

Annual Report 2008 / 2009

Sustainable industrial policy for Europe



Facts and figures about the institute

- Staff** The institute employs more than 130 staff, including some 100 researchers.
- Turnover** Our turnover for 2008 was approximately 9.8 million euros. The institute is financed through project work, alongside membership fees and donations.
- Projects** Our scientists processed a good 280 national and international projects in 2008. Clients include policymaking bodies, industrial enterprises and non-governmental organizations.
- Issues** Energy and climate, emission and ambient pollution control, radiation protection, agriculture and biodiversity, sustainable consumption, sustainable mobility, sustainable resource management, sustainable corporate management, nuclear engineering and facility safety, law, policy and governance, technology assessment and chemicals management.
- Methods** We deploy a broad, transdisciplinary array of methods. These include life cycle assessments and costs analyses of products from cradle to grave, along with eco-efficiency analyses that integrate consideration of environmental impacts and costs. Statutory and governance analyses, for instance on the effectiveness of policy instruments, are a firm component of our work, as are environmental impact assessments, safety and risk analyses, studying material flows, developing scenarios and organizing the dissemination of knowledge through multi-stakeholder processes.
- Organization** The Öko-Institut is a non-profit organization headed by a Committee. The Committee delegates key tasks to an Executive Board and a Coordination Team. An Advisory Board provides guidance to the institute on scientific and societal issues. The Öko-Institut has some 2800 members, including 30 municipalities.
- Divisions** The institute's research work is organized in the following Divisions:
- Energy & Climate Protection
 - Nuclear Engineering & Facility Safety
 - Infrastructure & Enterprises
 - Sustainable Products & Material Flows
 - Environmental Law & Governance



Öko-Institut is a leading European research and consultancy institution working for a sustainable future. Ever since the Institute was founded in 1977, it has striven to build the foundations and forge the strategies needed to make sustainable development happen at all levels – global, national and local.

The Institute generates value-driven, research-based advice for decision-makers in politics, industry and civil society. Öko-Institut has offices in Freiburg, Darmstadt and Berlin.



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Sustainable industrial policy for Europe

Editorial



Dear reader,

The global financial crisis has the world in suspense: despite all rescue attempts, there still seems to be no light at the end of the tunnel. The crisis has brought the largest and most powerful national economies in the world to the brink of disaster. Entire countries face imminent bankruptcy, and we are still unable to predict the full extent of the impacts. There could hardly be any clearer message telling us of the urgent need to restructure the economic system according to sustainability principles.

Attempts are now underway to kick-start the economy as quickly as possible by injecting vast sums of money. But will these massive programmes have an impact? Well, hope springs eternal. At any rate, one thing is clear: we can only spend the money once. The portion of this money that keeps old structures on artificial life support through consumption-oriented measures is lost to climate protection and the sustainable restructuring of industrial society. The report by former chief economist of the World Bank, Sir Nicholas Stern, confirmed for us – if we were not aware of it already – that we have only a few years left to take action to prevent runaway climate change at tolerable cost. Unlike economic growth, there can be no hope of a quick remedy when it comes to the world's climate.

Wrap up warmly, the economic climate is freezing! That is the message we are hearing on a daily basis. But wrapping up won't bring global warming to a halt. On the contrary, we cannot afford to delay investing in climate protection until we are back on our feet economically. As with every big crisis, the current situation, no matter how acute, also provides us with an opportunity. Suddenly there is investment capital available in unprecedented amounts which – if it is spent appropriately – could indeed finance progress towards climate protection and sustainability. What this would require, however, is that the financial crisis and the ecological crisis be seen as a single common task: no one should be allowed to play them off against each other.

Fortunately, the Öko-Institut has so far not been affected by the financial crisis. The demand for our work remains considerable and is even growing. One of the reasons for this is that we have a broad base and work just as successfully at international level as we do at national or local level. In addition to the numerous projects we are involved in that address energy issues and international climate change, we also work hard at regional level. Sustainable land management is one example of this. Germany is still a long way away from the

Government's sustainability goal of reducing land consumption to less than 30 hectares a day by the year 2020: the figure currently stands at roughly 100 hectares a day. We have teamed up with local authorities in two projects to ensure that this changes. We analyse objectively and without preconceived ideas the opportunities and risks associated with various new technologies. This includes, for example, procedures and applications in nanotechnology.

In all this we continue to depend upon the support of many people, including our members and donors. This is because, in major research programmes, the funding bodies require that we ourselves generate part of the money we need, something which is very hard for us to do as a non-profit organization. Also, we are often unable to publish our research results on a regular basis from project funding alone. For this reason we extend our sincere thanks to our supporters and trust that our work will continue to be of interest to you.

Yours

Helmfried Meinel

Helmfried Meinel

The crisis could still be an opportunity for environmental performance.



Helmfried Meinel is a member and chair of the Committee.

Milestones in 2008

Highlights of the institute's work

January 2008

The Asse II consultation group is constituted in the district of Wolfenbüttel. The group gives regional representatives an opportunity to play a direct role in the debate on closing down the Asse II nuclear research repository. The Öko-Institut was instrumental in designing the consultation process and is providing ongoing support on behalf of the German Environment Ministry.

February 2008

How can agricultural produce that is no longer fit for market because of radioactive contamination following a serious accident in a nuclear power plant be disposed of properly? Acting on behalf of the German Federal Office for Radiation Protection BfS, the Öko-Institut explores the issues. The scientists' task is to draft wording for an ordinance that allows an expedited procedure in such an event so as to ensure disposal with minimum environmental impact.

