eTAP Environmental Technologies Action Plan

The 5th European Forum on Eco-innovation

Emerging Technologies for Eco-Innovation Opportunities and Risks

Thursday 16th October 2008 Hungexpo Budapest Fair Center
Albertirsai út 10.
H-1101 Budapest
Hungary




Summary of the event

Organised by:

European Commission
DG Environment

Ministry of
Environment and Water

In parallel to:

OKO TECH

INTRODUCTION

The 5th Forum on Eco-Innovation, held in Budapest, Hungary on 16 October 2008, asked if emerging technologies represent opportunities to tackle environmental challenges or if they mean increased risks for society. The Forum brought together high-level stakeholders from business, the R&D community, policy makers and non-governmental organisations (NGOs). The event was organised jointly by the Hungarian Ministry of Environment & Water and the European Commission within the framework of the EU Environmental Technologies Action Plan (ETAP). It was held in parallel to the ÖKOTECH International Trade Fair, a major exhibition for environmental protection and municipal technology.

The Budapest Forum explored the emerging environmental technologies in the markets identified by the European Commission in the EU Lead Market Initiative (LMI) announced in December 2007. The focus was on the waste & recycling and bio-based products sectors. These are promising emerging markets in which the EU has the potential to become world leader and where public authorities can play a major role in accelerating the uptake of new and innovative environmental technologies.
Working sessions provided participants with an overview on challenges and issues for emerging technologies: On the one hand, rapid evolutions in the fields of biotechnologies, nanotechnologies, information & communication technologies and robotics offer major opportunities to address environmental challenges. On the other, as their importance grows, potential negative side-effects that is uncertainty about the potential health and environmental effects – gain increased attention and give room for contradictory debates. A panel of key stakeholders presented their perspectives, identified key issue areas together with the nearly 150 delegates and elaborated recommendations for change.

Relying on eco-innovation

Europe is relying on eco-innovation as part of the climate-change package. We need to change attitudes as environmental loads continue to increase. We already have energy shortages and we suffer from poor air quality in cities. While there have been small victories, we are far from being satisfied. We need accelerated responses to accelerating problems while not neglecting the effect on employment. Environmental technologies and eco-innovation are tools to help meet the Lisbon criteria in terms of job creation and competitiveness. This forum in Budapest will help. We have high expectations for these new technologies. But we have to be careful to strike a balance between the advantages and disadvantages. A joint effort is required between scientists, investors and decision makers. And we need to show the world that 'old' Europe can play an important role meeting global needs through eco-innovation.

Imre Szabó
Hungarian Minister of Environment & Water

KEY RECOMMENDATIONS

Stakeholder discussions highlighted a series of issues to be tackled to encourage emerging technologies for eco-innovation:

- Fostering new business models along the value chain;
- Focusing on services rather than products;
- Robust global vision and goal setting;
- A coherent but flexible legal framework;
- Overcoming financing gaps in the innovation chain;
- Supporting small and medium-sized enterprises (SMEs) to achieve breakthrough innovations;
- Awareness raising among consumers and synergy between policy makers; and
- More transparent risk communication on emerging technologies.

Challenges and issues for emerging technologies

"We are at cross roads in Europe in terms of big strategy as the current Commission has only one year more to run and the European Parliament is due for re-election. The financial crisis should not overshadow environmental concerns. We need to think about the concept of eco-technologies and their social impacts. And strategy reviews must be based on increasing scarcity of resources and energy. ETAP has delivered. Its forthcoming review will take into account the issues raised here in Budapest by all the stakeholders."

Timo Mäkelä,
Director for Sustainable Development,
Environment Directorate-General, European Commission

Setting the scene

Emerging environmental technologies – A vision too far?

Willy De Backer – *European Director, Global Footprint network*

The Global Footprint network compiles and publishes annual figures on ecological footprints – how fast we consume resources and generate waste compared with how fast nature can absorb our waste and generate new resources. Since 1986, we have been overusing our resources, consuming more than is available. The 'overshoot' day – the day we started to consume more than is available and live on credit – was 23 September in 2008 and is getting earlier every year.
Our preferable future is 'survivable' development. This means managing the transition from the age of abundance to the age of sufficiency, accepting ecological limits to overcome uneconomic growth and learning to deal with new scarcities. This requires an eco-industrial revolution that respects the planet's ecological limits and recognises the economy as a subsystem of the global ecology/energy system, and redesigns its products, systems and business models copying nature's functionalities – such as closed-loop treatment of waste. Preferable innovations include: cradle-to-cradle product design; a decentralised, smart energy Internet; a new repair industry; and a global institute for the durability of consumer goods. Emerging green technologies are therefore not a vision too far but rather a lack of vision

