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## **The Environmental Dimension of Impact Assessment**

**Documentation of a Workshop  
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## Abbreviations

BMU	Ministry for Nature Conservation, Nuclear Safety and the Environment, Germany
CBA	cost-benefit analysis
CEC	Secretariat-General
DEFRA	Department for the Environment, Food and Rural Affairs, UK
DG	Directorate General
EEA	European Environment Agency
EEB	European Environmental Bureau
ExterneE	External costs of Energy (research project)
FFU	Environmental Policy Research Centre, Berlin
Fraunhofer ISI	Fraunhofer Institute Systems and Innovation Research
FU	Freie Universität, Berlin
IA	Impact Assessment
I.Q. Tools	Indicators and Quantitative Tools for Sustainable Development
IEEP	Institute for European Environmental Policy, UK
IER	Institut für Energiewirtschaft und Rationelle Energieanwendung, Universität Stuttgart, Germany
SPRU	Science and Technology Policy Research, University of Sussex, UK
MCA	multi-criteria-analysis
WWF	World Wildlife Found
ZEW	Centre for European Economic Research, Mannheim

## Introduction

In June 2002, the European Commission introduced an internal administrative procedure with the aim to assess potential economic, social and environmental effects of all its major initiatives during the policy formulation process. This so-called integrated impact assessment system is intended to improve the quality and coherence of regulation, but also to help implement the European Sustainable Development Strategy.

Not surprisingly the initiative was met with great expectation by stakeholders in Brussels and EU-Member States since it affects an annual work program of several hundreds policy initiatives. Environmental stakeholders raised hopes that the introduction of this procedure would stimulate new efforts to strengthen environmental policy integration. Progress in 2003, the first year of operation, turned out to be rather modest, however: the overall quality of impact assessments was uneven, sometimes poor. At the same time, the integrated approach was called into question by several business stakeholders who claimed that a stronger concentration on economic and competitiveness aspects was needed to strengthen the economic performance.

On June 17-18, 2004, the German Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and the Environmental Policy Research Centre at the Freie Universität Berlin (FFU), held a workshop to discuss possible policy implications of these developments and to exchange views on options for safeguarding the balanced approach of Impact Assessment. The workshop took place in Berlin and comprised participants from environmental ministries and agencies of EU member states. After fruitful discussions, some recommendations regarding procedural aspects and substantial requirements were adopted. The findings of the discussion were summarized in a Chairpersons Summary Paper which was distributed among the participants and interested colleagues afterwards.

The workshop was co-chaired by Cornelia Quennet-Thielen (then: Deputy Director General, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany) and by David Wilkinson (IEEP). On the first day, representatives from the European Commission and several member states reported on ongoing processes on the European and member state level and presented in-depth insights into two selected cases of impact assessment, namely European chemicals and climate policy. The presentations of the following workshop section addressed the state of the art regarding methodological aspects of impact assessment, such as the measurement of external effects and innovations. On the second day, the summary draft paper provided the basis for the workshops final discussion on strategic options to safeguard the balanced approach.

This documentation is structured as follows: The next section offers a brief background section on the Impact Assessment procedure within the European Commission and discusses its main strengths and weaknesses. Section 3 denotes key aspects of the different presentations with a view on the potentials and limits of impact assessment and the evolution in assessment methods. Section 4 summarizes the main findings of workshop discussions regarding requirements for impact assessment from the point of view of environmental policy. Section 6 ends with some conclusions. The annexes contain the workshop program (Annex

1), the Chairpersons Summary Paper (Annex 2), a background paper on best-practice in EU Member states (Annex 3) and all slides of the presentations.

## **Impact Assessment at the European level: the integrated approach of the European Commission, its strengths and weaknesses**

According to the relevant Commission Communication (COM (2002) 276) and operational guidelines issued by the Secretariat-General (CEC, without year) an impact assessment has to be carried out for all major policy proposals, i.e. those which are presented in the Annual Policy Strategy or in the Work Program of the Commission. This comprises regulatory policies, financial instruments as well as less formalised initiatives and strategies. Initiatives that are still at an early stage of policy formulation (e.g. Green Papers), periodic Commission decisions and reports, proposals following international obligations, executive decisions, and measures related to the implementation of EU legislation are excluded from this obligation.

The impact assessment is carried out by the DG responsible for the policy proposal. The DG has to consult with other interested Commission services and external stakeholders. It first has to carry out a *preliminary assessment* for all proposals that summarizes findings in a short statement and indicates whether a more detailed appraisal is needed. The Commission then formally selects a sample of initiatives for an *extended assessment*. Initiatives are chosen that are considered to have substantial economic, environmental and/or social impacts. They are identified in the Commission's Work Programme for the following year. A final version of the extended IA feeds into the subsequent inter-service consultation.<sup>1</sup>

Preliminary IA statement and the extended IA report follow a similar order of appraisal steps: identification of the issue, objective of the proposal, policy options (including a baseline or 'no policy' option), positive and negative impacts, follow up and monitoring and evaluation. The assessment should identify both direct and indirect impacts of the selected options in all three areas of sustainable development. Where possible, impacts should be quantified or monetised to support the identification of trade-offs and synergies. The assessment process should ultimately lead to the identification of a preferred option. The implementation of the procedure is overseen by the Secretariat-General of the European Commission, which is also responsible for providing guidance and training resources and ensuring a good transparency of the overall process.

Impact Assessment is a means for the ex-ante evaluation of the expected impacts of policies. It can be understood as a means to enhance the information basis of decision-making and it holds the potential to design the policy process more efficiently. In principle, it is an instrument for strengthening the integration of environmental concerns in accordance with Art. 6 Treaty of the European Community, alongside the analysis of the economic and social impacts of policy options. Given an annual Commission work program comprising several hundred initiatives from which many might become subject to an extended assessment it is

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<sup>1</sup> Note: a revision of this structure has been started at the end of 2004. One of the major aspects of this reform is the abandoning of the two-tiered approach of preliminary and extended assessment. Since major parts of this report were written before the start of these modifications, we keep on referring to the old approach.

not surprising that the approach of the Commission was met with considerable interest from a wide range of stakeholders from Member States and civil society.

Of 43 legislative proposals formally selected for an extended impact assessment in 2003, the pilot year, 21 proposals had been finalised by April 2004. However, a first evaluation study performed by the Institute for European Environmental Policy (IEEP) on behalf of the Department for the Environment, Food and Rural Affairs (DEFRA), the UK, revealed an uneven, sometimes even poor, quality of the Impact Assessments.<sup>2</sup> Practice considerably diverged from the procedural and substantial guidelines set out in the Commissions guidance documents. Preliminary statements were not made routinely public. DGs have been reluctant to put forward their measures to an extended impact assessment and selection processes were based rather on bargaining than on stringent selection criteria. Inter-service consultation was not routinely executed but most assessments were rather led by a single DG. The first year of operation was characterised by methodological difficulties, problems of quantification, shortage of resources and a lack of political support. Impact assessments mostly focused on direct economic cost and benefits and only briefly took notice of unintended effects, trade-offs and spill-overs. In most assessments little attention was paid to the analysis of environmental impacts: 8 of 21 impact assessments did not address the environmental dimension at all and only 5 discussed it in greater detail.

Additionally, pressure was raised by different business stakeholders to focus attention on the analysis of economic costs and competitiveness impacts of all policies during the course of 2003/2004. This striving for one-sided assessments led other stakeholders express their concerns about a possible dilution of the well-balanced approach of the Commission and a sidelining of the environmental dimension.

### **Status Quo: potentials and limits of impact assessment and evolutions in impact assessment methods**

After the welcoming speeches by Martin Jänicke (FFU/Berlin), and Cornelia Quennet-Thielen, David Wilkinson took over the chairmanship. He introduced Robin Miegé (DG Environment, CEC/Brussels) who opened the first section. Mr. Miegé outlined the Commission's approach to impact assessment and informed about the activities of the last three years and about ongoing activities. He confirmed the findings of the IEEP study that the quality of the existing assessments, especially regarding the treatment of the environmental dimension, is uneven, mainly due to lack of capacities, insufficient technical guidelines and lack of political support. He, however, stressed that a learning-by-doing process has been kicked off that shows promising results. In order to proceed with the integrative approach and to avoid a bias towards one-sided impact assessment that focuses mainly on short-term economic effects, the European Commission needs broad support from the environmental ministers. So far, political attention has been too low for this issue. This holds true for the discussion about the potential costs as well as possible benefits of environmental policy.

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<sup>2</sup> Sustainable Development in the European Commission's Integrated Impact Assessments for 2003. Final Report by David Wilkinson et al. London, April 2004. Download at: [http://www.ieep.org.uk/PDFfiles/PUBLICATIONS/IEEP\\_ExIA\\_report.pdf](http://www.ieep.org.uk/PDFfiles/PUBLICATIONS/IEEP_ExIA_report.pdf)

The UK has advanced well with integrating impact assessment as a standard procedure into governmental decision-making. Bob Davies (DEFRA/London) commented on the European Commission's approach, but also informed about the procedure of impact assessment within the British Government. In general, he welcomed the efforts on the European level. According to him, lessons that can be learned from the UK relate mainly to the mandatory status of impact assessment, the presence of a well-staffed and powerful coordination unit located at the Prime Minister's Office and the necessity of strong, high-level political support. Bob Davies also highlighted the application of carefully designed quantitative methods and tools.

The planned reform of the European chemicals policy has provoked wide discussions regarding its possible economic, societal and environmental benefits and losses. Impact assessment has come to play a crucial role in this context. Michael Warhurst (WWF Europe/Brussels) presented an overview of the different assessments done by the European Commission, the business associations and the environmental NGOs. He highlighted the methodological problems of assessing *ex-ante* effects of planned reforms in the chemicals sector and stressed the potential of misusing impact assessment as a political brake for far-reaching environmental policy-proposals. In the following presentation, Christoph Böhringer (ZEW/Mannheim) discussed the assessment of climate policies and possible ways to approach the related methodological questions and problems. His presentation elaborated in detail on the challenge of providing desk-top-officers with models and tools for assessing different climate change policies and instruments, *inter alia* national allocation plans for emissions trading.

The second part of the first day was opened by Julia Hertin (SPRU/Sussex) with a presentation on procedural aspects of impact assessment in a cross-country comparison. In her presentation, she talked about the experiences with impact assessment in the European Union, the United Kingdom, the Netherlands and the United States. Marialuisa Tamborra (DG Research, CEC/Brussels) gave a review of ongoing research programs of the European Union and described the content and expected results of several actual research projects, such as Sustainability-A-Test, ExternE or I.Q. Tools. Afterwards, Klaus Rennings (ZEW/Mannheim) presented a more detailed introduction to the project I.Q.Tools, which aims at developing a qualitative-quantitative tool for impact assessment on behalf of the European Commission.

After these lectures, attention was directed towards two topics of important relevance to impact assessment: 1) the measurement of innovations and 2) the internalization of external effects. Regarding the first topic, Knut Blind (Fraunhofer-ISI/Karlsruhe) presented research results regarding the determination of innovation effects of policies. Klaus Jacob (FFU/Berlin) commented and also provided some insights into the function mechanisms of lead-markets for environmental innovations. Rainer Friedrich (IER/Stuttgart) then gave a lecture on different ways to measure and quantify external effects of planned policies. He concluded that cost-benefit analysis, if carefully, yet rigorously applied, provides fertile ground for a meaningful policy appraisal. His presentation was commented by Ahti Salo (Helsinki University of Technology). Salo highlighted shortcomings of cost-benefit analysis and referred to multicriteria analysis as an alternative methodological approach.



The workshop started the next morning with presentations by Inge Niestroy (EEAC/The Hague) and Ann Dom (EEA/Copenhagen). Both presentations dealt with the relationship between impact Assessment and strategic environmental assessment. Despite the fact that there are close thematic interactions and that useful lessons can be learnt from the long history of strategic environmental assessment, there are obviously too few interconnections between the discourse communities. This does not only apply for technical questions regarding for example the screening of proposals or the assessment of different policy options and scenarios, but also for the organization of the process and stakeholder consultation itself. Both Niestroy and Dom stressed the need for capacity-building, if integrated policy appraisal shall be implemented seriously. Also, a clear political and legal backing is a precondition for success. Niestroy suggested to link the procedure of Impact Assessment to Art. 6 Treaty of the European Community and to enclose a strong orientation towards the environmental dimension of impact assessment.

Following Dom and Niestroy, Michael Warhurst replaced Roberto Ferrigno (then: European Environmental Bureau/Brussels) and lectured on the participation of environmental NGOs in impact assessment, focusing on the reform of the European chemicals policy. Obviously, there is much knowledge and expertise available among environmental NGOs and think tanks. But the effective integration in processes of policy-making and participation is of uneven, sometimes poor quality, especially due to a shortage of personal and financial resources and closed policy networks.

Cornelia Quennet-Thielen concluded this first part of the workshop by summarizing the main findings of discussion. She presented a draft summary paper of both chair-persons that had been put together and distributed among participants the evening before. Without attempting to itemize all of the important contributions made, the paper provided an overview of the main issues raised and suggestions made by participants to address the environmental dimension of impact assessment. Participants engaged in a lively debate. The main findings are sketched out in the following.