March 2008

At the conCISEnet meeting in Frankfurt, the Öko-Institut presents its findings on strategic conflict management for major infrastructure projects. The conCISEnet project feeds into the debate on how European industrial policy can balance the competing requirements of sustainable development, innovation and industrial competitiveness.

April 2008

The Öko-Institut submits the findings of the "Environmental law in limbo? Structural reform in the environmental administrations of selected Länder and the ensuing challenges" project to an expert panel. The study shows that, in some respects, structural reform has seriously weakened the environmental administrations of the German Länder.

June 2008

The komreg research project – a milestone of sustainable settlement policy – is completed. One outcome of the project is the identification by Öko-Institut scientists of 1800 hectares of infill development potential within the urban area of Freiburg, Germany. Of this, some 400 hectares can actually be activated by 2030.

July 2008

Travel will need to become environmentally aware in the future. In a study on the carbon footprint of tourism, the Öko-Institut identifies the CO₂ emissions associated with seven typical trips of German holiday-makers.

The government of the German Land of Baden-Württemberg has publicly embraced climate protection, yet the CO₂ emissions of the Land have not dropped noticeably in

recent years. Working on behalf of the Alliance 90/The Greens parliamentary group in the Baden-Württemberg Landtag, the Öko-Institut draws up a climate policy programme of action to identify viable options for the government.

The Öko-Institut publishes an analysis of the question whether extending the service lives of nuclear power plants leads to lower electricity prices. The analysis also turns the spotlight on the windfall profits that would accrue to specific energy supply companies if service lives were extended.

August 2008

The EUPOPP (European Policies to Promote Sustainable Consumption Patterns) project holds its launch meeting, bringing all research partners together. The project will produce a landmark report identifying non-sustainable consumption patterns as one of the principal drivers of environmental degradation. It further analyses the influence of policy instruments and strategies upon sustainable consumption.

September 2008

The German Federal Environment Agency UBA publishes an analysis of the impact of the EU emissions trading system upon the competitiveness of German industry.



Produced by the Öko-Institut with a group of partners, the analysis reveals that significant problems of competitiveness will only arise for a small number of industrial sectors when competitors outside of Europe do not have to pay a price for CO₂ emissions. It further highlights suitable instruments that can be used to prevent the displacement of CO₂ emissions abroad, an effect that would also be counterproductive in climate policy terms.

October 2008

The German Federal Environment Agency UBA commissions the Öko-Institut to produce a sustainable chemicals guide. The goal is to publish a readily accessible manual for the producers and users of chemicals that helps them in practice to assess and select chemicals from the point of view of their sustainability.

December 2008

The Öko-Institut is awarded the contract for a project on ecolabels for particularly climate-relevant products, with funding from the German Environment Ministry. Initially examining ten product groups, the product is to lay the groundwork for an extension of the German "Blue Angel" ecolabel scheme in order to capture the carbon footprint of products – moving towards a "climate angel" scheme. The ultimate objective is to foster rapid transformation of markets towards energy-efficient best products.

UNFCCC COP14 once again discusses how to integrate the emissions of international shipping and aviation within the Kyoto Protocol. Öko-Institut scientists are members of both the German delegation and the EU delegation, delivering the science for a post-2012 climate treaty. The institute's experts produce an array of specific proposals.

In Brussels, the European Parliament and Council approve the climate package, of which the Directive on the promotion of energy from renewable sources is a constituent part. The Öko-Institut made significant contributions to this directive, resolving questions surrounding certificates of origin for green electricity, and, above all, developing binding sustainability criteria for liquid biofuels.

Work on Revision C of the German safety requirements for nuclear power plants concludes. Acting on behalf of the German Environment Ministry, experts drawn from a range of organizations analysed the sub-statutory nuclear guidelines and standards with regard to gaps and deviations from the state of the art and science, and produced twelve new "technical modules". Öko-Institut scientists were involved in six of these modules.

Sustainable Industrial Policy Is the Heart of the Green Economy



Interview with Christian Hochfeld, Member of the Executive Board of the Öko-Institut

In the last 20 years, new technologies and changed living conditions have led to an enormous acceleration of economic and social development, to globalisation and to a worsening of ecological and social problems. The clamour for alternatives for the future grows steadily louder, particularly because the present is marked by two serious crises – the financial and economic crisis and incipient climate change. With this in view, the Öko-Institut extends an invitation to its annual international conference in Brussels

on 5 November 2009. Notable speakers representing politics, industry and civil society will discuss a Sustainable Industrial Policy for Europe. But can a really sustainable development be achieved precisely at a time of crisis? What do we want to change in future? What can we, what must we change?

We asked Christian Hochfeld, Member of the Executive Board of the Öko Institute and an expert on sustainable industry.

At its annual conference for 2009 in Brussels, the Öko-Institut for the first time is explicitly tackling the issue of industrial policy. Environmental economists often turn up their noses at such discussions. Why did you place this item on your agenda?

It is true that many economists – and especially environmental economists and environmentalists – turn up their noses at this topic, and with good reason. They associate it with distortion of competition, calcification of structures and inherent contradiction of effective environmental policy. Possibly it is for just this reason that we must deal with the issue. It is completely correct that in the past industrial policy stood in opposition to effective environmental policy. And it was exactly the European Commission economic and industrial model, which was to have made Europe the most competitive economic region in the world, that has failed. It did not advance the urgently needed structural changes in European industry, so there has not been any sustainable development, certainly not in regard to protection of the climate and natural resources.

