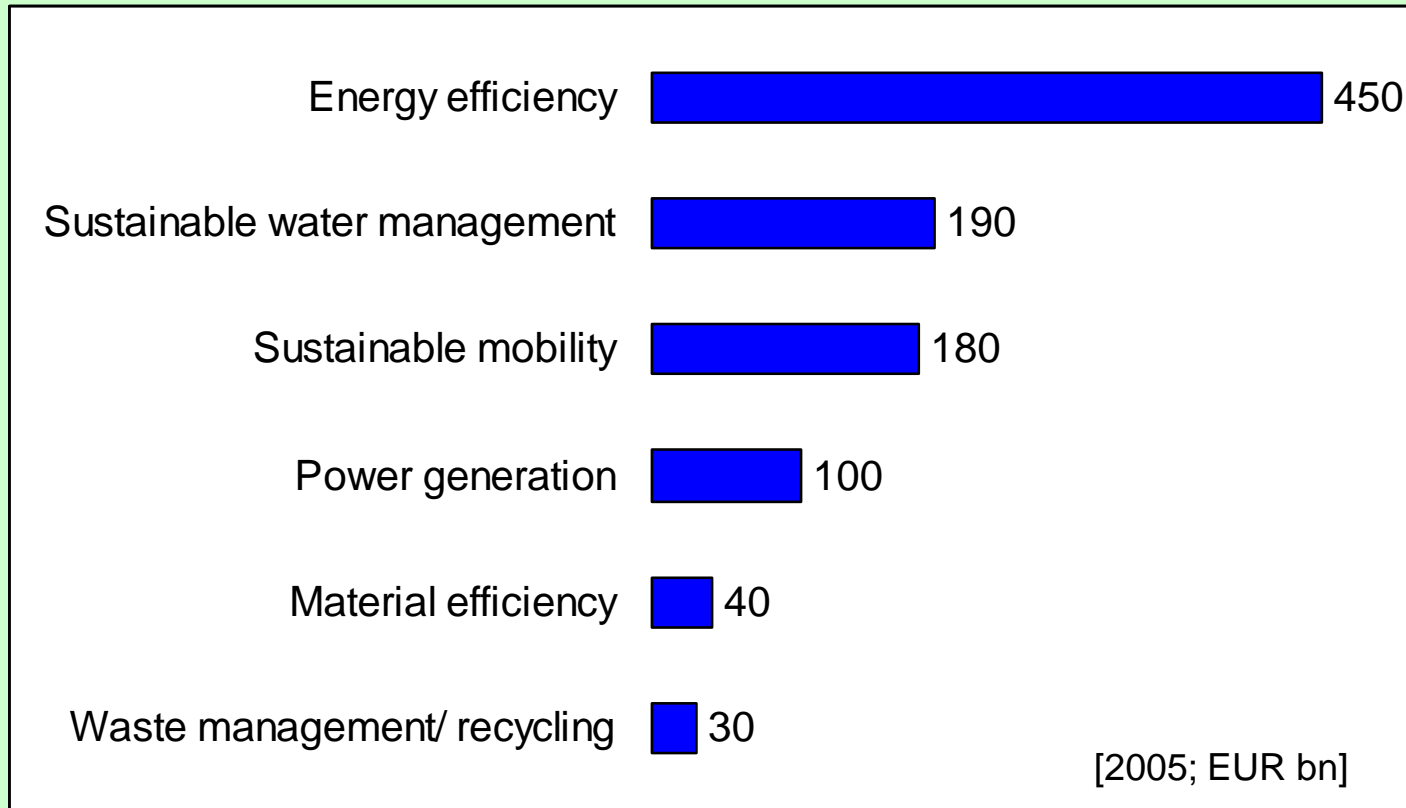
30



„Green“ lead markets: ~1'000 EUR bn [2005]