## **Requirements for impact assessment from the point of view of environmental policy – main findings of workshop discussions**

### *Getting the Process Right*

There was wide agreement that procedural rules are needed to ensure an appropriate representation of environmental concerns in impact assessments. The success of this undertaking depends, however, on a strong political commitment. Many participants recommended to scale down expectations: Quite often, impact assessment is presented as a means to quantify a task that can not be accomplished. Impact assessment can broaden the information basis for policy-makers, but cannot replace the decision-making process and the responsibility for decision-making under conditions of uncertainty. In this context, some participants expressed the belief that the approach should focus on the main problems of environmental policy. There was also widespread agreement that impact assessment has to be understood as one tool among others within a broader framework for policy coordination and integration.

Attention should not focus solely on one tool and neglect others. In this context, participants recalled especially the so-called Cardiff process of environmental policy integration.

Going into detail, participants agreed that arrangements need to be both effective and efficient and that the instrument has to be kept practical. It should be designed as simple as possible, but should, however, also match the demands of a balanced policy appraisal. There was, however, no consensus which institutional arrangement might be suited best to deal with this task and which actors should be involved at which stage of the process. Several participants, many of them from European institutions, approved the general approach of the European Commission, but stressed the need for involving representatives from DG Environment in every step of the procedure to ensure an adequate representation of environmental concerns.

Other participants objected this argumentation. They pointed to the possible mismatch of required and existing resources. Instead, they argued, one should find important steps within the procedure that offer good leverage for ensuring appropriate consideration. By this, leverage and manageability could be maintained. It was suggested to concentrate activities on a) the very beginning (selection of proposals) and b) the very end (evaluation). If a poor consideration of the environment could be effectively sanctioned in an ex-post quality review, this would provide an incentive for the responsible DG to undertake a well-balanced assessment right from the beginning.

This drew the discussion towards the appropriate design of the quality review and the monitoring system. There was widespread agreement that sanctions alone do not guarantee an appropriate execution of IA, but that efforts must be directed towards the whole process from the very beginning. Regarding the first step of the procedure, the selection of proposals, participants accepted the argument that the Commission's guidelines provide fertile ground for further proceeding, but mentioned critically that the criteria for screening should be taken seriously and made public and transparent. Reporting clearly and right from the start what has not been subject to investigation in the assessment should become a standard. Nevertheless, in many cases, problems are not simply born out of the unwillingness of the responsible desk officers, but have their origins in lacking resources and knowledge. Therefore, several options for ensuring support to desk officers during the execution phase were discussed. Among several, the introduction of a so-called help desk, as it exists in the Netherlands, was promoted by a majority of participants. Such an institution could provide support regarding the identification of impact areas to be considered, indicators, data and appropriate tools. The European Environment Agency (EEA) could also play a role in this regard. Another institutional option brought forward was a small group of experts, who are familiar with quantitative and qualitative methodologies of impact assessment and can be consulted by other desk officers on an ad-hoc basis. At a minimum, participants claimed, the European Commission should provide for better training and more detailed technical guidelines, not to speak from a better staffing of responsible units. However, there are clear financial restrictions to these claims.

Regarding the organisation of stakeholder consultation, many contributions mentioned resources and time availability as key problems. It was acknowledged that the Commission's

guidelines are already elaborated, but need to be more thoroughly implemented. The question of needed additional financial resources for effective NGO participation could not be resolved. Also, it was criticised that background studies for impact assessments or the assessments themselves are often too comprehensive and there is often too little time to study them carefully in order to allow for a sound and effective consultation. Some participants recommended to simplify the evaluation of proposals: Assessments should concentrate on one, two or three benefits that already outweigh economic losses and deal with them in greater detail instead of scrutinizing all possible benefits superficially. For a better success in raising of public awareness, results of assessments should be reduced to clear and short messages. Internet consultation was suggested as another tool to organise a broad consultation of stakeholders. Internet consultations provide stakeholders with better possibilities to express their concerns. Nevertheless, critics pointed to the fact that internet consultations are expensive to analyse and are an inadequate tool for the majority of proposals that aim at amending existing regulation.

### *Quality Review*

The appropriate design of quality review was widely discussed. The design of an effective quality control and sanction remained a question open to debate. It was a common recommendation that quality assessments should be a regular part of the overall Impact assessment procedure. It was also a widely accepted claim that the procedure should contain a check whether or not all required procedural standards have been followed and all impact areas and indicators have been analysed. But it was a contested question who should be responsible for carrying out the impact assessment. Shall this task be assigned to a neutral external body or should control rely entirely on internal control mechanisms? The Secretariat-General of the Commission is generally considered the appropriate actor to review compliance with procedural norms and initialise quality control. But should it also have the right to revise and send back impact assessments done by other DGs?

Some participants claimed the need for an external, independent quality control unit that undertakes a more substantive review if a proposal is seriously contested. They argued that actors responsible for environmental concerns within the Commission possess too little leverage to argue effectively and that these tasks should be allocated to other institutions such as the European Court of Auditors. Some participants also suggested to involve the European Environment Agency in this process, especially with a view to its network of Topic Centres. These suggestions were contradicted by other participants, who queried the proposed focus on the sustainability or the environmental dimension. Accordingly, the review should not focus too much on procedural aspects of the tool, but stay focused on the issue itself, the content of the proposals. Otherwise, solutions would be subject of discussion without a proper framing and analysis of the problem itself.

In this context, it was doubted whether, for example, the European Court of Auditors would be the right actor to be chosen for quality review, since this body concentrates rather on the legislative accuracy of the process. Another possibility is to establish a committee within the European Parliament or an independent expert panel. The criteria for organisational choices like these are, however, far from clear. Further, it was stated that the whole process is a

rather informal learning-by-doing process that needs discretion and space for learning experiences. Sanctions might turn out to be counterproductive in this regard.

Other topics of the discussion were related to the need for an ex-post-analysis of policy effects and to the question of the character and timing of the quality review: Some participants argued that it should be a steady component of the process of policy making, whereas others claimed that this would overextend existing resources and capacities.

#### *Role of Member States and of Parliament*

The question of the role of member states was present in all discussions. Shall they be actively involved in the implementation of impact assessment or remain passive by providing data upon request? These questions were left rather unanswered and need further clarification. Most participants claimed that bringing aspects of Council negotiations too early into the process of policy-making would spoil not only the Commission's right of initiative and put the whole institutional structure of the EU into question, but would also constrain discretion of policy negotiation and thus the discretion for policy compromises between involved actors. Member states' input could be utilized more useful regarding the provision of data, the sharing of data across countries and a better coordination of national R&D efforts.

The idea of institutionalising a forward planning system on the national level was brought to life. Such a system might enable both member states and interest groups to stay informed about planned policy proposals and impact assessments. In this context, the request was raised that stakeholders should additionally look for best practice examples on the international and national level and share the data. The European Commission and member states should also regularly share the consultancy work they commission.

Interestingly, the possible role of the European Parliament was only briefly mentioned. There was no real discussion except the proposal to give the Parliament the right to send back assessments and demand a more comprehensive review. The Parliament is, however, able to do so already at present. But further discussions are needed to clarify the role of the European Parliament in the process of impact assessment.

#### *Substantive Requirements*

Most impact assessments focus primarily on the direct impacts and the desired objectives of draft legislation, but leave out unintended side effects that may be more relevant with regard to environmentally detrimental effects. Here, a serious effort is needed to improve the overall quality of the reports.

At present, heavy emphasis is placed on the impact on the overall economy and competitiveness. It was a commonly voiced concern that this narrow focus runs the risk of underestimating possible benefits and overestimating costs of environmental policy regulations drawing a biased picture of possible economic consequences. It was recommended to stick to the integrative approach and keep the tool well-balanced.

There are several opinions on how to respond to this demand: Obviously there is a tension between the need of a certain degree of uniformity, but also a certain degree of flexibility for dealing with certain types of instruments. Therefore, each individual proposal should be

checked against an established list of impacts. What could such a list look like? There was widespread agreement that at least and as a minimum, all assessments should consider impacts regarding the four priority areas of the EU Sustainability Strategy and the 6<sup>th</sup> Environmental Action Program. Also many participants agreed with the notion that the structural indicators of the European Commission could serve as a good starting point for this task. To allow for a fully functioning system they need, however, further harmonisation and refinement.

This optimistic perspective was met with resistance by other participants. They agreed that the structural indicators would indeed offer a good starting point, but added that the whole question was a lot more complicated, since different sets of indicators would be needed for different kinds of assessments. Further, there was the problem of different scales of problems, both in time and space. The operationalisation of some of the structural indicators was more difficult than originally expected, for example intergenerational equity. It was also stressed that the discussion of impacts and indicators was a different issue than the issue of impact assessment itself. Before starting to discuss individual indicators, one should start to discuss the main problem of the missing possibility to assess the overall dimension of sustainability and especially the trade-offs between its three dimensions. Sustainability assessment includes more efforts than simply adding indicators from all three dimensions. A conceptual solution was, however, not offered. Thus, we need more research to clarify this question.

Another issue of discussion was the relationship between qualitative and quantitative assessments. Two points of view can be distinguished: The first group of participants warned of wrong expectations regarding the quantification of policy aspects. In their perspective, impact assessment should be treated mainly with tools of quantitative analysis. Cost-benefit-analysis (CBA) should be handled carefully and alternative tools such as multi-criteria-analysis (MCA) should be applied as well to reduce the risk of failing. The second group of participants in quantification's favour and especially highlighted the benefits of using cost-benefit-analysis. They pointed to the fact that CBA already is a standard procedure in countries such as the USA, Canada or the UK and is accompanied by qualitative information and qualitative assessment tools. Some participation even favoured a separate assessment of competitiveness aspects, especially with regard to the assessment of new environmental policy regulations: Since there are many benefits to be discovered, for example innovations or lead markets etc, environmental policy-makers should neither fear nor resist such a competitiveness test. However, it was argued by other participants that quantification should not be confused with monetarisation. Despite the divergent positions it was common agreement that quantitative and qualitative assessments need to be balanced and that an impact assessments should always be informative about what has not been considered.

Next to the balancing of qualitative and quantitative analysis, participants stressed the need for a systematic check of long-term impacts and risks of irreversible damage. If possible, innovation aspects and the internalisation of external effects should be addressed. There were, however, concerns that it might take a long time for innovation effects to kick off and that

efforts should better focus on the timely monitoring of present policy effects. Also, an ex-post evaluation of actual effects should take place.

A final major point of discussion was the data basis for impact assessment. Many participants identified difficulties of data provision as the main problem of impact assessment, since data is often scarce or subject to political quarrels between member states and the European Commission. It is the member states that have to show special commitment in this context: They should engage in cross-country data sharing, in establishing databases, in providing the Commission with needed data and in coordinating country research. Pooling of data and information exchange regarding implementation could provide more useful input than establishing cumbersome sanction regimes.

## Conclusions

The presentations and discussions confirmed the observation that impact assessment on European level is a relevant issue for environmental policy-makers and needs careful monitoring and active engagement for the benefit of an integrative, well-balanced approach. Any bias towards one-sided impact assessments with a primarily focus on short-term economic consequences should be avoided. In order to proceed with the integrative approach and to resist pressure from different sides to turn the tool into a tool for the assessment of competitiveness impacts, the European Commission needs broader support from environmental ministers than it has received until now.

During the workshop, a list of first recommendations regarding procedural and substantive requirements for impact assessments was generated and discussed. It was clearly revealed that the discussion of procedural and substantive standards is just in its beginnings and that there is a urgent need for conceptual clarity regarding the right design of impact assessment from the point of view of environmental policy. Special attention needs to be paid to the relationship of the European Commission and the member states: Shall member states be involved more directly into the overall process at the European level or not?

Participants suggested to continue the dialogue and furthermore to extend the dialogue towards colleagues from other ministries. It was critically reflected that discussion about impact assessment should not follow the same route as the discussion about the strategic environmental assessment did: to remain a topic of discussion for environmental policy experts.