But that sounds exactly as if one ought to keep hands off the issue or even bury it?

No, we don't believe that is the right way. To have no industrial policy is not an option! Those dizzying economic stimulus packages that were launched during the financial and industrial crisis are bedecked with economic policy measures of which only a few are worth mentioning as containing incentives to protect the climate and natural resources. In Germany (as actually everywhere in Europe), we have generally

missed our chance to use the crisis as a means of changing course. Nor will there ever be a 'green industrial revolution' of the sort called for by EU Commissioner Günter Verheugen. Despite all of the justified criticism of the stimulus packages, we must also ask ourselves how much of the blame we in fact also deserve, because we paid so little attention to events as they began to unfold. For instance, there are no confidence-inspiring alternatives to the used-car scrap premium that might have merited the title 'environmental premium'. In their present form they certainly don't.

What must be changed in the industrial policy of the future?

Actually, the question ought to be: what can be left as it is. If we take seriously the challenges posed by protection of the climate and environment, there is no alternative to a real paradigm shift. If the question was previously: does environmental policy clash with a prosperous industry and economy? In future the question will be: how can industrial policy promote and hasten the changeover to a green economy, as called for by the United Nations? Traditional political priorities will be reversed. The ecological industrial policy approach taken by the German environmental ministry or the Eco-Efficient Economy advocated by the Swedish presidency of the European Council – both in our view are headed in the right direction, but have not yet gone far enough.

Was does that mean?

Ultimately, it means in the medium- to long term a policy of actively supporting every single sector of industry into a CO₂-free industrial system that includes the use

of natural resources in sustainable cycles. That is more than merely promoting the environmental technology sector. Not all sectors – as service and trade, for instance – will be able to benefit from it. Even with an objective such as reducing greenhouse gases by 80 percent by 2030, there was enough scope for every sector to declare itself an exception on some grounds or other. Instead, the most recent findings in climate and emissions research indicate that we cannot make any exceptions. This sets the guiding principle for the sectoral objectives of industrial policy. There will probably be the familiar debate about the most effective and efficient mix of instruments, but in a new arena and with new prerequisites. Only a country that is a model of climate and natural resources protection will have a history worth being a part of.

And then? When industrial policy is sustainable, will sustainable development finally deserve its name?

When we have reached that point, this question will be easier to answer. My feeling is that we don't really know yet whether a marriage can take place between sustainability and growth: sustainable growth. But until we have revolutionised our industrial policy, there is no point in even asking ourselves the question. Right now industrial policy is like the appendix – extraneous, dispensable: it ought to become the very heart of the green economic system.

Many thanks for giving us your views.

For further information about the Öko-Institut's annual international conference: www.oeko.de/conference.

Selected projects on the theme of sustainable industrial policy in 2008 / 2009

Climate change impacts are jeopardizing the natural systems on which human life depends, and are at the same time presenting extreme challenges for our economic and social systems. There is no longer any doubt that business as usual will not suffice to meet these challenges. What is needed is an approach that makes sustainability the prime objective and

moves beyond classic competition policy. Such an approach needs to view the environment, the economy and society as integrated systems. Sustainable industrial policy meets all these requirements. Many Öko-Institut projects are now exploring this theme, promoting the transition from concept to reality.

The future of consumption

How – and to what extent – can policy instruments be used to influence people's consumption habits in such a way that they become more sustainable in the long term? What kind of regulations and instruments need to be introduced if the EU wants to achieve its sustainability goals? What would be the ideal conditions for sustainable shopping, is there a need for more regulatory instruments, more communication, or "simply" a different attitude at the shop counter? Seven research institutions from five European countries – headed up by the Öko-Institut – are involved in finding answers to these questions. And they are doing so in relation to two particular – especially significant – areas of needs: housing and food.

For a few months now, Europe has been debating the Sustainable Consumption and Production (SCP) strategy, which formula-

tes the key ideas for an integrated industrial and consumer policy in line with sustainability principles. Although experience with the first important initiatives has been gathered at European level, there are still no convincing measures on either side or a plan of implementation. This is where the eupopp project comes in: its intention is to provide strategic support for policymakers as well as for companies and consumer organizations.

Beneath the umbrella of a joint methodological framework, analytic steps from various disciplines are being linked together for the first time in a systematic and application-oriented way. Policy analysis encounters material flow analysis, focus groups question EU statistics, lawyers debate with economists. The results from Spain, Finland, England, Latvia and Germany will help to devise programmes and campaigns and implement ongoing and future sustainability strategies in Europe.

eupopp: Policies to Promote Sustainable Consumption Patterns

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Client: EU Commission

Cooperation partner:

Kuluttajatutkimuskeskus/National Council for Consumer Research, Finland; University College London, UK; Association Baltijas Vides Forums/Baltic Environmental Forum, Latvia; Associação Ecoinstitut d'Ecologia Aplicada/ Association Eco-institute of Applied Ecology, Spain; ICLEI – Local Governments for Sustainability, Freiburg/London; ISOE/ISER – Institut für Sozial-ökologische Forschung/Institute for Social-Ecological Research, Frankfurt

Timescale: August 2008 to August 2011

Download: www.eupopp.net

Climate protection scenario for the transport sector

In the face of advancing climate change the reduction of greenhouse gas emissions in the near future is an urgent necessity. Ambitious reduction goals call for great efforts in every sector, including in the transport sector. Due to the growing volume of traffic, however, the goals formulated represent a particular challenge.