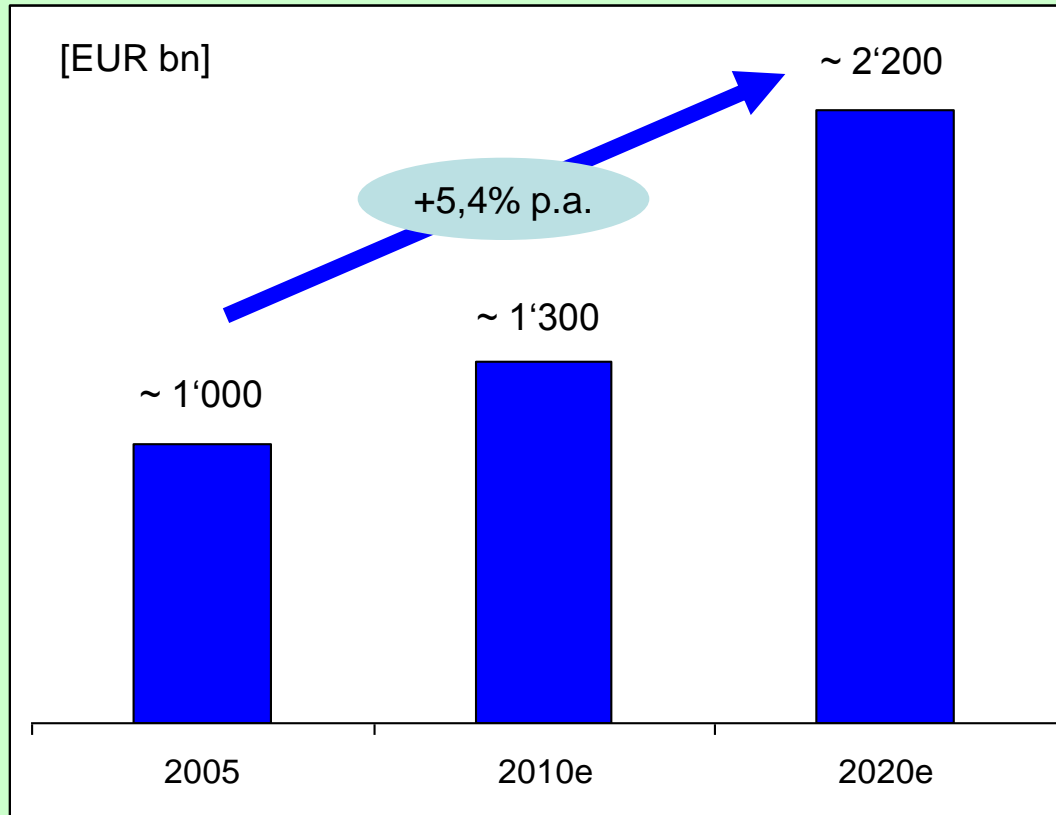
Source: Market studies, interviews with experts, Roland Berger