# ANNEX

Annex 1: Workshop Program

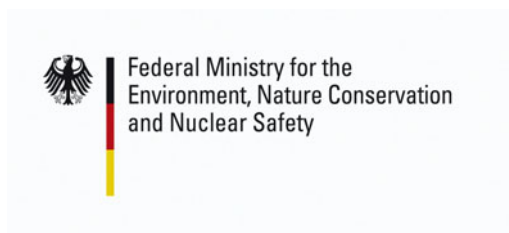
Annex 2: Chairpersons Conclusions

Annex 3: Background paper

Annex 4: Presentations







Federal Ministry for the  
Environment, Nature Conservation  
and Nuclear Safety



Environmental Policy  
Research Centre

## Workshop Program

### ”The Environmental Dimension of Impact Assessments”

### Berlin, 17.-18 June 2004

#### Organisation

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Nature Conservation and Nuclear Safety  
Bundsumweltministerium  
Alexanderplatz 6  
D – 10178 Berlin  
3<sup>rd</sup> Floor, Room 3135

Time	Topic	Invited speakers
<b>Day 1 – June 17<sup>th</sup> 2004</b>		
13.00-13.15	Welcome and Introduction	<b>Cornelia Quennet-Thielen</b> <i>BMU, Deputy Director General</i> <b>Martin Jänicke</b> <i>FFU Berlin</i>
<b>I: Status-Quo: Potentials and Limits of Impact Assessment</b> <i>chaired by: David Wilkinson, IEEP</i>		
13.15-13.45	Initiatives of the European Commission to support the implementation of impact assessment, overview on the implementation	<b>Robin Miège</b> <i>CEC, DG Env</i> <b>Bob Davies &amp; Philip Stamp</b> <i>DEFRA, UK</i>
13.45-14.30	Impact assessment for REACH	<b>Michael Warhurst</b> <i>WWF Europe</i> <b>Steffi Richter</b> <i>UBA</i>
14.30-15:15	Impact assessment for climate policies	<b>Christoph Böhringer</b> <i>ZEW Mannheim</i>

Time	Topic	Invited speakers
<b>II: Evolutions in impact assessment methods</b> <i>chaired by: David Wilkinson, IEEP</i>		
15:45-16:00	Introduction to part II: Presentation of an overview paper	<b>Julia Hertin</b> <i>SPRU, Sussex</i>
16.00-16:45	Methods for the Analysis of External Effects  Methods for Multicriteria Decision Analysis	<b>Rainer Friedrich</b> <i>IER Stuttgart</i> <b>Ahti Salo</b> <i>University of Technology, Helsinki</i>
16:45 -17.15	Consideration of innovation effects in Impact Assessment and market effects	<b>Knut Blind</b> <i>Fraunhofer ISI, Karlsruhe</i> <b>Klaus Jacob</b> <i>FFU, Berlin</i>
17:15-17:45	Tools under development in the European Commission	<b>Marialuisa Tamborra</b> <i>CEC, DG Research</i> <b>Klaus Rennings</b> <i>ZEW, Mannheim</i>
17:45-18:15	Discussion: Practical experiences with impact assess- ment: „Best practice“ and oppportunities for im- provement	
<b>Day 2 – June 18<sup>th</sup> 2004</b>		
<b>III: Minimum standards for methods of impact assessment</b> <i>Chaired by: Cornelia Quennet-Thielen, BMU</i> (short questions and discussion after each presentation)		
09.00-09.45	Procedural aspects: The role of impact assessment in EU common policies and common ground between impact assessment and SEA	<b>Ann Dom</b> <i>EEA, Copenhagen</i> <b>Ingeborg Niestroy</b> <i>EEAC, The Hague</i>
09.45-10:30	Stakeholder Engagement with REACH Impact Assessment	<b>Michael Warhurst</b> <i>WWF Europe</i>
10.45-12:15	Final discussion:  “IA – the way forward” with statements by participants  Kick off: Presentation of a Discussion Paper “Minimum Standards for methods of Impact Assessment”	<i>Chair:</i> <b>Cornelia Quennet-Thielen</b> <i>BMU</i> <i>Short Statements by:</i> <b>Martin Jänicke</b> <i>FFU Berlin</i> <b>Robin Miège</b> <i>CEC, DG Env</i> <b>Bob Davies</b> <i>DEFRA, UK</i> <b>Michael Warhurst</b> <i>WWF Europe</i>
12.15-12.30	Conclusions	<b>Cornelia Quennet-Thielen</b> <i>BMU</i>

## Annex 2: Chairpersons Conclusions

**WORKSHOP ON  
“THE ENVIRONMENTAL DIMENSION OF IMPACT ASSESSMENT”  
Berlin, 17-18 June 2004  
SUMMARY OF THE CHAIRS**

### Background

1. The German Ministry for the Environment, Nature Conservation and Nuclear Safety and the Environmental Policy Research Centre, Freie Universität Berlin hosted a workshop on June 17-18, 2004 to discuss the implications of the recent efforts in the European Union to introduce Impact Assessments for major policies. The workshop was attended by representatives of European governments, the European Commission and representatives of civil society and the scientific community. The participants generally expressed their concerns and raised some questions regarding a sufficient consideration of the environmental dimension in Impact Assessment. Some proposals were made regarding procedural aspects and substantial requirements to safeguard a balanced approach.
2. The workshop was co-chaired by Mr. David Wilkinson (Senior Fellow, Institute for European Environmental Policy) and Ms. Cornelia Quennet-Thielen (Deputy Director General, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany).
3. This summary has been prepared under the responsibility of the workshop's co-chairs and is not intended as a consensus document. Without attempting to itemize all of the important contributions made, the summary provides an overview of the main issues raised and suggestions made by participants to address the environmental dimension of impact assessments.

### Main findings and points of discussion

4. The European Council of Gothenburg in June 2001 called for all major legislative proposals put forward by the Commission to include a Sustainability Impact Assessment covering their potential economic, social and environmental consequences. At the same time, the Lisbon strategy and the White Paper on Governance stressed the need for simplification and rationalisation of the regulatory process (Better Regulation). In June 2002, the Commission established an internal system of Impact Assessment (IA) that merges all existing Impact Assessment procedures. Of 43 legislative proposals formally selected for an Extended Impact Assessment in 2003, the pilot year, 21 proposals had been finalised by April 2004.
5. Impact Assessment is a means for the ex-ante evaluation of the expected impacts of policies. It can be understood as a means to enhance the information basis of decision-making and it holds the potential to design the policy process more efficiently. It is in principle an instrument for strengthening the integration of environmental concerns in accordance with Art. 6 Treaty of the European Community, alongside the analysis of the economic and social impacts of policy options. Impact Assessment can supplement (not displace) other instruments for environmental policy integration such as sectoral strategies, the sustainability strategy, green budgeting, Strategic Environmental Impact Assessments, etc. To fully exploit

this potential the capacity and the willingness to cooperate on problem solving among the responsible DGs is required, as well as a willingness to change policies accordingly. Otherwise IA will remain a tool for the ex-post justification of policies that have already been decided upon.

### Main challenges

6. The approach of Impact Assessment is ambitious and the first year has been a year of “learning by doing”. However, with a first evaluation study performed by IEEP on behalf of the DEFRA3, the UK has shown that the overall quality of the Extended Impact Assessments so far is uneven, sometimes even poor, partly due to missing mechanisms for quality control and insufficient technical guidance. Little explicit attention has been paid to the environmental dimension so far: 8 of 21 assessments did not address the environmental dimension at all and only 5 discussed it in greater detail. This can be explained by methodological difficulties, by problems of quantification, but also by a shortage of resources and lack of political support. Although some participants stated that some of the legislative proposals had little if any environmental implications at all, there was consensus that the first major challenge is to improve the overall quality of the process.

7. The second major challenge is to safeguard the balanced approach. There are concerns that the environmental dimension is not sufficiently covered and that at present short-term economic and competitiveness considerations are overemphasized. IA then might be misused to delay or dilute important environmental regulation. A balanced approach that avoids a sidelining of the environmental dimension is needed to keep IA an accepted and credible instrument.

8. A clear political commitment is therefore necessary for a successful implementation of integrated IA in European policy-making. Any bias towards one-sided Assessments is not in line with the provision by the European Council. Environment Ministers should discuss options to support the Commission’s balanced approach and to become involved in the examination of IA on policy proposals from other sectors that may have an important impact on the environment. Thought should be given to some procedural and substantive requirements for IA that keep the approach balanced and pragmatic regarding methodological and data needs, including the involvement of the Environment Council in the examination of the IA of policy proposals from other sectors that may have an important impact on the environment.

### Procedural requirements regarding the environmental dimension

9. Conducting an Impact Assessment encompasses several steps: (1) the selection of proposals to be subject to IA, (2) the overall objective to be achieved by the policy and the impact areas that should be analysed, (3) a description of the baseline scenario, (4) identification of policy options to be assessed, (5) the actual assessment of options, (6) the determina-

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<sup>3</sup> Sustainable Development in the European Commission’s Integrated Impact Assessments for 2003. Final Report by David Wilkinson et al. London, April 2004. Downloadable: [http://www.ieep.org.uk/PDFfiles/PUBLICATIONS/IEEP\\_ExIA\\_report.pdf](http://www.ieep.org.uk/PDFfiles/PUBLICATIONS/IEEP_ExIA_report.pdf)

tion of indicators to monitor the actual impacts in an ex-post analysis, (7) the participation of stakeholders on the results of the IA and (8) the review of the quality of Impact Assessments.

10. Procedural rules are needed to ensure the appropriate representation of environmental concerns in Impact Assessments. Arrangements are needed that are both effective and efficient and that keep the instrument practicable. One procedural option would be that DG Environment is involved at every step to safeguard the adequate consideration of the environmental dimension. However, this would require considerable administrative capacities. An alternative option would be that DG Environment is involved at least a) at the very beginning, in the selection of proposals and b) at the end of the process during the review of the quality of IA. If a poor consideration of the environment can be effectively sanctioned in an ex-post quality review, the responsible DG will have sufficient incentives for an integration of environmental concerns at the previous steps.

11. Impact Assessments are conducted by the responsible DGs. In this way, the relevant knowledge is available in the process of IA and the results of IAs can be considered at an early stage in the decision-making process. Consideration should be given to whether a central institution should be identified that provides a strong role for coordinating, monitoring and supporting the process. The Secretariat-General seems to be the most appropriate institution, which should hence be given sufficient capacity. So far, Member States are hardly involved in the assessment procedure although there is a growing demand for involvement. Options for making timely use of knowledge and expertise available at the national level need to be discussed.

12. Another open issue is the appropriate point of time in the overall decision-making process to conduct an IA. In general, IAs should be considered in new legislative proposals and reviews of relevant existing legislation. In some cases it may be necessary to already conduct an IA at the stages of the formulation of White Papers or to review the IA in case of major revisions of a legislative proposal. This might help to prevent the Impact Assessment being undertaken either too early or too late.

13. **Selection of proposals:** All proposals should undergo a screening procedure to assess the significance of expected impacts and to select the proposals that should be subject to an extended IA. This screening process for Extended Impact Assessment has to follow clear and transparent criteria.

➤ *The Commission should further develop such selection criteria. But additional reflection is needed to clarify how the other European institutions (such as the Council/Member States or the European Parliament) could be involved without impinging on the Commission's right of initiative. Nothing prevents the Council and Parliament from requesting a more thorough IA.*

14. **Conducting the IA:** In order to secure a comprehensive consideration of environmental concerns, the DGs that are responsible for conducting IAs may need help and advice regarding indicators, methodology and data concerning the environmental dimension.

➤ *For this purpose it could be helpful to establish within the Commission a 'help desk' that could provide support in identifying further environmental impact areas to be considered, indicators, data and methodologies for the environmental dimension of IA. For additional*

*requirements for data, funding would need to be available. The EEA could also play a role in this regard.*

- *Another important element could be to further develop and disseminate training and guidelines to support the officers that are responsible for conducting the assessment.*
- *It would also be valuable if the Commission gathered a team of researchers familiar with the guidelines that offer their expertise on Impact Assessments to the units in need of support regarding methodologies, indicators and data.*

**15. Information flows:** Consideration should be given to what kind of information on IA should be made available at what point in time to Council/Member States and the EU Parliament. Environment Ministries and Agencies should engage in establishing a prospective information management which pools available information and commissions studies in support of the collection of data required for IAs on the European level.

**16. Stakeholder participation:** A wide range of knowledge should be used to ensure the quality of assessment. The Commission's guidelines for stakeholder participation already provide for this and should be fully implemented.

- *The extent to which environmental NGOs depend on additional financial resources to enable their effective participation should be clarified.*

**17. Quality review of Impact Assessment:** The quality assessment of IA should be a regular part of IA procedure. This concerns both the degree of compliance with required procedural standards and whether all relevant environmental impact areas and indicators have been carefully checked and reported. Responsibilities should be clearly stated. The units should be sufficiently staffed.

- *The review of compliance with procedural norms and initial quality control could be performed by the Secretariat-General of the Commission, including the possibility to revise assessments in case of serious quality problems or an unbalanced assessment.*
- *A more substantive review could be performed by an external control unit that would need to be identified and that could be attached to, for example, the European Court of Auditors. The quality control regarding environmental impacts could involve relevant organisations such as the European Environmental Agency or a network of science-based environmental centres. A scientific peer review might be helpful if methodological questions remain deeply disputed.*

Substantive requirements with regard to the environmental dimension

**18.** Many assessments that have been conducted so far focus primarily on the direct impacts and the desired objectives of draft legislation. However, unintended side effects may be more relevant with regard to environmentally detrimental effects. Furthermore, there is a risk of underestimating possible benefits and overestimating costs, which might draw a biased picture of the economic consequences.

**19.** Assessments need a certain degree of uniformity to ensure that all relevant impacts are being checked, as well as the flexibility to cope with different types of policy instruments and policy areas. The assessment should start by checking the individual proposal against an established list of possible impacts.

- *As a minimum, all assessments should consider impacts regarding the four priority areas of the EU Strategy for Sustainable Development addressing the environmental dimen-*

sion: Limiting climate change and increasing the use of clean energy, addressing threats to public health, managing natural resources more responsibly (i.e. safeguarding the life-supporting function of water, air, soil and ecosystems), and improving the transport system and land-use management. The assessment should also cover impacts on the environment outside the EU.

- Refinement and further harmonisation of the existing set of (environmental/sustainable development) indicators at the European and Member State level are needed. Such a common set of indicators would help in assessing the expected broad impacts of proposals on the various impact areas.
- All assessments should not only address the short-term but also the long-term impacts and take full account, where appropriate, of risks of irreversible damage and the needs of further minimisation or prevention of such damage. They should also take full account of the innovation impact of the proposals, notably with a view to unleashing the potential for (ecoefficient) innovations. Assessments should also indicate how far external effects are expected to be internalised and, if possible, should be explicit about which societal actors are contributing to the relevant environmental problems.

20. Impact Assessments should not be restricted to quantification, since many environmental effects are difficult to quantify. The potential, requirements and limits of distinct methodologies and tools should be intensively discussed.

- Assessments should combine quantitative and qualitative assessments to achieve a more balanced overall assessment of positive and negative impacts, risks and uncertainties, notably over the longer term. Cost-benefit analysis should be complemented where appropriate by other tools such as cost-effectiveness and multi-criteria analysis. The IA should clearly indicate what has not been considered.
- It was also proposed that R&D efforts should be strengthened to develop user-friendly tools and methodologies for Impact Assessment that allow a balanced consideration of the different impact areas.