Given this situation, the aim of the Renewability Project was to examine the issue of sustainable mobility with regard to both opportunities and obstacles, and to highlight the interconnections between the transport and energy sectors. For this purpose the scientists modelled developments in the mobility sector up to the year 2030 on both the supply and the demand side.

A group consisting of representatives from the automobile, railway, energy and logistics industries as well as environmental and consumer organizations played a substantial role in developing models and scenar-

ios. In a two-year process various scenarios were devised and a consistent collection of assumptions and measures derived on that basis. The climate protection scenario developed at a "round table" shows that if the proposed assumptions and measures are effectively combined, it is feasible to achieve a reduction in greenhouse gas emissions of 23 percent by 2030 compared with 2005. In addition to direct emissions from transport companies, the anticipated greenhouse gas emissions also contain emissions from the production of vehicles and fuels. In passenger transport it is possible to reduce greenhouse gas emissions by 36 percent by the year 2030. The projected rise in greenhouse gas emissions in goods transportation, however, can only be halved with the measures under consideration. Overall the energy needs of the transport sector will be reduced by 20 percent, while the proportion of renewable energies will increase from four to 16 percent.

Renewability – Material Flow Analysis for Sustainable Mobility in the Context of Renewable Energy until 2030

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Infrastructure & Enterprises, Energy & Climate Protection

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German Environment Ministry (BMU)

Cooperation partner:

German Aerospace Centre (DLR),
Institute of Transport Research

Timescale:

2005 to 2009

Download:

www.renewability.de



» The transport sector is facing a host of challenges at this time: climate change, environmental pollution and the rising costs of natural resources. The "Renewability" project is helping society get to grips with these problems. It offers solutions for how transport can be organized in as environmentally friendly a way as possible. The precondition for this to happen, though, is the sustainable development of the economy at large, and that stakeholders in the automobile, railway, energy and logistics industries pull together in the same direction as the environmental and consumer organizations. This is why proposals that apply to all industries have been discussed and developed in the context of this project. «

Dr. Wiebke Zimmer has been working at the Institute's Infrastructure & Enterprises Division, Berlin office, since 2005. Her priorities include assessing alternative drives and fuels and developing strategies for CO₂ abatement in the transport sector.

Representation of consumers' interests in the European Eco-design Directive

The aim of the European Union's Eco-design Directive is to reduce the environmental impacts of energy-using products (EuP). This is to be achieved by ensuring that minimum ecological standards are taken into account at the design stage. The Öko-Institut has been commissioned by the EU Commission to advise the European consumer organizations ANEC and BEUC on scientific and technical issues in the EuP process so that they are able to contribute knowledgeably to the consultation process.

The Directive focuses on the mass market. It covers those products which are sold in large quantities, are particularly relevant from an environmental perspective and offer considerable potential for improvement. They range from lighting, boilers and computers, televisions and household appliances through to professional appliances and universal requirements regarding stand-by functions. 30 scientific preparatory studies are now being conducted to examine for each of these product

groups what possibilities for improvement are technically feasible and which of them deliver best environmental performance. This involves looking at the entire product life cycle cradle-to-grave, that is, from manufacture and use through to disposal. Preparatory studies form the basis on which the EU Commission sets binding minimum requirements.

Issues of relevance to consumers to be examined by the Öko-Institut as part of the project include, for example, whether the products will become much more expensive as a result of the planned measures. Scientists at the Öko-Institut are also looking at whether certain consumer groups will be disadvantaged by changes in product design and whether consumer information is being taken adequately into account. Overall the process offers a great opportunity to ensure that manufacturers in future are obliged to remove energy-wasting appliances from their sales range and to replace them with more climate-friendly systems.

Preparatory studies for eco-design requirements of EuPs (II) and on stakeholder representation – Lot C: consumers representation

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EU Commission, DG Energy & Transport

Cooperation partner:

European Association for the Coordination of Consumer Representation in Standardisation (ANEC), Bureau Européen des Unions de Consommateurs (BEUC), International Consumer Research & Testing (ICRT), Copenhagen Business School (CBS)

Timescale:

September 2007 to September 2010

Download:

www.eupconsumer.eu



» Consumer behaviour often plays a crucial role in product life cycles. The pattern of later use is already fixed by the product's design and could be steered towards sustainability by intelligent design. In my view, the integration of relevant consumption parameters should not only be part of sustainable corporate responsibility but should also be anchored in sustainable industrial policy. «

Kathrin Graulich, 36, is deputy coordinator in the Institute's Sustainable Products & Material Flows Division, Freiburg office. She has been working at the Öko-Institut for about ten years. Her main area of research currently involves providing support for the implementation of the European Eco-design Directive.

REACH guide to the safe handling of chemicals

In the real world few plant facilities are fully enclosed. Working with and handling chemicals and chemical products in most cases involve some type of exposure – either human or environmental – to different substances. This can occur sooner or later in quite different ways, on isolated occasions or regularly, sometimes in low concentrations and sometimes in high. The REACH guide aims to assess such exposure.

The safe handling of chemicals is a matter of the utmost concern to REACH, the new European chemicals policy. This includes an assessment of exposure. Not only the manufacturers and importers of chemicals,

but also their customers have obligations in this respect. If we can make effective use of the knowledge already available in terms of workplace safety, environmental protection and consumer protection, then we will have already gone a long way towards solving the problem.

The REACH guide aims to familiarize non-experts in particular with the most important terms and methods of evaluating exposure. This should then make it easier for them to comply with future REACH requirements. The focus here is on exposure assessment, risk characterization, together with the steps needed to minimize those risks along the supply chains and provide sound information on potential hazards.