Global market volume for environmental technologies



Source: Market studies, interviews with experts, Roland Berger

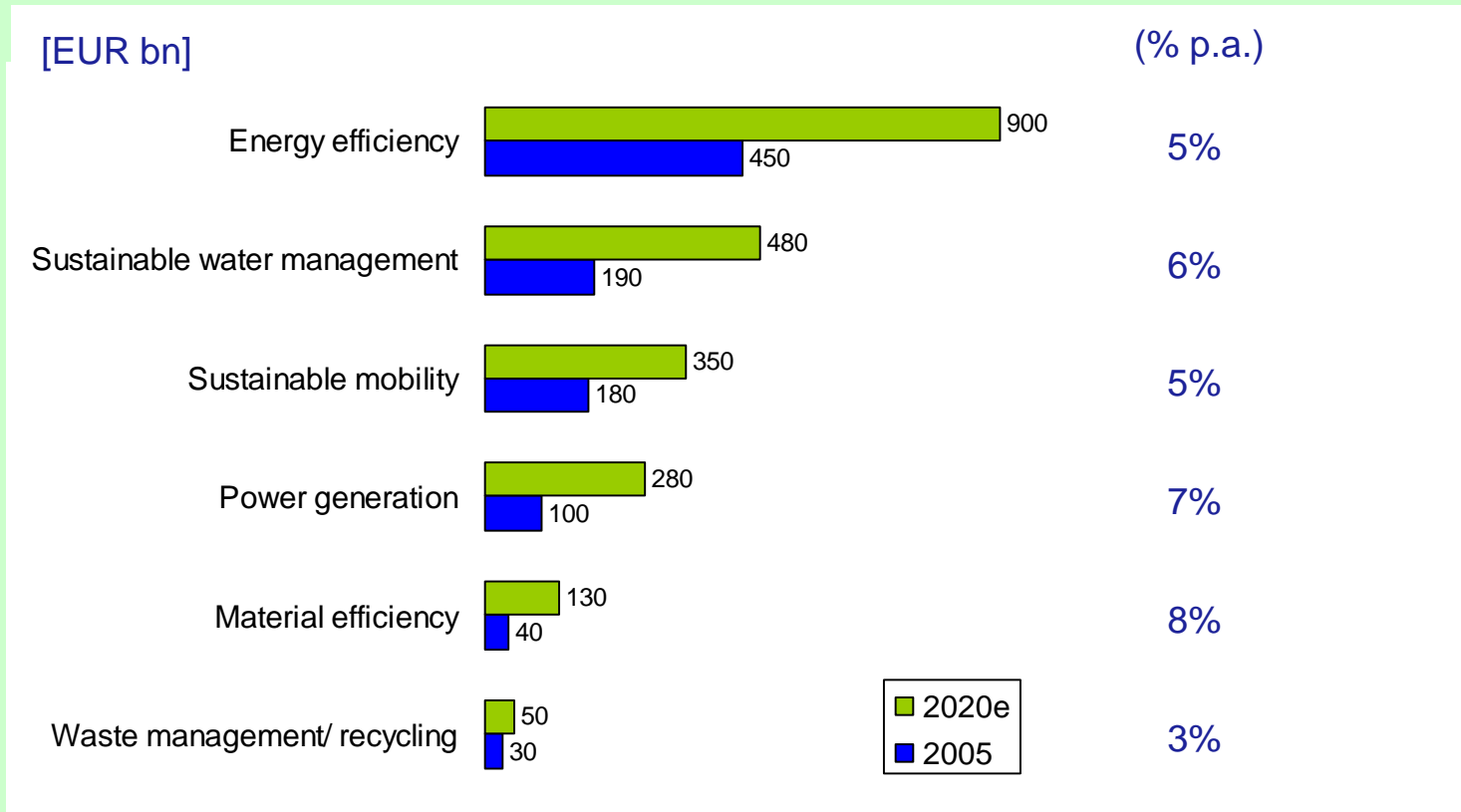
Global market volume for environmental technologies will more than double (2005 – 2020)



New projection
based on actual
estimated figures:
EUR 3'100 bn
by 2020
(Roland Berger 2009)

Source: Roland Berger (2005)

Estimated growth of the global market volume for environmental technologies (2005 – 2020)