## Annex 3: Background paper

# **The Environmental Dimension of Impact Assessment - Learning from Experiences**

Paper prepared by Julia Hertin for the workshop

**”The Environmental Dimension of Impact Assessments”**

Berlin, 17-18 June 2004

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

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## Introduction

Despite the wealth of environmental policy measures introduced in industrialised countries over the last three decades or so, environmental quality is still deteriorating in many areas (EEA, 2003). One important reason for this is the often countervailing direction of policies in areas such as transport, agriculture or energy (Lenschow, 2002).

To address this problem, many environment stakeholders have long demanded that major proposals in all areas of policy should undergo an environmental appraisal<sup>4</sup>. The objective of this appraisal would be to broaden the criteria used in policy design that have tended to focus narrowly on whether the policy can efficiently solve a given problem. It aims to ensure that adequate consideration is given to potential impacts on the environment and possible ways of avoiding or mitigating these effects.

The introduction of EU Impact Assessment (COM(2002) 276 final) - a mandatory appraisal procedure with an environmental dimension - was therefore met with high expectations by the NGO community. First experiences with the procedure, however, have led some environmental stakeholders to raise the concern that Impact Assessment (IA) promotes the sidelining of the environment rather than its mainstreaming (cf. Coffey, 2004). This concern relates to the ambiguous objectives of the procedure which aims to bring together two different policy agendas:

- The concept of *sustainability impact assessment* as proposed by the European Commission (COM(2001)264 final) and referred to in the Gothenburg Presidency Conclusions was developed as an instrument to improve policy coherence and to implement the EU Sustainable Development Strategy.
- The Lisbon process and the Governance White Paper have led to a review of the EU *regulatory impact assessment* procedures which aim to improve the quality of regulation and to ensure the costs of regulation are proportionate to benefits (COM (2001) 726). Here, the objective is to strengthen and streamline a range of *ex ante* evaluations such as budgetary evaluation, regulatory impact assessment, subsidiarity and proportionality assessment, and business impact assessment.

This dual objective of IA is clearly expressed in the Commission Communication:

*'The Commission intends to launch impact assessment as a tool to improve the quality and coherence of the policy development process. It will contribute to an effective and efficient regulatory environment and further, to a more coherent implementation of the European strategy for Sustainable Development' (COM(2002) 276 final).*

There are commonalities as well as tensions between the better regulation agenda and sustainable development. Both aim to:

- increase the accountability and transparency in policy-making;
- promote dialog and participation in decision-processes;
- improve coherence between different policy areas; and
- improve the evidence-base and quality of regulation.

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<sup>4</sup> In this paper, the terms 'appraisal' and 'assessment' are used interchangeably.

Tension arises mainly from the aim of regulatory reform to demand higher standards for the justification of policy intervention with a view to reducing the burden of regulation on business and society. In contrast, addressing the problems identified in the EU Sustainable Development Strategy such as poverty, climate change, and biodiversity loss, may require more rather than less policy intervention. Similarly, some see a conflict between the 'soft' and co-operative instruments favoured by new governance approaches and the short-term effectiveness of environmental policy.

#### *Opportunities and risks for the environment*

Against the backdrop of these commonalities and tensions, this paper reviews existing policy assessment systems to discuss how ex ante policy appraisal can strengthen *environmental concerns* in policy-making. This focus should not suggest, however, that protecting the environment is - or should be - the only objective of integrated policy appraisal systems such as EU Impact Assessment.

The main expected benefits from Impact Assessment for the environment are:

- All sector departments are required to analyse and explicitly consider the environmental impacts of their major policy initiatives. This can be expected to extend environmental expertise and awareness within sectoral DGs.
- IA will improve transparency about projected environmental impacts and the assumptions and evidence underlying these projections. This will make it easier for environmental stakeholders to engage with the decision-making process (e.g. challenging the policy, suggesting modifications or demanding further analysis).

At the same time, there are concerns that Impact Assessment may not benefit the environment:

- IA not only opens sector policies to environmental scrutiny, but it also works the other way: It requires DG Environment to analyse the effects of a proposed policy on economic growth, competitiveness, households and so on. Given the difficulty to adequately capture the costs of environmental damage and the innovation effects of environmental policy, IA could weaken the case for environmental policy (see section on methodology below). Moreover, those who promote the interests of industry may use IA to delay or block undesired environmental measures.
- Given the broad scope of IA, there is a risk that the environmental dimension will play a small role. Assessments may focus on traditional elements in regulatory analysis rather than exploring unintended effects.
- IA may also be ineffective if it is not fully implemented or if it is approached in a formalistic way rather than as a tool to support analysis before the decision.

## Experiences with Sustainability Impact Assessment

A number of countries have over recent years begun to experiment with environmental policy appraisal approaches. The detailed design of the procedures differ, but usually they share the following features:

- undertaken *ex ante*, i.e. before any decision on the policy is taken;
- aiming to identify and assess major environmental impacts of the proposed policy;
- led by the government department responsible for the policy; and
- carried out in several stages (e.g. preliminary screening and full assessment).

It is difficult to obtain a complete overview of national activities in this area because guidelines and assessment results are not always published and there is often a considerable implementation deficit. Regulatory impact assessment procedures exist in the large majority of EU Member States, but environmental aspects are only explicitly covered by this procedure in Denmark, the Netherlands, Finland, Sweden and the UK (see table 1). Several other countries have developed environmental appraisal procedures separate from regulatory impact assessment. The four cases with the probably most developed impact assessment procedures – in the EU, the UK, the Netherlands, and the US – will be described in more detail below.

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Policy to carry out IA	✓	✓	✓	✓	✓	✓	✓	✓	○	✓	✓	✓	✓	✓	✓
Dedicated institution / body	✓	✓	✓	○	✓	✓	✓	✓	○	✓	○	○	○	✓	✓
Common guidelines	○	✓		○	✓	○	✓	✓	○	✓	✓	○	✓	✓	✓
Training provided to regulators	✓	✓	✓	○	○	○	○	✓	○			○	✓	✓	✓
Areas Covered:															
- Business	✓	✓	✓	○		✓	✓	✓	○	✓	✓	✓	✓	✓	✓
- Environment	○	✓	○	○		○	○		○	✓	✓	○	✓	✓	✓
- Health & safety	○	✓	○	○		○	○		○	○	✓	○	○	✓	
- Business administration	✓	✓	✓	○		✓	✓	✓		✓	✓	✓	✓	✓	✓
- All costs and benefits	○	✓	○	○	○	○	○	✓	○	✓	○	○	✓	✓	✓

Table 1: Regulatory Impact Assessment in EU Member States (Adapted from CEC, 2001)

## European Union

Environmental policy appraisal in the European Commission has a difficult heritage with the experience of the Green Star system introduced in the mid-1990s. Under this procedure, proposed new legislation with particular relevance to the environment (marked with a Green Star) was envisaged to go through a process of environmental appraisal. The system was never fully implemented (Kraack, 2001) due to a lack of methodologies and resources as well as being very unpopular with sectoral DGs that felt 'controlled' by DG Environment.<sup>5</sup> Wilkinson (1997: p163) found 'no evidence that any such environmental appraisals have been undertaken'. The failure of the Green Star system indicates the shortcomings of a purely administrative reform with insufficient resources and political backing. It also highlights the difficulties of a strategy that leaves the responsibility of 'greening' the various sectoral policies to the environmental department. Impact Assessment (as the Cardiff process before it) places more responsibility on the policy sectors themselves.

The Impact Assessment procedure was adopted in 2002 and is being introduced gradually throughout 2003 and 2004. The procedures – which is set out in methodological and procedural guidelines issued by the Commission in the autumn of 2002 (CEC, without year) – has the following main characteristics (see Wilkinson et al, 2004 for a comprehensive review of the current operation of the IA system):

- applies to all major policy proposals – whether regulatory initiatives, financial interventions or cooperative instruments; replaces previously separate regulatory impact assessments
- consists of a preliminary assessment for all proposals and an extended assessment for those with substantial economic, environmental and/or social impacts
- assessment is carried out by the Directorate-General responsible for the policy proposal in consultation with other DGs and external stakeholders
- desk officers are encouraged to quantify or monetise impacts where possible.
- results are documented in an Impact Assessment Report which should cover the following main aspects: problem identification, objective of the proposal, policy options (including a 'no policy' option), impacts, further analysis and follow-up
- stakeholder consultation is mandatory and assessment reports are published

Any evaluation of effectiveness of the procedure from an environmental perspective needs to be preliminary because the procedure is currently being rolled out, and training, tools and guidance documents are only beginning to become available. However, a preliminary contents analysis of the 21 Extended IAs carried out in 2003 (Hertin et al, 2004; see also Wilkinson et al 2004) shows that:

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<sup>5</sup> Interview with official from DG Enterprise in 2001.

- IA reports tend to focus on the direct costs and benefits of the policy; much less attention is devoted to unintended consequences, be they economic, social or environmental.
- A number of IAs of important policies address the question of environmental impacts in some detail (e.g. Trans-European transport network, Sugar, Tobacco). However, this is the case for less than half of the IA. Some IAs merely state that there are 'no' or 'no significant' expected effects on the environment.
- Assertions on environmental impacts are often not backed up with evidence. Very few IAs make quantitative statements about potential environmental impacts.
- Impact Assessment has also shown to be – at least to some extent - a political activity. The selection of proposals for extended assessment was politically negotiated (Wilkinson, 2004) and the appraisal process itself was influenced by views and priorities of different stakeholders.
- In several cases, the process prescribed by the guidelines has limited relevance to the proposal assessed, for example, because the policy initiative assessed is a formal legal change (for which an options appraisal is not appropriate) or a strategy document (the immediate impacts of which are unclear).

The case of EU Impact Assessment shows that:

- ⇒ assessing the environmental impacts of complex policies in a multi-level governance system is extremely *challenging* and the data that would be required for a rigorous analysis is often not easily accessible
- ⇒ impact assessment requires considerable *resources* which are unlikely to be provided by the administration unless there are strong *incentives* to do so
- ⇒ there is a tension between the desire to ensure consistent quality through *prescriptive* guidance and the need to allow *flexibility* in the assessment of very diverse policies.

## United Kingdom

Over the last decade or so, a range of policies appraisal methodologies were developed within different departments several of which that are at least partly concerned with environmental issues.<sup>6</sup> A specific environmental policy impact assessment procedure was first introduced in the 1990s (DETR, 1998), but it was voluntary and had a limited uptake (cf. Russel and Jordan, 2004).

In parallel to this, the scope of UK Regulatory Impact Assessment – which is mandatory for major regulation with results being published on government websites – has been broadened to include unintended consequences and indirect costs. Environmental impacts, however, did not usually play a significant role in the assessments and little guidance was given on how to

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<sup>6</sup> Examples include Department of Environment, Transport and the Regions 'Policy appraisal and the environment' guide, Department for Transport's 'New Approach to Appraisal', Regulatory Impact Assessment, Strategic Environmental Assessment, the Green Ministers' screening requirements, the Treasury policy guidance 'Tax and the environment' and the Cabinet Office 'Policy makers checklist'.

evaluate them (RIU, without year). The environmental and transport departments therefore continued to promote a separate appraisal checklist bringing together major departmental procedures designed to explore sustainability effects of policy. In April 2004 key elements of this checklist have been integrated into the Regulatory Impact Assessment and the separate Integrated Policy Appraisal has been abandoned.

Although it is too early to assess the outcome of this recent change, it can be expected that from an environmental perspective it represents a trade-off. While the new system should ensure a wide implementation across all departments, it is likely to be much less comprehensive than the procedure the environmental department had promoted.

Overall, the UK case highlights the following points:

- ⇒ Introducing an effective environmental impact assessment procedure is difficult and encounters considerable barriers, even in a political system with strong interdepartmental coordination and environmental integration procedures.
- ⇒ The successful implementation record can be explained by its high-level political mandate (the Prime Minister has made a personal commitment to Regulatory Impact Assessment) and the coordination and quality assurance provided by a well-resourced unit in the Cabinet Office.
- ⇒ Integrating environmental impacts into a mandatory appraisal system highlights the challenge of balancing efficiency (to retain the constructive engagement of sectoral departments and desk-officers) and environmental effectiveness (to ensure sufficient depth and breadth of the analysis).

## Netherlands

The Netherlands system of ex-ante environmental impact assessment for policy was introduced in the mid-1990s under the Quality of Legislation initiative. This package was primarily concerned with increasing effective administration, but also emphasised the need for a better understanding of business and environmental effects. The procedure was developed by a high-level ministerial commission chaired by the prime minister. It includes the so-called E-Test (environmental impact assessment), the B-Test (business impact assessment) and the Test for Enforceability and Practicability. The aim of the three tests is to provide Cabinet and Parliament with all information needed to weigh up the intended and unintended effects of the proposed measure. A recent reform of the procedure has given more responsibility to the sectoral ministry in charge of the policy to simplify the process and reduce the need for interdepartmental working groups. This was partly a response to an 'assessment fatigue' in the policy system.

In a first phase, a list of proposals to be assessed is drawn up and their assessment requirements are defined. This task is undertaken by the responsible ministry in collaboration with the so-called Proposed Legislation Desk, that has been jointly set up by the Ministry of Economic Affairs and the Ministry for Housing, Spatial Planning and Environment. The assessment is then carried out by the responsible ministry. While the assessment was initially largely qualitative, it now puts more emphasis on quantitative methodologies, especially cost-



benefit analysis. In practice, however, methodological difficulties and time constraints mean that quantitative assessments are rarely undertaken. Consultation with external stakeholders is encouraged, but required only under certain conditions. The results of the assessment are passed on to the Ministry of Justice to review the scope and quality of the assessment (as well as ensuring that the policy proposal complies with constitutional provisions).