REACH guide on exposure assessment and supply chain communication

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Client:

Verband der Chemischen Industrie (VCI, the German chemical industry association)

Cooperation partner:

Research and Advisory Institute for Hazardous Substances (FoBIG), VCI and its professional associations

Timescale:

January to December 2008

Download:

www.oeko.de/oekodoc/913/2008-025-de.zip

How climate-compatible are everyday products and services?

Businesses are currently looking for opportunities to optimize the climate-compatibility of their products and of the way they are used, and to convey this information clearly. Consumers are demanding goods and services which will not damage the climate, but they often have no reliable source of information to refer to. The Product Carbon Footprint (PCF) is proving to be a valuable way of appraising and evaluating the climate footprint of goods and services, and for communicating this information effectively.

Ten business partners headed by the Öko-Institut, WWF, Potsdam Institute for Climate Impact Research and THEMA1, recently assessed the carbon footprint of more than 15 different products. During the process they appraised information on the CO₂ emissions incurred by the products throughout their entire life cycle, and also broke

this down into separate phases such as production, distribution, use and disposal.

Essentially the project showed that businesses can already take advantage of the Product Carbon Footprint tool to make their products and usage more eco-friendly. However, international agreement is needed before the appraisal can be used to its capacity, particularly in terms of customer and consumer communication. As yet there is no methodologically consistent, internationally harmonized standard that the scientists of the Öko-Institut can promote. This is one reason why carbon labelling indicating an exact number of grams is not favoured by the project partners. Moreover, they expect it will mean little to consumers. As an alternative, the scientists will continue to research other innovative communications tools that can foster climate-compatible consumption.

Product Carbon Footprint – Pilot project Germany

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Client:

Business partners of the pilot project

Cooperation partner:

WWF, THEMA1, Potsdam Institute for Climate Impact Research (PIK)

Timescale:

April 2008 to January 2009

Download:

www.pcf-projekt.de

Which electricity saving approaches could work in Germany?

Private households in Germany could make a far greater contribution to saving energy than has been the case so far. However, hindrances at various levels make it difficult for consumers to use electricity more sparingly and efficiently. The "Transpose" project seeks not only to identify those obstacles but also to work out appropriate policy instruments to overcome them. The mission is to help stimulate and promote the sustainable use of electricity in German households.

In the process of developing policy instruments, best practice in other countries will be looked at. In order to gauge the effectiveness of such incentive instruments the project will take a broad disciplinary

approach. The scientists involved will combine approaches from behavioural psychology and sociology with a quantitative analysis of policy instruments in cross-country comparison. They will also produce micro-analytical case studies in order to test the effectiveness of existing efficiency-oriented instruments.

So far in this project the Öko-Institut has devised a systematic representation of technical and economic electricity-saving potential for various fields of application and sets of appliances in private households. The project feeds into recommendations for programme decision-makers and policymakers. In this way the scientists are providing fresh impetus for practical policy measures.

Transfer of Policy Instruments for Saving Energy (TRANPOSE)

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Client:

German Ministry of Education and Research (BMBF), social-ecological research programme

Cooperation partner:

Münster University, Institute for Political Science (project coordinator), Freie Universität Berlin, Research Institute for Environmental Policy, Universities of Kassel and Constance, IFZ Graz, Consumer Association NRW, Northern Alliance for Sustainability (ANPED), Wittenberg-Center for Global Ethics

Timescale: April 2008 to March 2011

Download:

http://transpose.uni-muenster.de/publikationen/Bürger-Working_Paper_3.pdf

Selected projects on other themes in 2008 / 2009

Final storage of heat-generating radioactive waste – a documentary report on the state of science and technology

The final storage of high-level radioactive waste remains an unresolved problem worldwide, despite intensive research. This being the case, the Federal Ministry of Economics and Technology was concerned to establish and assess the current state of science and technology.

The comprehensive overview provided by the Öko-Institut in collaboration with GRS mbH (Society for Facility and Reactor Safety) links together the various specialist areas that are relevant with regard to the final storage of heat-generating radioactive waste in deep geological formations.

The main volume of the report gives a compact overview of the issues entailed in final storage. The safety concept currently being debated and the required proof of safety for a repository for heat-generating radioactive waste in Germany form the basis of this. The construction, operation and post-operation phase of a repository are looked at in this context.

In the 22 appendices a variety of important topics are set out in detail, such as the long-term proof of safety for a geological repository and the legal framework for final storage. Each appendix contains references to relevant literature for further reading.

Final storage of heat-generating radioactive waste in Germany

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German Federal Ministry of Economics and Technology (BMWi)

Timescale:

September 2003 to September 2008

Download:

<http://endlagerung.oeko.info>

Report on management issues in connection with the transformer fire at Krümmel nuclear power plant

A short circuit in the Krümmel nuclear power plant set one of the two machine transformers on fire in June 2007. A brief voltage interruption led to the initiation of a reactor scram. In the process, however, the reactor feed pump failed and the level of cooling water in the reactor pressure container fell.

Initial analyses of the sequence of events pointed to deficiencies in the areas of communication, ergonomics and organization. Öko-Institut scientists therefore investigated a number of issues in these areas on behalf of the inspection authorities.

In response to the incident the operator had put forward a packet of measures, which

were examined by Öko-Institut scientists. The scientists then observed the way the operator put into practice both the measures themselves and the recommendations made by the Öko-Institut in relation to the measures. In March 2009 they produced a summary statement.

