DIME Policy WORKSHOP on "Eco-Innovation Markets and Dynamics" February 23, 2010, Fondation Universitaire, Brussels

Summary Report

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Opening and Introduction

René Kemp opened the workshop with pointing to the projections for the resource situation for the next 40 years, thus claiming that eco-innovations will have pervasive effects, impacts and relevance – not only to policy but also for business and the quality of life. He gave examples of eco-innovations including systems for improving energy efficiency, carbon-dioxin capture and –storage, green space and urban mobility. The world market for these technologies and innovations is huge and opens opportunities for business. This put the workshop in context and perspective as the issue has gained increasing interest from a broad range of stakeholders.

Vanessa Oltra then explained the content and the four research questions explored in DIME Workpackage 2.5 on "Environmental Innovation, Industrial Dynamics and Public Policy". These four main research areas/questions are:

- the measurement of eco-innovation,
- the role of eco-innovations in industrial dynamics,
- the role of infrastructure sectors
- the impact of policy on eco-innovation and green industrial dynamics.

The last 3 years, DIME served as a platform for deeping and sharing knowledge on the topic of eco-innovation measurement, dynamics and policy impacts. Another goal of the project was to create a wider interest in eco-innovation issues within DIME, and to develop a new research agenda in this field. Two identified issues for future research are:

- The importance of eco-innovation in catch-up of emerging countries and the role of the EU in that. There will be a workshop in May 2010 on this issue (in Karlsruhe),
- The role of demand and consumption behaviour and changes herein.

Jesper Lindgaard Christensen then introduced another DIME-project on eco-innovation, GRIEG. GRIEG stands for Green Regional Innovation, Entrepreneurship & Governance. As the project name indicates, the basis assumption is that our understanding of transformations to deal with environmental challenges requires studies of a cross-disciplinary nature, spanning innovation theory, governance studies, entrepreneurship, and economic geography. The spatial perspective is relevant as many of the experiments and solutions are initiated and developed at a regional level involving multiple different governance set-ups.

Same as the DIME activity "Environmental Innovation, Industrial Dynamics and Public Policy", GRIEG has a series of content goals and a research community goal. The general content goal of the project is to investigate the drivers of the present transformation of industry and governance in light of the mega-trends related to environmental challenges. A second objective is to make the community of researchers within industrial dynamics interested in eco-innovation. Whereas the issue of eco-innovation is getting a lot of attention from policy makers, attention from researchers has been wanting. The means to reach these objectives are networking and conferences/workshops. In both the two Grieg projects a conference is co-sponsored by the project in the form of a track in two well-established and well-known/visited conferences; the DRUID summer conference (2009) and the International Schumpeter Society conference (in june 21.-24th 2010). In addition 2 workshops are held in each project.

Presentations

Rainer Waltz (ISI): "Eco-innovation market developments and prospects"

Rainer Waltz from Fraunhofer ISI (Karlsruhe) presented research findings about eco-innovation market developments and prospects. Policy attention has moved from end-of-pipe to process integration to sustainable products and value chains and to transformation of sectors. What this means among other things is that eco-innovation also occurs outside the eco-industry. He noted the importance indicators and measurement of eco-innovations, for research and for policy. The industrial dynamics of different sub-industries of green technologies were shown, based upon patent analyses. The eco-innovation segments with the largest growth are energy supply and mobility. Internationally, the NIC countries in particular show high growth rates. Using publications, patent shares and trade shares as indicators of capabilities, the EU does well compared to the U.S., Japan and China on all three indicators. However, new competitors emerge and the EU must still be alert to upgrade capabilities in this field. Eco-innovation should be seen in an innovation system perspective: a good functioning innovation system is a prerequisite for eco-innovation. The fact that eco-innovations often occurs in sectors that are economically regulated poses a special challenges for policy, in terms of policy style and stability; policy mix; and integration with other policy fields. A one-size-fits-all approach is likely to be inappropriate. The main policies recommendations are:

- Environmental policies are demand-led innovation policies;

- Policy integration between R&D and environmental policies is necessary;

- Strategic intelligence to monitor and pinpoint technology specific needs;

- Mix between strengthening EU-internal value chains in ERA and international cooperation.

In the discussion it was pointed out that the emphasis on eco-innovations versus eco-industries may be a policy issue that require more quantification of the relative importance.

Phil Cooke: "Transition regions and what policy can do?"

Phil Cooke's presentation dealt with the spatial system-change dimension of 'transition regions'. Exemplified by energy systems and a wind turbine cluster in North Jutland, Denmark, and the automotive one in the Midlands, UK he showed how users, producers and governance/public policy may induce change towards more green production systems, in some of the cases shown indeed a 100 % green energy supply. The spatial aspect was emphasized in the examples indicating – as Jesper Lindgaard Christensen also pointed out in his presentation, many experiments are done and made possible in small-scale, regional contexts. Again, the local, regional policies were instrumental in many examples of the innovation. These regional experiments are important learning devices for broader politics.