In an interesting variation from most other cases, the assessment is conceived as an information gathering exercise rather than a political process. The reports – which tend to be drafted by lower-level officials – describe potential impacts but they do not derive preferred options or recommendations for policy. This reduced the political status of the procedure.

Since the assessment reports are not published, it is difficult to evaluate the outcome of the procedure. It has been suggested that the E-Test procedure has strengthened environmental concerns in policy-making, although it remains unclear whether it has made a tangible difference to decisions (IEEP, 2002). The ambitious goals of providing the best possible information and of promoting environmental policy integration appear not to have been achieved because of the low level of political support (IEEP, 2002).

The E-Test experience highlights factors that support policy appraisal as well as those that can jeopardise it:

- ⇒ As the proliferation of ex ante policy assessments has led to an assessment fatigue it is crucial to ensure that the process is efficient and targeted.
- ⇒ The Proposed Legislation Desk highlights how an inter-departmental institution can play a positive role in the provision of expertise, support and process coordination.
- ⇒ Emphasising quantitative and cost-benefit analysis can prove counter-productive if the responsible desk officers do not have the required resources, time, and expertise.
- ⇒ Policy appraisal is – at least to some extent – a political process and the procedure should reflect this.

## United States

The United States have a long-established system of Regulatory Analysis. The focus of this system is one of traditional regulatory impact assessment, i.e. to ensure that the costs of regulation justify its benefits and to establish the most cost-effective policy option. The overall aim is to reduce the economic burden and complexity of traditional regulatory approaches. However, the assessment is expected to cover all relevant costs and benefits of the measure, including unintended side-effects and distributional outcomes.

US Regulatory Analysis used cost-benefit analysis and cost-effectiveness analysis as the dominant methodologies. Considerable guidance is given on the assessment of costs and benefits, including external and future costs. However, the guidance emphasises the need to consider non-quantifiable effects and points out that the option with the largest monetised net-benefit estimate may not always be the best alternative. In practice, it appears that:

- The focus of Regulatory Analysis is the economic efficiency of regulation. The overall perspective underlying RA is the liberal standpoint that regulation or intervention in free

market can only be justified by 'compelling public need' (Executive Order 12866-Regulatory Planning and Review). The procedure tends to be used to scrutinise the cost-effectiveness of 'social' regulations (e.g. environmental, health and safety).

- While the importance of non-market effects is acknowledged in the RA guidance, attempts to make the analysis more rigorous lead to reduced influence of non-quantifiable impacts in comparison with direct economic costs and benefits.
- Agencies have a high degree of discretion in choosing assessment criteria and defining the overall format of the analysis. While this increases the flexibility of the procedure, it is less suitable to changing decision-making criteria or cultures.

A specific *ex ante* appraisal of environmental has also been introduced by the National Environmental Policy Act (NEPA). NEPA requires agencies to consider the environmental impacts of agency decisions, including rulemakings. It requests an environmental impact statement for all "major federal actions significantly affecting the quality of the human environment" (NEPA). In practice however, the procedure has largely been applied to site-specific construction, development, or resource extraction projects rather than higher-level policies (CEQ, 1997).

## **Learning from experience: Making Impact Assessment work for the environment**

### Safeguarding the environmental dimension in integrated assessment procedures

In most countries environmental policy appraisal was initially conceived as a separate procedure. Approach and methodology drew on established assessment methodologies for site-specific projects such as Environmental Impact Assessment and Strategic Environmental Assessment. As the experience in the EU and a range of Member States shows, there is a recent trend to integrate environmental appraisal into existing regulatory appraisal schemes. This is both a response to the integrative character of the sustainability agenda and to the proliferation of appraisal procedures.

The cases of the EU and the UK – where specific environmental appraisals were used little despite formal requirements - suggest that adding an environmental dimension to widely-used systems of regulatory analysis should be seen as an opportunity. However, it is essential that all aims of IA – streamlining regulation, improving policy coherence and promoting sustainability – are given equal consideration:

- ⇒ As stakeholders may have rather different expectations of IA, its importance as an instrument for sustainability should be emphasised from the highest political levels.
- ⇒ To ensure that all important environmental areas are covered, the IA guidance could define a mandatory list of impact areas each IA needs to consider (current EU guidance contains only an illustrative list of impacts in Annex 5). An alternative, and perhaps more effective, option would be to charge an inter-departmental working group with the drawing up the list of relevant impact areas on a case-by-case basis.

- ⇒ Better guidance should be given on when an impact can be considered as 'significant'. In particular, it should be clarified whether significance refers to the absolute impact or the impact relative to the overall expected benefit of the policy

### Supporting the analysis of unintended effects

Even in countries with well-developed appraisal procedures achieving full implementation and high quality standards in *ex ante* assessment has proven difficult. Although IA is designed to cover all areas of sustainability, many current reports focus on the conventional aspects of regulatory analysis. To improve the appraisal procedure it is important to understand and acknowledge both political and technical difficulties associated with the assessment of unintended consequences:

- The perceived role and mission of sectoral ministries has traditionally not included environmental concerns. Therefore, assessing policies on environmental criteria can be perceived as a marginal requirement. Moreover, as the identification of significant unintended effects may open the door to political challenges, departments can be expected to embark on the analysis of these effects cautiously and sometimes reluctantly.
- Anticipating environmental effects in detail is frequently very difficult – especially in areas with uncertainty, lack of data, external effects and complex causal chains. Desk officers will not always have the expertise to identify and assess potential environmental impacts. They may also be unwilling to engage with what appears to be speculative and normative analysis. Accessing expertise in other parts of the administration involves transaction costs and institutional barriers. Even where knowledge is made available, substantial resources are needed to carry out the analysis.

Although these barriers are difficult to overcome, certain measures can help address them:

- ⇒ Sectoral departments need to be strongly encouraged to provide the time and resources that would allow desk officers to gather evidence, undertake further analysis and consult internal and external stakeholders if required. At the same time, the analysis must focus on the most relevant impacts to avoid overloading the process.
- ⇒ A central support unit – such as the Dutch Proposed Legislation Desk - can play a very positive role in providing expertise and quality assurance as well as intermediating between departments. This role could be played by the Secretariat-General (although this would require the allocation of considerably more resources) or by a new inter-service institution.
- ⇒ To the extent that resources allow, environmental agencies should aim to provide expertise on demand. To facilitate constructive engagement, this should be done in a way that acknowledges the priorities and sensitivities of sectoral departments.
- ⇒ Desk officers could also be given support tools that help identify links between common drivers of environmental degradation (e.g. transport demand, green site development, increased packaging) and their impacts (air pollution, waste, biodiversity loss etc.).

- ⇒ Guidance needs to emphasise that IA is not only about accepting or rejecting a policy, but also aims to identify adjustments or accompanying measures that can improve the outcome and exploit win-win potentials.

### Using methodologies that capture environmental impacts appropriately

In most countries Regulatory and Sustainability Impact Assessment is undertaken as a qualitative and discursive exercise. Assessment reports usually describe the problem to be addressed, propose options and discuss a range of impacts. Data is often provided to back up the specific points of the essentially qualitative analysis.

Many appraisal procedures, for example in the US, the UK and the EU, aim to encourage quantification and monetisation of both market and non-market effects to improve the evidence-base of decisions. The methodologies most widely used for this purpose are Cost-Benefit Analysis (CBA), Cost-Effectiveness Analysis (CEA) and Multi-Criteria Analysis (MCA). More selectively applied are economic modelling (econometric, equilibrium, sectoral and biosphere models), and risk analysis. They tend to contribute specific knowledge on individual impact areas, rather than to serve as a framework (i.e. providing an overall result of the assessment).

From an environmental perspective, using quantitative methodologies can have the benefit of facilitating the integration of previously neglected ecological impacts into decision-making, for example the future costs of climate change. On the other hand, some methodologies tend to bias against environmental measures by:

- Giving less consideration to those environmental and health effects that are difficult to quantify or monetise (although cost-benefit analysis can principally be used to assess any impact, the lack of monetised data can make it very costly to apply it to new areas);
- Failing to reflect specific characteristics of impacts that are often particularly relevant in the environment, for example their long-term character, irreversibility and uneven distribution of costs across regions and social groups; and
- Over-estimating economic cost of environmental policies: While technological development has shown in the past to substantially reduce implementation costs - the so-called 'innovation offsets' of environmental regulation - the foresight of such learning effects is difficult and they are not usually considered in impact assessment.

The opportunities and risks associated with different methodologies have been discussed extensively in areas such technology assessment, risk assessment and policy analysis. Without re-iterating this debate, a number of key points can be made drawing on recent work in this area as well as practical experiences with Impact Assessment.

- ⇒ In principle, any scientifically valid methodology can contribute evidence to Impact Assessment. It is, however, crucial that the use of CBA and CEA does not narrow down the analysis towards intended impacts and market effects, and that impact ar-

as less amenable to quantitative or monetary analysis are given appropriate weight in the decision.

- ⇒ The experience in the US, and to some extent in the UK, shows that including wider social, economic and environmental effects in Regulatory Impact Assessment is difficult to achieve in practice if CBA or CEA serve as the *overall framework* of analysis (see table 2). Multi-criteria techniques appear more suitable to structure the assessment of a wide range of diverse and uncertain impacts. Quantitative and monetary methodologies can then be used within this framework to address the more tangible effects for which sufficient data is available.
- ⇒ Where quantitative methodologies are used to analyse uncertain or external effects and where monetisation and other forms of aggregation are employed, underlying assumptions need to be made transparent and possibly negotiated with stakeholders. Where basic assumptions remain contested, sensitivity analysis should be undertaken. Aggregation should not obscure key trade-offs and distributive effects.
- ⇒ Better guidance should be provided on:
  - which methodologies to use for which impact areas and under what circumstances; and
  - how to address uncertain and controversial impacts.

IA framework methodologies	Approach	Limitations or drawbacks in assessing environmental impacts
Cost-Benefit Analysis (CBA)	compares costs of a policy option to its benefits	- limited applicability to uncertain, long-term and non-market effects - often not transparent about key methodological assumptions
Cost-Effectiveness Analysis (CEA)	compares costs of alternative ways to attain a given policy objective	- as CBA - focus on intended effects and only one policy objective
Multi-Criteria Analysis (MCA)	analysis of options on a range of qualitative and quantitative criteria	- risk of double-counting effects - openness of method makes it vulnerable to challenge and criticism

Table 2: Methodologies used as overall structure for Impact Assessment

### Harmonising and improving process standards

Impact Assessment aims to serve two functions:

- to improve the analysis and evidence-base of policy making during the decision-making process, and
- to justify decisions and make more transparent how they were arrived at.

The balance between these two objectives varies between countries (e.g. the US system is more geared towards transparency) but also between individual cases (e.g. the EU IA on sugar policy predominantly serves an analysis function, while the IA on the link between

emissions trading and Kyoto mechanisms mostly justifies a decision). For Impact Assessment to work as environmental appraisal of sectoral policies, it is crucial that it does in fact inform the decision-making process and that it broadens decision criteria. To achieve this, high process standards have to be met:

#### Timing of IA:

Ideally, Impact Assessment should be conceived of as an ongoing process throughout the policy formulation process. In practice, most IA procedures are based on a main assessment carried out at over a fairly short period of months or even weeks. Where this is the case – as for example in the EU – it is important to ensure that it is carried out at the right point in time:

- If it is undertaken *before policy options are formulated*, the assessment will be necessarily vague, risking to undermine the external credibility of the procedure. It is also more likely to focus on direct costs and benefits.
- If it is undertaken *after the basic design of the policy had been decided*, it will not have a significant impact on policy decisions may take the form of a defensive and selective presentation of evidence.

Although EU IA is integrated into the Commission's Strategic Planning and Programming cycle, it does not appear that the assessment has always been carried out at the appropriate moment in time (e.g. too early in the case of the Intelligent Vehicles IA and too late in the case of the Digital Broadcasting IA).

#### Openness and consultation:

The results of analysis of environmental impacts will usually depend on:

- potentially controversial assumptions, for example the value of environmental goods, the importance of future impacts (e.g. discount rates in CBA), and the willingness of society to take environmental and health risks; and
- the boundaries of the assessment, for example whether it includes impacts in third countries, and how far into the future it looks.

Answers to these questions are made on the basis on value judgements as well as expertise and practical constraints. Therefore, both boundary decisions and key assumptions need to be discussed with external and internal stakeholders. From an environmental perspective, consultation should ensure:

- ⇒ transparency of the assessment process, including the publication of all IA reports on a central website;
- ⇒ early and constructive involvement of environmental departments or agencies (in both the scoping and the assessment phase); and
- ⇒ timely consultation with external stakeholders (including environmental NGOs) not just on the substance of the policy but also on the methods and assumptions of the assessment.

### Quality assurance and evaluation:

Given the need to allow individual department to apply Impact Assessment flexibly to their specific policies, it is crucial that there is a functioning process of quality assurance. It appears to be most effective where it is supported with:

- ⇒ a well-resourced coordinating unit (the Secretariat General of the European Commission is currently not sufficiently resourced to play this role effectively)
- ⇒ an influential quality assurance process, either by a respected outside body or by a powerful government department (such as the UK Cabinet Office); and
- ⇒ a possibility for the coordinating department (and possible other departments) to delay or reject an initiative if the assessment falls seriously short of quality standards (as for example in the UK).