In addition, the scientists have elaborated various plans and recommendations for future implementation in relation to specific issues. One important issue, for example, was the audio recording of events in the nuclear power plant's control room. This has not yet been incorporated as a component of safety plans, but it could be an aid to improving analysis of human-based and organizational factors in such incidents.

Assessment of communication, organizational and ergonomic issues in connection with the reportable event at the Krümmel nuclear power plant on 28 June 2007

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Schleswig-Holstein Ministry for Social Affairs, Health, Family, Youth and Senior Citizens (MSGF)

Timescale: from August 2007



» Intense debates are going on in our society about final storage. The different standpoints are often very rigid and there has been no progress for years. A project like the documentary report on final storage can provide an information base for these important debates. In doing so, it can make a contribution towards bringing greater objectivity into the exchanges. What the documentary report definitely does, though, is reflect the status of research on final storage in Germany and also, in particular, identify which issues remain unresolved. «

Julia Neles, 39, environmental engineer, works as a staff researcher in the Institute's Nuclear Engineering & Facility Safety Division, Darmstadt office. She has been at the Öko-Institut for nine years and deals mainly with issues surrounding the disposal and final storage of radioactive waste.

How to dispose of radioactively contaminated foods safely?

When an accident occurs in a nuclear reactor, what happens to agricultural products that are contaminated with radioactive substances? The accident at Chernobyl in 1986 showed that disposing of contaminated foods is no small task. Such incidents demonstrate the need to establish a suitable technical and legal framework.

There are currently no legal regulatory measures governing the handling of contaminated agricultural products. Germany's Precautionary Radiation Protection Act, which was passed after the Chernobyl disaster in 1986, does, however, contain powers of authorization regarding the disposal of waste contaminated with radioactivity. The Federal Environment Ministry is moving to close the existing legal gaps and to enact workable regulations that can be applied in an emergency situation.

The Öko-Institut has therefore been commissioned to devise a regulatory strategy. Its purpose is to take account of both the technical and legal requirements necessary for the orderly disposal of large amounts agricultural produce contaminated with radioactive substances. Taking a hypothetical scenario as its point of reference, the report looks at the amounts of agricultural produce no longer fit for sale in both qualitative and quantitative terms and sets these assumptions against the actual capacity available in potential disposal channels.

The extent to which the disposal of everyday waste will need to take a back seat in such a scenario is also considered in the report, as are general logistical issues around radiation protection. Finally, the elements required in any future regulatory approach will be ascertained on the basis of the legal demands posed by each disposal route. The project will conclude with specific proposals for the formulation of a future regulatory system.

Clarification of technical and legal issues in the elimination of waste agricultural products contaminated with radioactivity after incidents with significant radiological consequences

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Federal Office for Radiation Protection (BFS)

Cooperation partner:

FUGRO-HGN GmbH

Timescale:

April 2008 to November 2009



» A society that accepts nuclear energy as part of its current energy mix must also be prepared to cope with the consequences of reactor accidents. There are gaps in the law which need to be closed. For example, it is not clear how food contaminated with radioactive substances is to be safely and rapidly disposed of. Our project provides the responsible environment ministry with the scientific information it needs to make appropriate legislative decisions. «

Falk Schulze, 35, works as a staff researcher in the Institute's Environmental Law & Governance Division, Darmstadt office. The focus of his work is on national and European environmental law.

Refining the EU Emission Trading Scheme

The scheme established by the European Emissions Trading Directive is to be made more efficient and effective. Much stricter targets are also planned, with the aim of reducing carbon emissions. To this end the directive governing EU emissions trading is currently being revised. The Öko-Institut and its project partners have offered to provide scientific support and advice to the German Federal Environment Agency and the Federal Environment Ministry for the task.

In 2005 a trading system was launched within the EU to reduce the greenhouse emissions of energy-sector and industrial facilities in the most cost-effective manner possible. This European Emission Trading Scheme (ETS) was a landmark and has become a unique environmental policy tool. The planning and implementation of the system proved to be major challenges, both for national and European policymakers, as well as affected businesses.

The first phase of emissions trading (2005 to 2007) was purposely conceived as a pilot phase in order to gather experience with the new market-based instrument. The subsequent period (2008 to 2012) directly corresponds with the Kyoto Protocol commitment period aimed at reducing greenhouse gas emissions. Emissions trading is essential for meeting the Kyoto targets. For the third phase, from 2013 onwards, the ETS is to be revised. New sectors and greenhouse gases are to be included and their implementation harmonized across Europe.

The Emissions Trading Directive has been modified from the ground up. For example, special new provisions have been put in place to protect the competitiveness of branches of industry facing strong competition from countries not subject to emission reductions.

Scientific support and advice on the ongoing development of greenhouse gas emissions trading in Europe in the context of revisions to the Emissions Trading Directive 2003/87/EC

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German Federal Environment Agency (UBA)

Cooperation partner:
German Institute of Economic Research, Berlin, Fraunhofer Institute for Systems and Innovation Research

Timescale:
November 2007 to autumn 2009

Download:
www.umweltdaten.de/publikationen/fpdfl/3625.pdf

» Emissions trading covers about half of German greenhouse gas emissions and is a key instrument for achieving the European climate protection goals. The EU's emissions trading system is the only one of its kind in the world because it includes so many actors and their emissions. That is why there is so much interest in the experiences and scientific analyses that come out of it – not only here in Europe, where the system is being refined, but in other countries as well, like the USA, where similar systems are being planned. «

Verena Graichen, 30, administrative scientist, works in the Institute's Energy & Climate Protection Division, Berlin office. Her main area of work is emissions trading. She explores economic issues and performs comparative studies of the application of emissions trading directives in Europe.