Source: Market studies, interviews with experts, Roland Berger

Policy measurements and instruments to promote Eco-Innovation

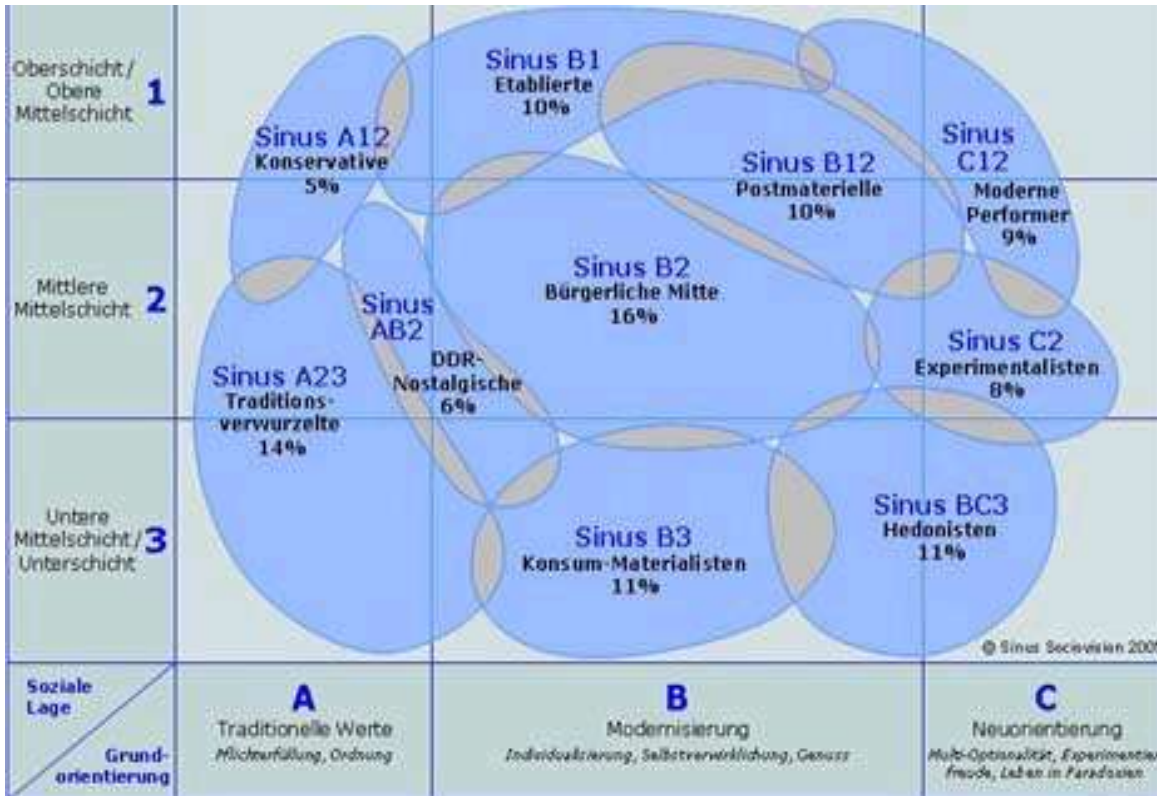
- **Research&Development**
 - Research for sustainability (evidence, transformation of systems, socio-ecological research)
 - technology and product roadmapping and development
 - Policy assessment, integrative policy concepts and governance
 - Climate Protection and Energy Efficiency/Renewable Energy
 - Resource and Material Efficiency
 - Health and Environment
 - Producer's Responsibility and Recycling Society
- **Implementation of instruments**
 - Environmental Innovation Programme and Technology transfer, EMS and Innovation management, Standardization, EuP/EcoDesign, WEEE, Ecolabel, GPP and Technology procurement, Consumer Information and Environmental Communication, Market based instruments
- **Dialogue initiatives and Networks on Eco-Innovation**
 - Ecological Industrial Policy/Innovation
 - Resource Efficiency Network
 - National Dialogue on Sustainable Consumption and Production

Eco-Innovation and Households: some considerations

- ...and the households in Germany?

OECD Conference „Household Behaviour and Environmental Policy“

Social Landscape of Germany



Social Stratification of Germany by
Sinus Vision 2007

Differences between

Lifestyles, preferences
mentalities

Ways of life

Conditions of life

De facto restriction
of options

Various barriers

Strategic consumption
decisions

Symbolic values
of consumption

General risk perceptions

Capabilities and
competence

Trends Household Consumption in Lifestyle-Societies

- **Trends**
 - Energy (+)
 - Settlements and Housing (+)
 - Products and Appliances (+)
- **Social dynamics**
 - Demographic and structural change
 - Increase of (average) welfare
 - Pluralisation of living and conditions
 - Socio-economical terms
 - Socio-cultural terms
- **Trends towards more social polarisation (not only structural)**
 - **Fairness and social justice (?)**
 - **Opportunities to increase self-fulfilment and quality of life (?)**
 - **Social and ecological adaptability (?)**

- Pluralisation and individualisation
 - „Patchwork“-lifestyles
- Inconsistent and ambivalent (hybrid) consumer behaviour
- Social „mega trends“
 - globalization, spread of information technologies, new forms of work
- Ambivalences became even further pronounced
 - New constraints, new opportunities