## **Conclusion**

Most observers agree that the integrated policy appraisal procedures are an important opportunity for sustainable development. To realise the potential benefits, however, the assessment process needs to be genuinely open, have the support from key internal and external stakeholders and avoid the capture by one specific set of interests. Possibly because of the scale of issues at stake in European policy-making, EU Impact Assessment appears to be more politicised – and therefore at risk from being misused to exert political influence – than similar procedures at the national level.

Early experiences suggest, therefore, that for Impact Assessment to achieve its ambitious aims, current procedures must be improved and the consideration of sustainability issues strengthened. Many of the institutional and methodological requirements identified in this paper, however, are in line with policy-making principles set out by the Commission. These include the Communications on the use of expertise in policy-making (COM(2002) 713 final) and minimum standards for consultation (COM(2002) 277 final) as well as the Guidelines and Handbook for Impact Assessment (CEC, without year). In reviewing the procedure, the European Commission can learn from good – and sometimes bad – practices on the national level. The key elements of a well-functioning *ex ante* policy appraisal system emerging from this paper are:

- ⇒ a high-level political commitment to the assessment procedure and its role in promoting sustainable development;
- ⇒ a better and more cooperative process to select proposals for extended IA and for choosing relevant impact areas for each assessment;
- ⇒ a platform for advice, training, data access and experience-sharing for those involved in Impact Assessment;
- ⇒ use of methodological frameworks that allow the integration of both quantitative and qualitative analysis;
- ⇒ an iterative assessment process that reflects the fact that proposals at different stages of development require different types of assessment; and

⇒ a well-resourced, formal evaluation process with recourse to a sanctioning mechanism.

A central question is how much the comprehensiveness, openness, and analytical rigour of the IA procedure can be improved without over-burdening and alienating the administrations implementing it. The experience in several countries shows that over-ambitious and insufficiently-resourced appraisal processes will be poorly implemented. Therefore, the potential for improving the standards of Impact Assessment is closely linked to the willingness to provide the political mandate and the resources to support it.

## Acknowledgements

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## Annex 4: Presentations



## The European Commission's Impact Assessment Procedure – overview of the implementation

Robin Miège,  
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European Commission

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## Impact Assessment

- I. Political Context and **background**
- II. The Commission's IA **method**
- III. **Procedures**
- IV. **Implementation** – focus on environmental impacts
- V. **Lessons learned**
- VI. **Future developments**

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### I. Political Context and **background**

Political objectives - European Councils

- 1) To promote sustainable development

*Göteborg (2001) Sustainable Development Strategy proposed introduction of Sustainable Development Impact Assessment (Economic, Environmental and Social impacts)*

- 2) To promote better law making and evidenced based policy making

*Laeken (2000) and Seville (2002) Mandelkern and Better Regulation Action Plan proposed introduction of Regulatory Impact Assessment (Regulatory analysis, Subsidiarity and Proportionality)*

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### II. The Commission's IA Method – operational objectives

- Helping us to develop and defend our policy proposals
- Framework for consulting stakeholders
- Merging existing pre-proposals assessments in a single instrument to have an overall assessment of impacts
- Substantiating and improving communication on Commission policy-making
- Coherence / Simplification / Transparency / Evidence-based policy making

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### II. The Method – ask common sense questions

1. What is the problem?
2. What are the objectives?
3. What are the policy options available?
4. What are the economic, social and environmental impacts of these options?
5. What are the pros and cons of the options?
6. (What is the recommendation and why?)
7. (What monitoring and evaluation)

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### II. The Method - Main impacts examined include...

- **Economic:** Economic growth, price level stability, innovation, business impact, competitiveness, market structure etc
- **Environmental:** Air, water, soil, climate, bio-diversity, human safety and health etc
- **Social:** Employment, social protection, consumer interests, education, equality etc

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### III. Procedures - which proposals are selected for IA ?

- **Coverage:**  
All legislative proposals and all major policy defining initiatives in the Commission's Work Programme.
- **Criteria:**
  - Substantial economic, environmental or social impact
  - Major impact on one or more groups in society
  - Represent major change or policy reform
- **Exceptions:**  
Green Papers, Periodic decisions, proposals following international obligations, implementing decisions and technical updates.

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### III. Procedures – A two step approach

Preliminary IA?

Extended IA?

Interdepartmental IA?

**Preliminary IA**

- End product:1-2 pages statement
- Issue, objectives and expected outcome
- Policy options, including consideration of subsidiarity and proportionality principle, and likely associated impacts
- Indication on need for an extended IA

**Extended IA**

- End product: report
- In-depth analysis of potential impacts of policy proposals
- Consultation with interested parties and relevant experts
- Interdepartmental group if significant cross-cutting impacts

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#### IV. Implementation

- Quantitative assessment – did we deliver according to targets ?
- Qualitative assessment – were the IAs delivered of an acceptable standard ?

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#### IV. Implementation - Quantitative assessment 2003

- 2003 : Ambitious first trial year selected 42 key proposals for IA from Work Programme 2003 representing some 20 percent of the total No of proposals ( 200 +)
  - Delivery reached 50 percent of target equivalent to percentage of proposals adopted for Work Programme as such
- ➡ Satisfactory first year

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#### IV. Implementation - Objectives for 2004

- 2004 : A higher target set for the second year - 46 proposals for Extended IA increasing coverage of Work Programme proposals to 50 percent of priority proposals. (Total No proposals 75 +).
- With the 'carry overs' from 2003 the Commission is committed to deliver 65 IAs in 2004 ➡ AIM: Gradual increased coverage over the next years

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#### IV. Implementation - Qualitative assessment strength and weaknesses

- Variable quality :
  - Strengths: issue identification, objectives and consultation generally well covered.
  - Weaknesses: Analysis of options and in depth assessment of impacts less well developed.
- Overall, good start but - like all Member States – we need to improve

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#### IV. Implementation – environmental impacts of 2003 proposals

- Environmental and social Impacts are generally the weakest link in the equation
- Out of 21 proposals adopted in 2003
  - 8 proposal had no environmental assessment
  - 3 had short environmental assessments
  - 5 had some discussion of ENV impacts
  - 5 had quite detailed discussion of ENV impacts
- Most proposals in the first group, however, did not have any clear and direct ENV consequences ( internal market, financial or technical type proposals)

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#### IV. Implementation, environmental impacts - challenges

Lack of knowledge: Environmental impacts often not known or seen as an 'artificial add on' because many DGs are unfamiliar with the environment as a policy area.

Difficult to quantify : ENV impacts are difficult to quantify and particularly, to monetise. They may therefore not be given sufficient weight, even in proposals where such impacts are clearly significant.

Method not known or accepted: IA has traditionally focused on economic impacts. There is less knowledge and acceptance of the balanced approach which emphasises the three SD pillars in equal measure.

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#### IV. Implementation, environmental impacts - opportunities

- To develop a clearer understanding of environmental impacts of proposals outside the environmental area
- To develop better data and data analysis and make it available to policy makers
- To develop greater understanding of linkages between key economic, social and environmental variables

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#### V. Lessons learned 2003 - main lessons

- Generally seen as a useful tool which gradually will help improve the way the Commission prepares new policies.
- However, still does not enter early enough in the policy making process. The aim is to make IA a policy preparation process rather than an outcome in the form of a document.
- Good framework for horizontal thinking. It forces people to think outside the box and to consider policy coherence.
- Strengthens consultation with stakeholders on all IA proposals.

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## V. Main lessons learned and next steps

- Refine the method on economic, social and environmental analysis, quantification and improve options and regulatory analysis, and improve presentation
- Clarify procedures including selection, use of PIA versus Ex IA
- Strengthen general organisational capacity and skills both within the SG and in the DGs. Continue training of all officials in IA and consider use of expertise on certain issues.

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## VI. Future developments – Council, Parliament and external stakeholders

- The Competitiveness Council conclusions and the Spring Council conclusions has asked the Commission to refine its method on competitiveness.
- No other Council has shown any interest in IA or in refining environmental and social impacts
- Most vocal external stakeholders focuses on costs to business and concern with regulation as such
- The EP Doorn report is similarly concerned with business impact and administrative burden

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## VI. Future developments

- These developments not always congruent with the original political objectives expressed at Göteborg and Laeken
- Commission remains committed to developing a long term cross sectoral and integrated IA tool to promote better regulation and sustainable development
- IIA: in this context, it will discuss how best to use such a tool between the three institutions in the context of the Intern - Institutional Agreement.

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## VI. The future - Planned DG Environment Impact Assessments

1. **Soil protection**
  2. **Protection and conservation of the marine environment**
  3. **Sustainable use of pesticides**
  4. **Air quality (Cafe)**
  5. **Urban environment**
  6. **Sustainable use and management of resources**
  7. **Waste prevention and recycling**
  8. **Health and Environment**
- ... need to identify those for 2006 early enough...

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## Conclusion

- The Commission considers its integrated approach to IA important step to improve EU lawmaking in all policy areas and an important tool which will help put into practice better regulation and sustainable development
- Council & EP need to take a balanced view to Impact Assessment
- The Commission needs time, stable procedures and support for its method if it is to succeed in introducing this new system and culture to the Commission. It will be a continuous learning process requiring active and constructive participation from all players.

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## Lessons from UK Experience with Impact Assessment and a View on the European Commission's Initiative

Bob Davies and Philip Stamp  
UK Department of Environment,  
Food and Rural Affairs



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## Defra's Commitment to Impact Assessment

- Overall aim of Defra is **sustainable development**
- Defra therefore committed to assessing **economic, social and environmental impacts** of all policies
- Mechanism for doing this is the Regulatory Impact Assessment (RIA)



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## The RIA Process

- RIAs required for all government policies that will impact on business or the voluntary sector.
- From April 2004 RIAs are also required for policy proposals that will affect the public sector
- RIA process begins at earliest stage of policy development (Initial RIA)
- More detailed assessment (Partial RIA) is required for public consultations



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## RIAs in Defra

- Defra has > 200 current policy proposals
- 50% are EC proposals or transposition of agreed EC measures
- Environmental regulations/policies account for 35% (approx. 70)
- 75% of these are EC proposals or implementation of EC proposals.



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## Advantages of impact assessment

- Ensures all aspects of **sustainable development** (economic, environmental and social) taken into account
- Should mean **due weight** is given to **environmental impacts** in "non-environmental" policy areas
- Assists in **persuading key stakeholders** (e.g. Finance Ministries) of the need for action
- Consistent with **evidence based** policy making



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## Sustainable Development: the Prime Minister's Commitment

- An RIA should *"include details of not only the obvious costs and benefits of the proposal but also the wider economic, social and environmental impacts"*

Prime Minister's preface to RIA Guidance,  
January 2003



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## Some Key Issues

- Timing of assessments
- Resources
- Monetary valuation
- Compulsion



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## The Landfill Tax

- Introduced in UK in **1996** on (almost) all **household, commercial, industrial and construction waste**
- RIA included detailed analysis of **costs of implementation** and **distributional impacts**
- **Benefits to the environment** assessed by consultants: reduced methane, disamenity impacts, air pollution.
- **Level of tax** related directly to environmental impact



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### Access to the Countryside


- Being introduced in stages. Given right to access non agricultural open land.
- Senior ministerial requirement to conduct impact assessment.
- Commercial/inconvenience costs to landowners assessed.
- Amenity benefits to visitors to countryside weighted against these costs.



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### IEEP Study

- Study commissioned to assess how far have SD considerations been addressed in Commission's extended IAs for 2003.
- Based on
  - Review of Commission Guidelines
  - Overview of all completed IAs
  - More detailed review of eight case studies
  - Interviews with Commission, Member State officials, stakeholders etc



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### Case Studies

- DG Fish: Southern Hake and Norway Lobster Recovery Plan
- DG Agri: Reform of the CAP sugar regime
- DG Env: Kyoto Protocol project-based mechanisms
- DG Env: REACH
- DG Enterprise: Communication on Sustainable European Tourism
- DG Env: Batteries and Accumulators
- DG Tren: Trans-European Transport Networks
- DG Info: Safe and Intelligent Vehicles



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### Key conclusions

- Selection of proposals
- Preparation of IA system
- Involvement of Member States
- Stakeholder consultation
- Process rather than event
- Treatment of sustainable development



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### Key Messages

- Greater transparency
- More high-level political commitment
- More support from environment community
- Regular review of IA Guidelines
- More resources in Sec-Gen/DGs, including unit for quality review, advice, training
- Permanent infrastructure for data collection
- Closer engagement of Member States
- Extended assessments for all proposals
- IA as an extended *process* not an event



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### Where do we go from here?

- IA is the most practical means to embed SD at level of individual policies
- Need to ensure best available evidence on env and social impacts
- Env ministries, agencies and stakeholders need to be engaged
- EU SDS review opportunity to ensure balanced approach to IA



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## Impact assessment of REACH: a victory for cost assessment?

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EU Chemicals Policy  
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## Contents

- A history of REACH impact assessment
- The Commission's impact assessment
  - Using slides from the Commission
- Other REACH impact assessments
- Key deficiencies in the impact assessment of REACH
- Conclusions

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Slide 2



## Brief history of the Commission's impact assessment of REACH

- February 2001 - White Paper
  - Brief description of "costs and benefits":
    - Testing costs: €2.1 billion over 11 years
- June 2002 - RPA/Statistics Sweden
  - "Assessment of the business impact of new regulations in the chemicals sector"
    - Direct costs (mid range): around €3.5 billion
- Summer 2003 - RPA assessment of internet consultation text
  - Direct costs - around €13 billion
    - NB: Many believe that there are considerable deficiencies in this analysis, for example double counting
- Autumn 2003 - Extended impact assessment study, published with legislation
  - Direct costs - €2.3 billion
  - See following slides (from Commission)
- 2004 - Extended impact assessment process
  - Later...