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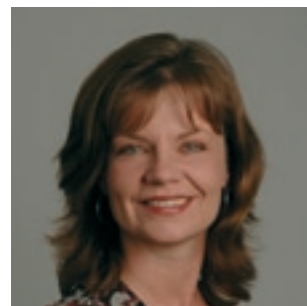
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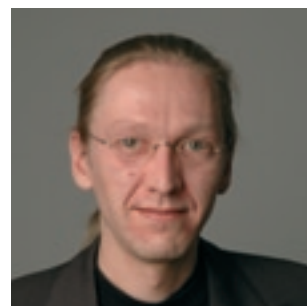
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Committee members

Helmfried Meinel
First Chair of the Committee

is head of construction, energy, nutrition, environment, care and housing at the consumer advocacy centre of the German region of North-Rhine/Westphalia, and a member of the centre's management team. A member of the Öko-Institut Committee since 2002, Helmfried Meinel took on the post of first Chair of the Committee in June 2005.

Dorothea Michaelsen-Friedlieb
Second Chair of the Committee

works as a business consultant for non-profit organizations and has been a member of the Committee since 1996. She has a particular commitment to personnel issues, and is the Committee's women's officer.

Stefan Alt

is a member of the Committee as staff representative of the Darmstadt office. He is a scientist working in the Nuclear Engineering & Plant Safety Division.

Dr. Wolfgang Brühl

was chief economist of the Hoechst AG corporation from the early 1980s until 1999. He went on to work as a freelance consultant for economic and environmental policy until his retirement.

Jakob Graichen

sits on the Committee as staff representative of the Berlin office. He is a scientist working in the Energy & Climate Protection Division.

Ralph Harthan

is the staff representative of the Berlin office, where he works in the Energy & Climate Protection Division.

Nicola Moczek

is executive director of the German Geothermal Association (GtV-BV). For the previous five years she was executive director of the youth wing of Friends of the Earth Germany.

Dr. Christoph Pistner

is member of the Committee as staff representative of the Darmstadt office. He is a scientist working in the Nuclear Engineering & Plant Safety Division.

Dr. Barbara Praetorius

works for the German Association of Local Utilities (VKU), where she is responsible for strategy development and fundamental issues. An economist and political scientist, she previously spent many years working in climate and energy research and in policy consulting at the German Institute for Economic Research (DIW).

Nadia vom Scheidt

has worked for nine years at national, European and international level in public administration, with a particular interest in the issues surrounding the information society, improved administration, and emergency preparedness. With a degree in history and qualifications as a mediator, Nadia vom Scheidt was seconded to the European Commission from 2005 to 2008 as a national expert.

Christof Timpe

represents since 2009 the institute's Coordination Team on the Committee. He is the Freiburg coordinator of the Energy & Climate Protection Division.

Franz Untersteller

has been an elected member of the Baden-Württemberg Landtag (regional state parliament) since March 2006. He is deputy leader of the Baden-Württemberg parliamentary Green party and its spokesperson on energy policy. A landscape planner by training, Franz Untersteller was previously a long-time parliamentary consultant to the Baden-Württemberg Landtag.

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Policy

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- Berlin State Administration for Health, Environment and Consumer Protection
- Brandenburg Ministry of Rural Development, the Environment and Consumer Protection
- Cologne and Münster (Westphalia) District Commissioner
- Deutsche Gesellschaft für technische Zusammenarbeit (German Technical Cooperation – GTZ)
- European Commission: Directorates-General for Energy and Transport, Research, Maritime Affairs and Fisheries, Environment; Eurostat; Joint Research Centre
- European Environment Agency (EEA)
- European Parliament
- Federal Agency for Agriculture and Food (BLE)
- Federal Agency for Nature Conservation (BfN)
- Federal Environment Agency – Austria
- Federal Environment Agency, Berlin (UBA)
- Federal Ministry for Health (BMG)
- Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)
- Federal Ministry of Economics and Technology (BMWt)
- Federal Ministry of Education and Research (BMBWF)
- Federal Ministry of Food, Agriculture and Consumer Protection (BMELV)
- Federal Office for Radiation Protection (BfS)
- Federal Statistical Office
- German Federal Environmental Foundation (DBU)
- Hamburg city authority
- Hessian Ministry of the Environment, Rural Development and Consumer Protection, Hessian Ministry of Industry and Transport, and Hessian State Chancellery
- Munich city authority
- North Rhine-Westphalian Ministry of the Environment, Nature Conservation, Agriculture and Consumer Protection, and Ministry of Economics, SMEs and Energy
- North Rhine-Westphalian State Agency for Nature Conservation, Environmental Affairs and Consumer Protection (LANUV)
- Nuremberg city authority
- Office of Technology Assessment of the German Parliament (TAB)
- Schleswig-Holstein Ministry of Social Affairs, Health, Family, Youth and Senior Citizen Affairs (MSGF)
- United Nations Environment Programme

Industry

- Association of the German Petroleum Industry/
Institut für wirtschaftliche Ölheizung
- BASF AG