Focus on lead markets

Erno Fleit – *Associate Professor, University of Technology Budapest*

While we know enough about the solid and liquid waste components in our wastewater to meet water-treatment standards, we are far from being able to meet sustainability objectives in the exploitation and reuse of these components. The classical period of wastewater treatment technology is over. A conceptual change is now required in terms of the urban cycle. Raw wastewater has to be considered as a valuable product in terms of energy content such as biogas and marketable compounds like carbamide. Moreover, by removing and exploiting the carbamide content, the nitrogen load in the water is reduced and a marketable fertiliser becomes available.

Bio-based products

Armand Klein – *Director Bio-based Products, DuPont-EMEA*

DuPont has considerable experience in bio-based products and is working to reduce its own global ecological footprint as well as helping customers with technologies to reduce their footprints. But technology alone is not sufficient – there is a need to work together. Bio-based products are already being used in everyday life as expensive oil is generating new markets and interest in their environmental advantages. The Lead Market Initiative will undoubtedly have a major effect in increasing the use of bio-based products but this will depend on how the initiative is put into practice. There is a strong need for a coherent European policy agenda covering bio-based products as a whole – the LMI is just one step in the process.

Taking the agenda forward

Key stakeholder perspectives (panel discussion)

Doreen Fedrigo – *Policy Officer, European Environmental Bureau*

The European Environmental Bureau is a federation of organisations that provides a single voice in Brussels for 140 members in 31 countries on sustainable technology policy. Key elements cover:

- Encouraging sustainable innovation, including social innovation;
- Only sustainable innovation should be encouraged – this brings a need to focus on and support SMEs;
- Ambitious targets are required for innovation;
- There are concerns about nanotechnology – but the Commission appears disconnected from the reality of these concerns; and
- There is need to address and explain technological innovation to the public in a better way.

Thomas Jakl – *Director, Austrian Ministry of Environment*

Policy makers should ensure an adequate legal framework and cover the risks involved. Bio-based products are not necessarily all good – for example the production of biofuels using land needed for food – and neither is recycling, with problems arising in tackling heavy metals for example. New business models are needed to match emerging technologies – for example selling painting services rather than tins of paint. There are also serious weaknesses in areas such as communications, which should be participatory and transparent. There are also shortcomings in social terms.

Kevin O'Connor – *Senior lecturer, School of Biomolecular & Biomedical Science*

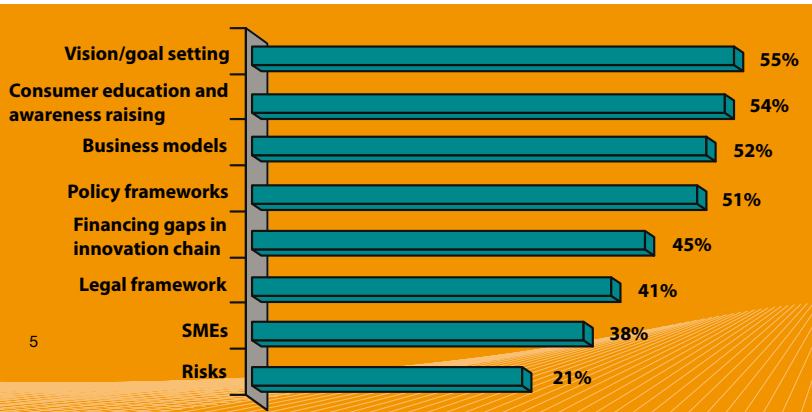
Business models are a key driver to incorporate eco-innovation products. It is essential to produce more than one product from biomass for example. Everything that leaves a production facility must be value added and this should include the chemical industry. The modern chemical industry is mimicking nature. All this requires a suitable legal framework – and there is a need to overcome the financial gap between R&D and the final product. There is also a need to add value to justify additional costs. People can react positively to innovation – as illustrated by taxing plastic bags in Ireland. The opportunities for bio-based products are huge, but the risks must be tackled. Life-cycle analysis can help but is often too rigid for emerging technologies. There is also a need to overcome public confusion.

Camille Burel – *Manager Industrial Biotech, EuropaBio*

Bio-based products have been around for hundreds of years and we are now seeing new possibilities for sustainability. Industry is there to make money. Governments need to show the way to inspire and direct innovation. Change involves risks and products are not always perfect at first. There is also a need to inform consumers.