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## Testing and registration costs (Commission presentation)

- Estimated testing and registration costs: €2 bn.
  - use of validated computer-based methods (QSARs) should allow significant reduction in costs
  - strong incentives for industry and regulators to achieve necessary breakthroughs
- Alternative QSAR Scenarios
  - Slower progress in validating QSARs €2.9 bn.
  - Faster development of QSARs €1.6 bn.

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## Agency costs (Commission presentation)

Testing and pre-registration costs	€2.0 bn.
plus Agency costs	+ €0.3 bn
	-----
Estimated direct cost of proposals	€2.3 bn.

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## Costs for downstream users (Commission presentation)

- Impacts on downstream users:
  - Higher price of chemicals as testing and registration costs passed through to users
  - Cost increases from need to find substitutes for withdrawn substances and preparations
  - Some potential increase in market power in chemicals industry

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## Potential withdrawal of substances (Commission presentation)

- Most testing/registration costs passed on to users
- Limited withdrawal of substances likely, when testing/registration costs make production unprofitable.
- Chemical industry characteristics: many users, long & complex supply chains, confidentiality limiting information flow
- More substantial impact possible, assuming less availability and poorer performance of chemical preparations

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## Quantifying costs to downstream users (Commission presentation)

- Based on €2.3 bn direct costs
- Normal expectation scenario
  - solely pass-through costs and effects of substance withdrawal on individual downstream users
  - Total cost estimate: €2.8 - 3.6 billion
- Higher substitution cost scenario
  - Assuming less availability and poorer performance of chemical preparations
  - Total cost estimate: €4.0 - 5.2 billion

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**Reach provisions and innovation**  
(Commission presentation)

- R&D exemption up to 10 years\* (no volume threshold)
- Excluding Polymers for Reg. and Testing
- Threshold raised from 10 kg to 1 tonne
- Phase in time (11 years)

\* 15 years for pharmaceutical products

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**Positive Impacts on Innovation**  
(Commission presentation)

- Incentive to use new substances
- Strong push for innovation in Polymers
- Keep resources in R&D (phase-in time)
- R&D exemption promises to trigger innovation
- Closer contact between users and suppliers and better access to external knowledge (data sharing)

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**Innovation: limits of the analysis**  
(Commission presentation)

- Old substances becomes more costly
- R&D in SME may suffer if resources are limited
- No monetary estimates could be attached to the current assessment
- Overall positive balance, but difficult to quantify

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**Effects on international competitiveness**  
(Commission presentation)

**Short-run impact:**


- chemical imports covered by REACH
- potential risk of some loss of export market share

**Longer-term impact depends on:**

- REACH becoming an international standard, giving competitive advantage to EU

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**Other impacts**  
(Commission presentation)

<p><b>Competition impacts</b></p> <ul style="list-style-type: none"> <li>• some consolidation likely in range of chemical products</li> <li>• limited effects likely on number of companies</li> <li>• potential entry barriers (testing/registration costs), but lower costs for new substances</li> </ul>	<p><b>SME impacts</b></p> <ul style="list-style-type: none"> <li>• REACH has improved design features to assist SMEs</li> <li>• Possibly some effects on specialised SMEs producing substances in small quantities</li> </ul>
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Slide 13




**Benefits to firms and animal testing**  
(Commission presentation)

<p><b>Benefits to firms</b></p> <ul style="list-style-type: none"> <li>• increased product responsibility</li> <li>• better management of risks</li> <li>• safer workforce</li> <li>• higher confidence of end-users in chemicals</li> </ul>	<p><b>Animal testing</b></p> <ul style="list-style-type: none"> <li>• animal testing minimized by system: data sharing, use of QSARs etc.</li> <li>• however animal testing still necessary if validated alternative methods not available</li> </ul>
--	---

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Slide 14




**Benefits of REACH**  
(Commission presentation)

- Environmental benefits
- Health benefits
- Problems with analysis
- Illustrative scenario of health benefits

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Slide 15




**Types of Benefits: Environment**  
(Commission presentation)

- Improved monitoring and control of persistent bio-accumulative and toxic substances
- Benefits for air, water, soil, buildings and biodiversity
- Number of examples of individual cases of wildlife being damaged eg endocrine disruption

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Slide 16




### Types of Benefits: Health (Commission presentation)

- Chemicals linked to respiratory and bladder cancers, mesothelioma, skin disorders, respiratory diseases, eye disorders, asthma etc
- Epidemiological difficulties: frequently not enough information to be clear about causality (eg cocktail effects, multi-causal etc)
- Occupational impacts and public health impacts

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Slide 17




### Problems with analysis (Commission presentation)

- Knowledge gaps about intrinsic properties and exposure – 70% of new substances have one or more dangerous properties
- Identifying marginal impacts separately from legacy of the past
- Aggregation and monetisation both difficult
- Benefits are product of risk reduction measures taken after a socio-economic assessment (safety-valve to balance costs and benefits)

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Slide 18




### Illustration of potential health benefits (Commission presentation)

- World Bank – 0.6 to 2.5% of disease burden due to agro-industrial chemicals and chemical pollution from diffuse sources
- Assume 1% of disease due to chemicals
- Assume 10% of this figure is tackled by REACH
- So, 0.1% effectiveness (equivalent to 4,500 mortalities avoided per year due to REACH)
- Use value of statistical life of €1m
- Assume latency period of 10 years and 20 years of benefits
- Health benefits of €50 billion

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Slide 19




### Another Commission study: DG Environment/RPA case study assessment of REACH

- RPA study for DG Environment “*The impact of the new chemicals policy on health and the environment*”, June 2003.
- Four case studies of existing problem chemicals & how they would have been regulated had REACH been in place:
  - “The case studies conclude that the risks associated with all of the case study chemicals could have been controlled earlier had the testing, risk assessment and authorisation requirements of REACH been implemented earlier.
  - Test data available in the 1980s had already highlighted risk issues. This suggests that damages from the use of each of the case study chemicals could have (and most probably would have) been reduced earlier.”
- No real cost/benefit calculations.

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Slide 20




### The impact of other impact assessments

- Industry has been very successful in creating REACH impact assessments with very high costs
  - Notably by BDI/ADL (Germany) & Mercer (France)
  - These studies have been heavily criticised by economists, and are extremely misleading.
  - They have been extremely politically effective, resulting in a weakening of the REACH proposal and a difficult political environment for obtaining improvements.
- Other impact assessments are now under way in Member States:
  - Again, the main focus is on costs, though a few are looking at benefits
  - Some are using the flawed methods of BDI & Mercer
    - E.g. A Finnish study, with ‘case studies’ from industry with no reality-checking real REACH requirements
- Other studies are also available
  - David Pearce’s study for WWF UK: EU benefits of up to €30 billion by 2020 (health costs & productivity savings)

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Slide 21




### The further extended impact assessment process

- The Commission - along with CEFIC and UNICE - have agreed a memorandum of understanding for further impact assessments:
  - Analysis of the potential impacts of REACH on business throughout the supply chain
  - Analysis of the potential impacts of REACH on innovation
    - Both to be carried out by KPMG, funded by industry.
  - Impact of REACH on Accession countries
    - To be done by the Joint Research Centre
- A working group has been formed to oversee this studies
  - No funds seem to be available for benefits studies
  - The majority of the working group are from industry
  - Other stakeholders include WWF, EEB and Unions
- This process should report in November
  - However, KPMG’s initial proposal is poorly thought out
  - WWF and EEB are very concerned about the process

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### Some key deficiencies in Impact Assessment of REACH

- A focus on costs not benefits
- A lack of benefits related information
- Many business benefits are ignored
- Positive impacts outside the EU are ignored

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Slide 23




### a) REACH impact assessments focus on costs.

- Reach impact assessments have tended to focus primarily on costs not benefits
- There are two main reasons for this:
  - Political
    - Industry has succeeded in the past 2 years in redirecting the political debate on REACH away from protection towards cost.
    - Misleading impact studies have been a major (and successful) part of this approach.
  - Methodological
    - There are many methodological issues in calculating environment and health benefits
    - There is very little primary research available on assessing both health, and in particular environmental costs and benefits of chemicals

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**b) A lack of benefits related information - health**

- **Valuing health impacts of chemicals**
  - Health research focuses on cancer and a few occupational diseases
  - The causation challenge is a problem
    - Only for a few chemicals has a 'proven' causative link with disease been established
    - There is plenty of evidence for other impacts, but how to cost without proven causation?
  - What is the cost of contamination?
    - e.g. perfluorinated chemicals?
      - May depend on how toxicity develops - but how predict this for an unknown?
      - Or a willingness to pay approach?
  - What is the value of an uncontaminated foetus?

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Slide 25




**b) A lack of benefits related information - environment**

- **Valuing environmental impacts of chemicals**
  - There is a real lack of research on costing the impacts of chemicals on the environment
  - What is the cost of polar bear- or a peregrine falcon - contaminated with a cocktail of industrial chemicals?
  - What is the cost of cleaning up contamination?
  - However, contamination is well known, and effects are also known.
    - Though effects are often hard to prove
- **Key conclusion:**
  - Primary research is needed to provide scientific/economic backing for impact assessments
  - This research needs to have been completed *before* the impact assessment is completed.

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**c) Many business benefits are ignored**

- New markets for safer and more environmentally friendly products;
- A more predictable regulatory system which will aid future long-term planning by industry;
- Safer products which will reduce the risk of future liability lawsuits, which can result in enormous costs (as has happened with asbestos);
- Increased trust among consumers, employees, students, local communities and investors, leading to a more positive business environment; and
- Improved transparency and communication through the supply chain which will lead to increased power and confidence for downstream users and SMEs.
- **Why not covered?**
  - Probably because too complex/difficult to measure.

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**d) Positive impacts outside the EU are ignored**

- The new safety information will be available on the internet across the world
- This data will assist regulatory agencies and companies across the world - particularly in poorer countries
- REACH will encourage innovation to safer chemicals
  - The lure of the 500 million consumer EU market will encourage companies outside Europe to join this innovation
  - REACH will lead to the production and use of safer chemicals outside the EU
- REACH is already encouraging debate on improving chemicals regulation outside Europe, e.g. in US, Canada
- **No-one has tried to cost these benefits**
  - To human health - workers and consumers
  - To the environment

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**Conclusions**

- The REACH impact assessment has focussed on costs not benefits, for a number of reasons:
  - Political pressure
  - Ease of measurement and pricing
  - Lack of data on benefits
- Industry has managed to use misleading impact assessments as an effective political tool.
- The primary function of REACH - the protection of human health and the environment - has been downplayed (and often ignored) in REACH impact assessment.
- REACH is a model of how impact assessment can be used to fight against environmental improvement
- REACH is also a model example of how difficult it is to include benefits in an impact assessment - and how easy it is to include costs
  - For information on WWF's REACH campaign:
    - [www.panda.org/detox](http://www.panda.org/detox)

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REACH –  
ready for take off  
as a ...

Dr. Steffi Richter  
(Federal Environmental Agency)



Umwelt  
Bundes  
Amt

„The Environmental Dimension of Impact Assessments“ Berlin 17. – 18. June 2004

Slide 1

... after  
discussion  
of impacts



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Slide 2

... after  
discussion  
of impacts



... settled as what ?

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„The Environmental Dimension of Impact Assessments“ Berlin 17. – 18. June 2004

Slide 3

## Impacts of REACH

- Background
- UBAs project
- What does it help ?

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Slide 4

## Impacts of REACH

- Background
- UBAs project
- What does it help ?

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Slide 5

## Background

- Business impact assessments by *Risk and Policy Analysts* (RPA, UK) for EU Com
- Benefit assessments by RPA for EU Com
- Various business impact assessments by industry stakeholders (MERCER, ADL, CEFIC)
- Impact Study by WWF
- Extended Impact Assessment (EIA) by Commission (October 2003)
- REACH pilot trial in NRW (December 2003)

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Slide 6

## Impacts of REACH

- Background
- UBAs project
- What does it help ?

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Slide 7

## UBAs project

Research+Development project  
“Costs and benefits of the new EU  
Chemicals Policy  
based on case studies in 2 supply chains”

Oekopol GmbH, Institute for Environmental  
Strategies  
Andreas Ahrens

Institute Systems and Innovation Research

Umwelt  
Bundes  
Amt

Slide 8

## UBAs project

### Research question:

- What are the impacts of REACH on competitiveness, health and environment
  - Example supply chain: Paints and detergents
  - Focus on Change Management



Slide 9

## Key Concern: De-selection

- Due to costs of registration producers and importers of substances may decide to deselect certain substances from their portfolio.
- The users of these substances will need to invest in the re-design of running products and processes (competitive disadvantage).
- Reducing the number of available chemical substances in the market negatively affects the ability to innovate new products.

Slide 10

## Case studies at supply chain level

### Key Data

- number of substances in the relevant preparations („supply chain portfolio“)
- volume (annual) distribution related to tonnage bands
- unit costs per substance
- current market prices of substances
- flexibility of users to pay a share of the costs via price increase

Slide 11

## Driver: Design of rules and instruments

- The design of rules, instruments and guidance for REACH implementation largely determine the direct costs of the system.
- The process to develop a workable system will much more impact on the REACH costs than the regulatory text itself, given the current flexibility of the regulation is maintained.
- Key data for assessment of potential market responses need to be organised at company level.
- Preliminary conclusion: No further impact assessment at this stage.