Klaus Rennings (ZEW): "Increasing Energy and Resource Efficiency through Innovation – An Explorative Analysis Using Innovation Survey Data

Klaus Rennings presented an econometric analysis on energy and resource efficiency innovations (EREIs) based on German data from the Community Innovation Survey. He identified the determinants of EREIs and the characteristics of innovative firms in that field. The results show that firms with EREIs tend to be more productive, to achieve higher rationalisation effects in their process innovations and to perceive innovation barriers more intensively. Moreover, they tend to use more external sources of information (suppliers, university and non-university research institutions) and to introduce more often knowledge management systems and innovative marketing improvements in the field of design and packaging.

Simona Negro (Utrecht University): "The Innovation Functions Approach - A new policy framework for accelerating energy transition"

Simona Negro presented the innovation functions approach and its policy implications. Within this framework, seven system functions are identified: entrepreneurial experiments (variation), Knowledge development, Knowledge diffusion, Guidance of the search (expectations, visions, policy goals, customer demands, selection), Market formation (niche markets, feed in tariffs), Resources mobilisation and Counteract resistance to change (advocacy coalitions). System growth is determined by the fulfilment of these

functions and by the interactions among them. In conclusion, Simona Negro discussed several policy specific needs:

– Long time for technology development: -> Long-term, consistent vision ….
– Long term market (allow several options)
– Allow trial & error (learning by doing)
– 'Running in packs' strategy for entrepreneurs
– Include demand side earlier.

Beatriz Yordi (EACI): "Eco-innovation – Closing the gap between research and markets"

Beatriz Yordi from the European Commission Executive Agency for Competitiveness and Innovation gave information on the projects supported by the first call on eco-innovation. Between 2008 and 2013 in total 195 million euro is available for eco-innovative projects in different sectors aimed at the prevention or reduction of environmental impacts and reduction or better use of resources. Many of the projects were done by small and medium sized enterprises: 70% in 2009 and 66% in 2009. Priority areas are: materials recycling, building, food and drinks and greening business and smart purchasing. The next call will be in April 2010. It was noted that also the eco-industry is moving to an eco-innovation approach.

Policy round table

After the presentation given by Beatriz Yordi (EC, EACI) on "Eco-innovation Closing the gap between research and markets", during which she presented the CIP Market initiative, we started the round table with the policy makers attending the workshop.

Orsola Mautone from the Innovation Directorate of DG Enterprise and Industry told us that the Commission is working on a new innovation plan, with special attention to innovation for societal challenges. One of the societal challenges is climate change (the others are aging society and security). The innovation plan is an outcome of EU2020. The role of intermediary especially for SMEs is a special attention point.

Andrea Tilche, Head of the Environmental Technologies unit of DG Research and Innovation, talked about the new mandate for innovation that was given to DG Research. Research, innovation and education are viewed as a triangle. Eco-innovation is approached more broadly. The platform of sustainable chemistry is a pilot for them as to the role of platforms. He expressed the importance of avoiding simplifications such as the common view that innovation starts from research. Eco-innovation is viewed a

cross-cutting issues for all sectors same as sustainability. He said maybe it is not appropriate to talk about eco-innovation. All innovations should be eco-innovations. DG Research and Innovation is a partner of DG environment in ETAP. He said that 30% of the money of DG Research was for environmental technologies and clean technologies. For determining whether there is an environmental benefit LCA was said to be a "rich methodology", which allows one to consider impacts across the chain and rebound effects. They are opting for a bottom-up approach for innovation for radical decoupling. Attention should be given to system change and organizational change.

Igor Jelinski of DG Environment said that eco-innovation is important for delivering on environmental ambition of EU2020. The EU is considering an eco-innovation action plan, as a successor of ETAP. ETAP had 3 priorities and 25 actions. Technology was only part of the solutions. The experiences with ETAP showed that it is difficult to have an even impact across member states. Governance of innovation is important. Policy coherence is a key issue: good innovation policy requires an appropriate policy mix of instruments. Measuring of eco-industries is more advanced than measuring eco-innovation in general. DG Environment is interested in measuring impact of eco-innovation sectors. The eco-observatory should do this and help deal with the lack of available data. He is also interested in knowing "what are good targets"? ETAP draws on voluntary efforts of MS. He was interested in the question of what triggers systemic innovation. The OECD is also interested in that.

Theodoros Staikos from EACI noted that EACI is an executive office which does not make policies. They are interested in learning more on operational issues of the projects funded. The experiences of the 2 calls of EACI on environmental technologies show that there is an interest in eco-innovation on the part of SMEs. EACI is interested in systemic eco-innovation measuring indicators and actions to measure the multiplication factor.

Phil Cooke asked "where is the policy action supposed to lead to"? **Klaus Rennings** asked if the societal challenges did not clash with each other. **Rainer Walz** and **Gert-Jan Storm** emphasized the importance of the international element and asked whether the Commission considered the international dimension enough and how to bring this into the policy process. **René Kemp** asked how to make sure that policy and technical change move in tandem, in a mutually beneficial way. How do policy makers learn about what is needed? Do they use the technology platforms for this?

Andrea Tilche said that policy should take a global approach for sustainable development. For that research on innovation patents may be used. Platforms were not the only source of information for policy.

Igor Jelinski referred to the UNEP green growth approach and MS policies.

At 5PM the workshop came to a close and René Kemp thanked everyone for their time and good contributions.