- BSH Bosch und Siemens Hausgeräte GmbH
- Ciba Specialities
- Daimler AG
- Deutsche BP
- Deutsche Telekom AG / T-Home
- dm-drogerie markt
- DSM
- Edeka
- European Automobile Manufacturers' Association (ACEA)
- European Textile Services Association (ETSA)
- Frosta
- German chemical industry association
(Verband der Chemischen Industrie VCI)
- Henkel KGaA
- International Council of Chemical Associations (ICCA)
- Loewe AG
- Mc Donalds
- Metro Group
- Miele
- Nissan Motors Europe
- Rewe Group
- Ruhrgas AG
- Stadtwerke Kiel AG
- Stadtwerke München GmbH
- Tchibo
- Tetra Pak
- Umicore Precious Metals Refining
- Unternehmensgruppe Tengelmann
- Volkswagen AG
- WALA
- Weleda
- Wismut GmbH

Society

- ANEC (European Association for the Coordination of Consumer Representation in Standardisation)
- BEUC (The European Consumers' Organisation)
- BUND (Friends of the Earth Germany)
- Greenpeace Germany, Switzerland, International
- Heinrich Böll Foundation
- ICRT (International Consumer Research & Testing)
- Legacy for the Future Foundation (Stiftung Zukunftserbe)
- Stiftung Warentest consumer protection agency
- Swiss Federal Institute of Technology Zurich (ETH)
- TA-SWISS – Centre for Technology Assessment
- Verbraucher-Initiative federation of consumer initiatives
- World Wide Fund for Nature (WWF) Germany
- WWF International

Service

Internet – www.oeko.de

Our www.oeko.de site keeps you informed about the latest issues and studies, technical papers and public outreach material. Good navigation and clear page structure make it easy for users to find their way around our extensive offerings. A database allows free download of studies from our individual divisions. In addition, the homepage gives many quicklinks to hot topics.

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eco@work

The Öko-Institut uses its eco@work e-zine to keep friends, partners and the interested public abreast of the latest state of environmental research at its three offices in Freiburg, Darmstadt and Berlin. Published quarterly, eco@work reports on selected projects and outcomes from the institute's research divisions.

Members of the Öko-Institut receive a printed version as an exclusive service, but can of course switch to the electronic version if they so wish.



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Technical periodicals

The institute further publishes the following periodicals:

ELNI Law Review

www.elni.org

ELNI Review is an international journal for environmental law. This journal is a joint publication by the Society for Institutional Analysis (sofia; hosted by the University of Applied Sciences in Darmstadt), the Institute for Environmental Studies and Applied Research (IESAR; hosted by the Bingen University of Applied Sciences), and Öko-Institut. The review is published in English twice a year.

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KGV Rundbrief

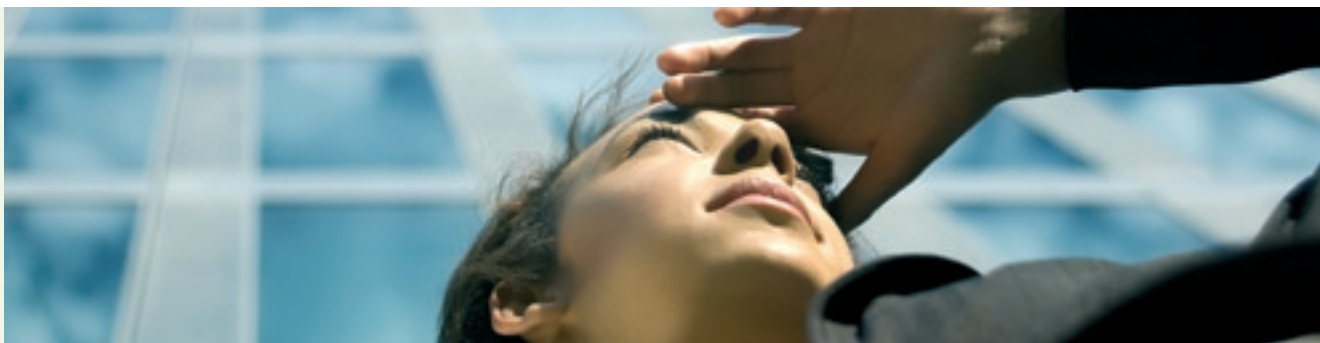
www.oeko.de/kgvweben/frameset/kgvindex.htm

KGV stands for Koordinationsstelle Genehmigungsverfahren, the German coordination office for permitting procedures. Published quarterly, the bulletin is a key source of information on all aspects of industrial permitting procedures.

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2009 International Annual Conference Sustainable Industrial Policy for Europe



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Date: Thursday, 5 November 2009
Venue: Representation of the State of Baden-Württemberg to the European Union, Rue Belliard 60 – 62, B-1040 Brussels

Registration, programme and further details:

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Media watch 2008

The Institute's researchers in the media – selected clippings

Der Spiegel, 7 April 2008
» Nuclear waste has to be handled, no matter how nuclear power develops. If we let the stuff stand around aboveground, things will end badly soon enough. «
 Michael Sailer

Süddeutsche Zeitung, 17 April 2008
» If the policy goals for improving efficiency, expanding renewables and entering clean electricity and heat production pathways are actually implemented, it will be possible to phase out nuclear power while doing without any new construction of emissions-intensive coal-fired power plants. «
 Dr. Felix Christian Matthes

Financial Times Deutschland, 12 June 2008
» Our recommendation to all suppliers of green electricity is that they disclose their activities in as much detail as they can. «
 Dominik Seebach

3sat, NANO, 4 September 2008
» No conclusive statement is possible yet about the safety of the Gorleben nuclear repository. «
 Beate Kallenbach-Herbert

Frankfurter Rundschau, 16 September 2008
» Really ecological issues should be such an integral quality aspect in mass markets that consumers don't really have to look closely for them at all. «
 Dr. Dietlinde Quack

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