Identifying key issue areas

The participants were asked to select one, two or three issue areas key to emerging technologies. The percentages represent the number of participants voting for a given issue area out of all participants in the poll.



Achieving progress through effective participation

Case study: Water innovation

Lionel Plattew – ***Director, EUCETSA – European Water Partnership***

The objective of the European Committee of Environmental Technology Suppliers Associations is to promote the international competitiveness of Europe's environmental technology industry. This is a fast-growing sector that is playing an essential role in achieving EU energy-efficiency targets for 2020. The industry already employs some 2.6 million people and expects to generate a further 1 million jobs in the near future. Successful applications in the water sector include a windmill-based technology to produce water from air or drinking water from salt water.

The development of eco-innovation products and solutions entails overcoming problems, becoming more efficient, reducing resource use, improving sustainability and improving profitability, but above all demonstration. Conditions for innovation include:

- Access to informal networks;
- Speed – shorter development cycles;
- Teamwork – requires exceptional disposition to co-operate and an ability to overcome conflicts;
- Crossing cultural and linguistic divides;
- Funding depends on confidence and credibility – particularly tough for SMEs; and
- Commercial and productivity focus.

Case study: Soil reclamation

Jan Haemers – ***CEO, Deep-Green***

Soil contamination is a persistent problem with an estimated 3.5 million potentially contaminated sites in the EU-25. The current approach is to 'manage' the problem by applying energy-intensive and disruptive treatments but this is economically unsustainable. It is necessary to act – and that is just what Deep Green has done. The company has invested over 8 million euros in R&D since 2002 to develop a recycling technology for contaminated soil that fully recycles the soil in the same way as classical thermal desorption, but uses a fraction of the energy and can be applied in situ, without excavation.

However, while the Deep Green solution has received a positive welcome from problem owners, regulators are less keen as it is a new concept that requires them to modify their attitudes. And funding is also difficult for change – 'old' technology is proven and therefore safe for investment, 'new' technology offers risk and regulators want to avoid to be accused of 'gambling' with public money. Banks demand hard collateral; technology is not considered as valuable asset by banks.

Recommendations for change

Key recommendations of the stakeholders in Budapest were identified and put to a vote. The results were:

	Agree (%)	Disagree (%)	Unsure (%)
Business models			
Fostering new business models along the value chain. The EU should facilitate strategic dialogue, inviting all value-chain actors for a chosen consumer product to define key sustainable products and brainstorm how concrete business model can achieve them	51	12	37
Selling services/functions instead of only a product, taking into account customers' needs and ecological values	65	16	18
Risks			
Better (more concise & honest) risk communication on emerging technologies. More transparency	74	13	13
Legal framework			
EU should provide coherent, predictable, dynamic and enforceable long-term regulations which combine obligatory standards with voluntary tools to be firm and flexible at the same time	56	16	27
Financing gaps in innovation chain			
Create a superfund to bring eco-innovation to market ('trillions of euro').	52	25	23
SMEs			
Financing the breakthrough innovations	76	7	17
Reduction of bureaucratic requirements at proposal application stage	85	4	11
Consumer education and awareness raising			
Europe-wide media campaign to inform citizens of the benefits of eco-innovation, partly funded by European Commission	69	15	15
Policy frameworks			
Synergy should be created between relevant DGs within the European Commission. This will ensure a clear basic strategy and a clear basic vision	78	4	18
There must be a consistent and robust vision leading to specific operational objectives to give certainty to the business community	72	2	26
Vision/goal setting			
Global vision is essential for identifying and promoting relevant technologies. Quantification is a necessary part	50	22	28

Closing remarks

Timo Mäkelä – *Director, Directorate G, DG Environment*

The current financial crisis should not overshadow environmental action. The European Commission is set to review ETAP and will take into account the recommendations made in Budapest. There is a strong need to think about the concept of eco-technology in terms of business models, systems and social impacts. This should also feed into the ongoing updates of the EU's Lisbon Growth and Jobs strategy. Technology gaps need to be filled by technology transfer in a global context. And the durability of products and services must be taken into account. ETAP has delivered – for example, revised state aid rules permit a bonus use of subsidy for eco-innovation and public procurement will be used as a driver for eco-innovation. Sustainable consumption needs to be encouraged. Revenues and costs should reflect the true impact of entrepreneurial activity on the environment

For further information

Visit the official ETAP website for latest information on:

- **Policy and actions**
- **Innovative technologies**
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http://ec.europa.eu/environment/etap

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