Consumer Insights

- Increased awareness on product related impacts on environment and health
- Need for changing consumption patterns and lifestyles is generally high
- Willingness-to-pay a higher price for better performing products remains high
- **But:** Personal Investment for Environmental Protection is still low and highly ambivalent
- Only minority of consumers see practical relevance of SC in their daily life
- **Because:** Responsibility to take action is seen at first by government and economy
- Parts of society (e. g. youth, new poor) are “bracking away”
- Practical barriers and low „social incentives“
- **New developments:** LOHAS, “what-are-we-do” and other (political) consumer movements give new stimulus and quality to this issue with high market potential

Personal Investment for Environmental Protection

The Most Common Efforts Cited in % (multiple answers possible)	Total	Women	Men
1. Careful handling of trash	65	69	60
2. Sparing use of energy	26	27	25
3. Sparing, environmentally-conscious driving	24	20	27
4. Environmentally-friendly behavior in traffic	20	20	21
5. Environmentally-friendly consumerism	13	17	8
6. Sparing use of drinking water	9	11	7
7. Environmentally-friendly use of garden	8	9	7
8.* Civil engagement and duty	4	4	4
8.* Environmentally-sound behavior in general	4	3	5
8.* Environmentally-friendly construction and renovation	4	2	6

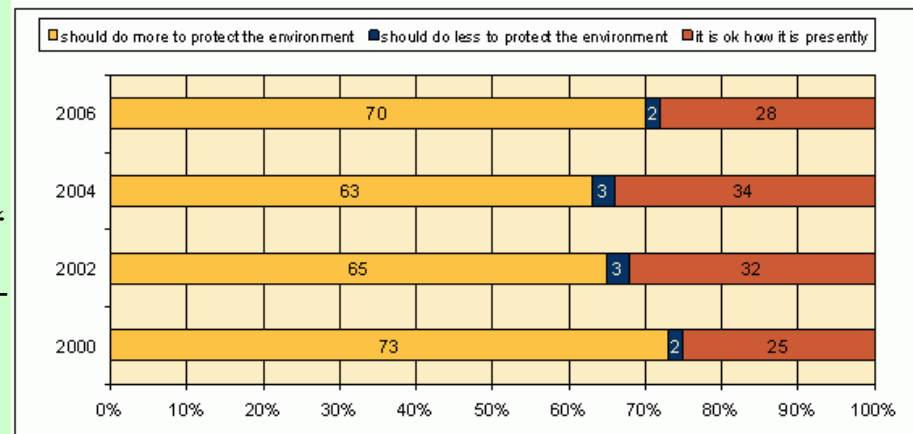
Question: Do you do anything specific to protect the environment?

If so, can you name a few of your efforts? (open question)

*Split rankings due to equal relative, rounded frequency

© Philipps University Marburg: U. Kuckartz, A. Rheingans-Heintze, S. Rädiker

Assessment of the German Government's Environmental Policies



© Philipps University Marburg: U. Kuckartz, A. Rheingans-Heintze, S. Rädiker

Households and Eco-Innovation

- Need for structural change and willingness to change personal consumption is general high
- But: the general concept of Eco-Innovation and the interrelation with own behaviour and consumption decisions is only partly understood by the people
- German society is polarized in the question of how (technology based) Eco-Innovation will help to overcome the global crisis
 - survey of 2008 shows tendency towards a more positive image on technology, because technological improvements could reduce individual discrepancy to make real change in daily life
 - Willingness to invest in eco-efficient products is increasing, but not in all social milieus
 - Consumption behaviour is not well understood as strategic investment (only where clear win-win-options are obvious e. g. like energy efficient appliances)
 - Lifecycle Cost-Thinking as related aspect to Eco-Innovation is not very well anticipated in decision making processes
 - Practical barriers, social dilemmata and low social incentives are strong bottleneck factors for the further difusion of Eco-Innovations in household

Some Implications

- Plurality of concepts and understandings on Eco-Innovation
- Eco-Innovation is multi-dimensional and very open for political conceptualization
- Benchmarking and operationalization of Eco-Innovation is difficult and still unsolved
- Lack of systematic assessment and market data related to Eco-Innovation and households
- How to develop a pragmatic approach
- Rely on „keypoints“ of Eco-Innovation which are relevant for households
- How to deal with non-technological Eco-Innovations?

Thank you very much for your attention !

Christian Loewe
christian.loewe@uba.de

www.umweltbundesamt.de