Slide 12

## Direct Costs of Registration

- Compilation and assessment of existing data on substance properties (classification and effect assessment), writing of robust study summaries.
- Identification of uses and characterisation of potential exposure along the supply; eventually leasing with users.
- Definition of exposure scenarios for safe use.
- Writing the Chemicals Safety Report (CSR) and the extended Safety Data Sheet.
- Testing if needed.
- Administrative work.

Slide 13

## Impacts of REACH

- Background
- UBAs project
- What does it help ?



Slide 14

## Potential Business Benefits

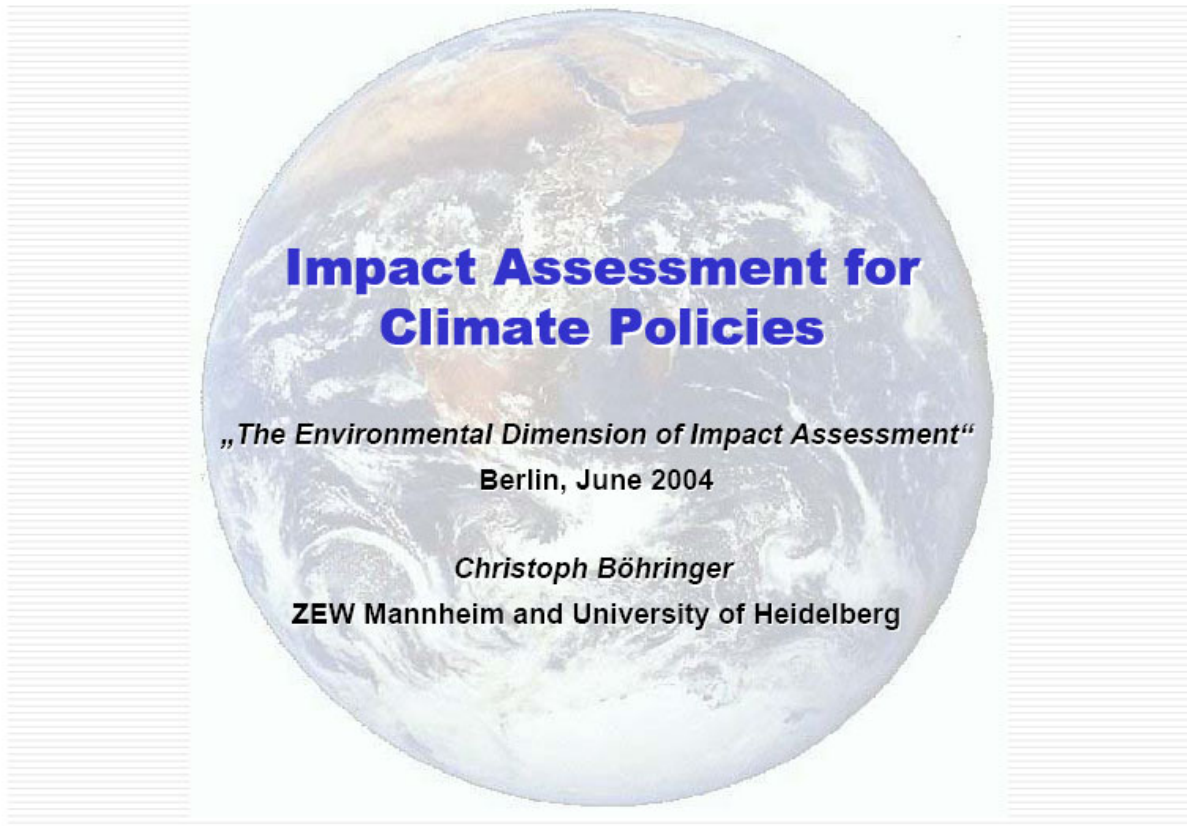
- R+D activities and/or new substances < 10 t/a with no or minimal registration costs.
- Efficiency gains due to harmonised requirements for safety assessment, documentation and communication.
- Reduced efforts for SME users due to better information from upstream.
- Avoidance of multiple reformulation of chemicals triggered by „sudden“ re-classification of substances.
- „no data“ creates no advantage anymore.
- Prevention of loss of reputation due to scandals.

Slide 15

## Challenges

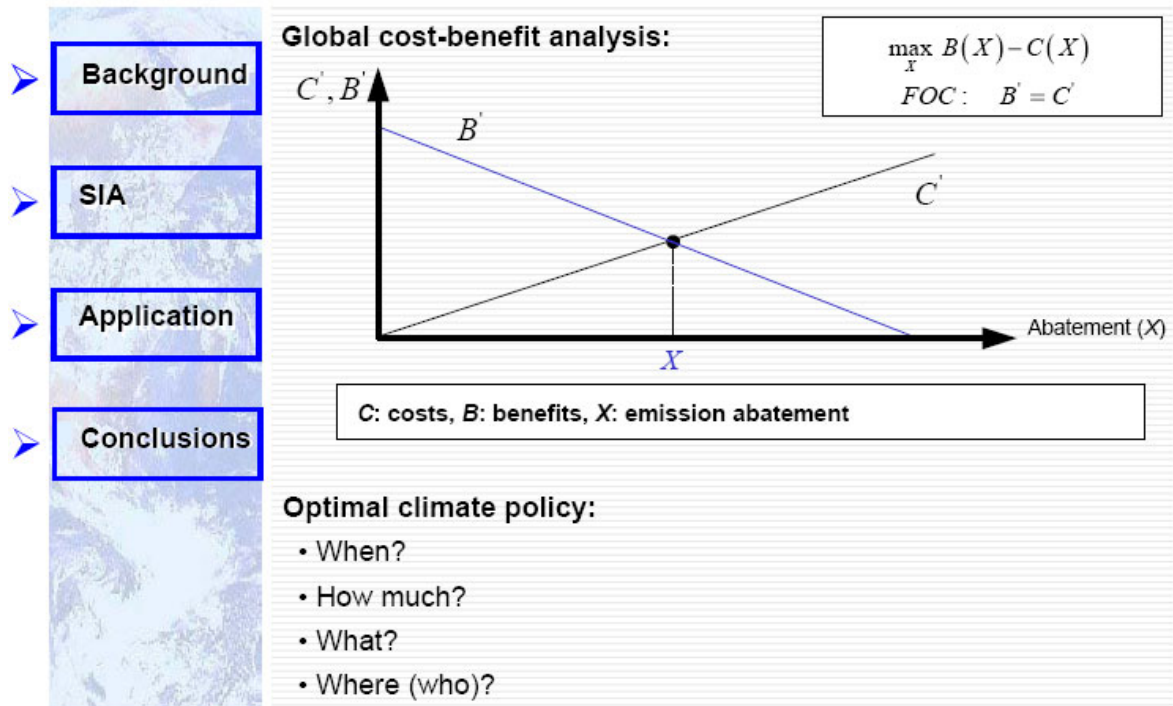
- Translate a wide range of cost assumptions and market conditions into likely business decisions on cessation of production of certain substances.
- Predict the response of industrial customers to increased price or disappearance of substances from market.
- Describe the key factors driving innovation and quantify the impact of the REACH system.
- Define a trend scenario without REACH.
- Make (validated) business data at company level available for the case studies.

Slide 16



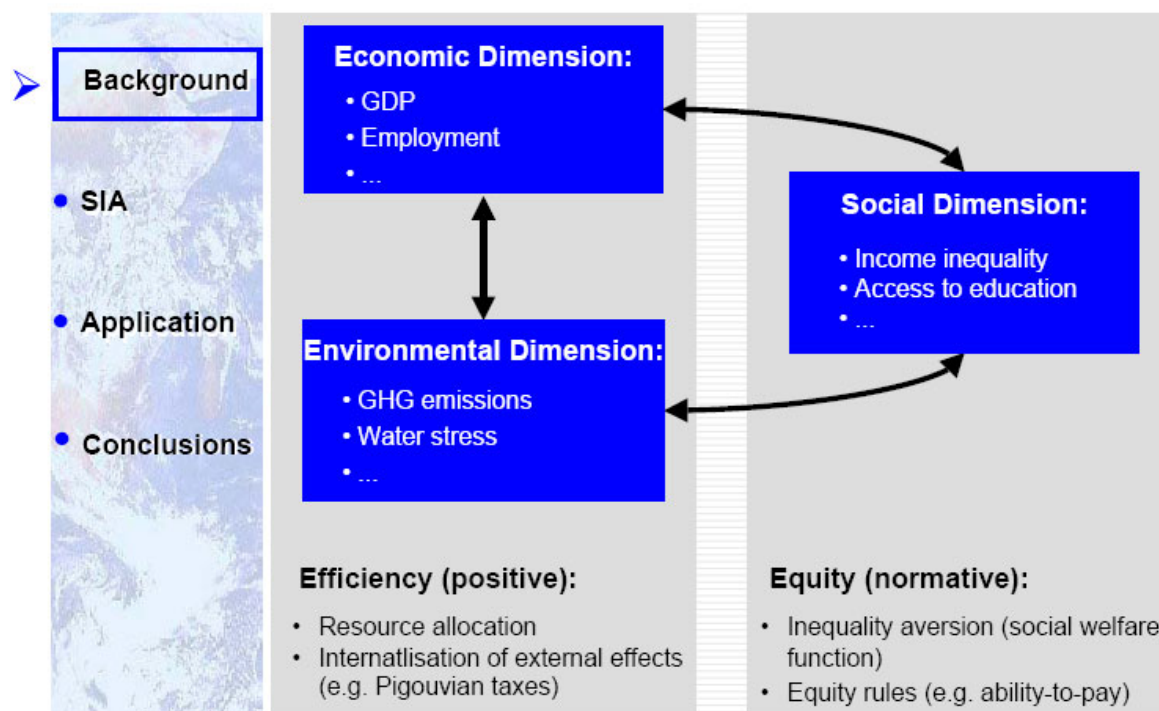
Slide 1

## Climate Policy as a Global Optimization Problem



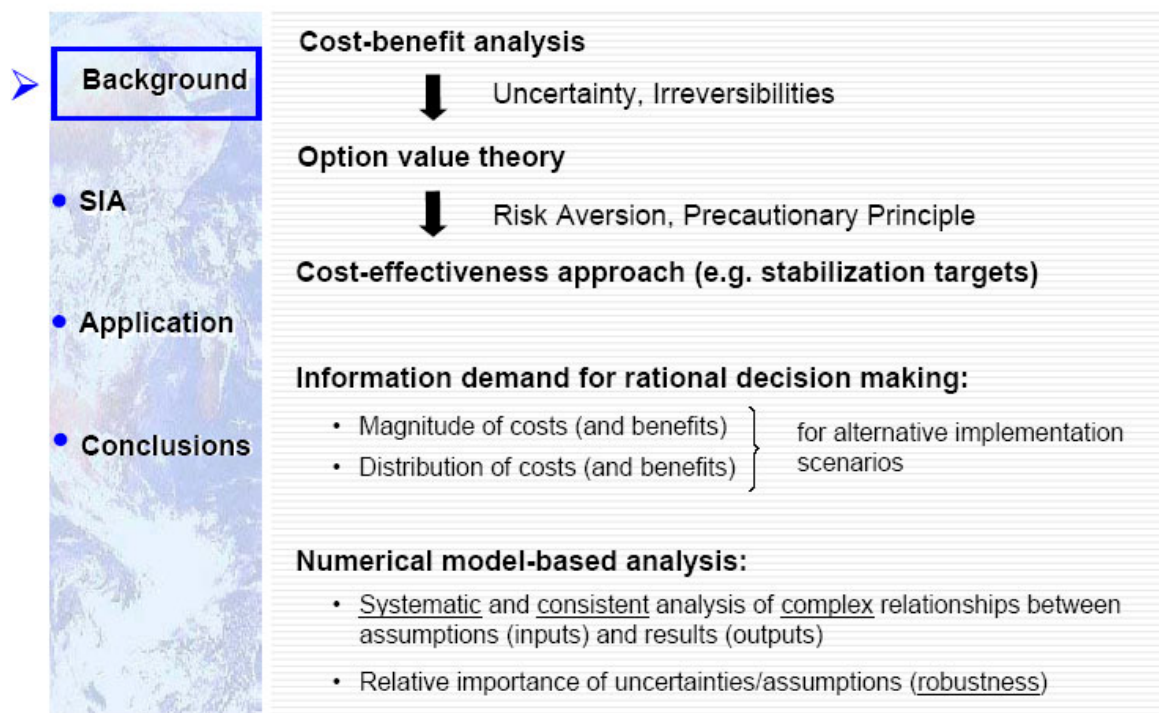
Slide 2

## Integrated Assessment: Costs and Benefits



Slide 3

## The Role of Economic Analysis



Slide 4

## Indicators (1)

### EC structural indicators proposed for Spring Report 2004

- Background
- **SIA**
- Application
- Conclusions

- I. GDP per capita
- II. Labor productivity
- III. Employment rate
- IV. Employment rate of older workers
- V. Spending on human resources (public exp. on education)
- VI. Research and Development expenditure
- VII. Information Technology expenditure
- VIII. Financial market integration (conv. of bank lending rates)
- IX. At risk-of-poverty rate
- X. Long-term unemployment
- XI. Dispersion of regional employment rates
- XII. Greenhouse gases emissions
- XIII. Energy intensity of the economy
- XIV. Volume of transport

Slide 5

## Indicators (2)

### EUROSTAT: Theme, sub-theme and “areas to be addressed”

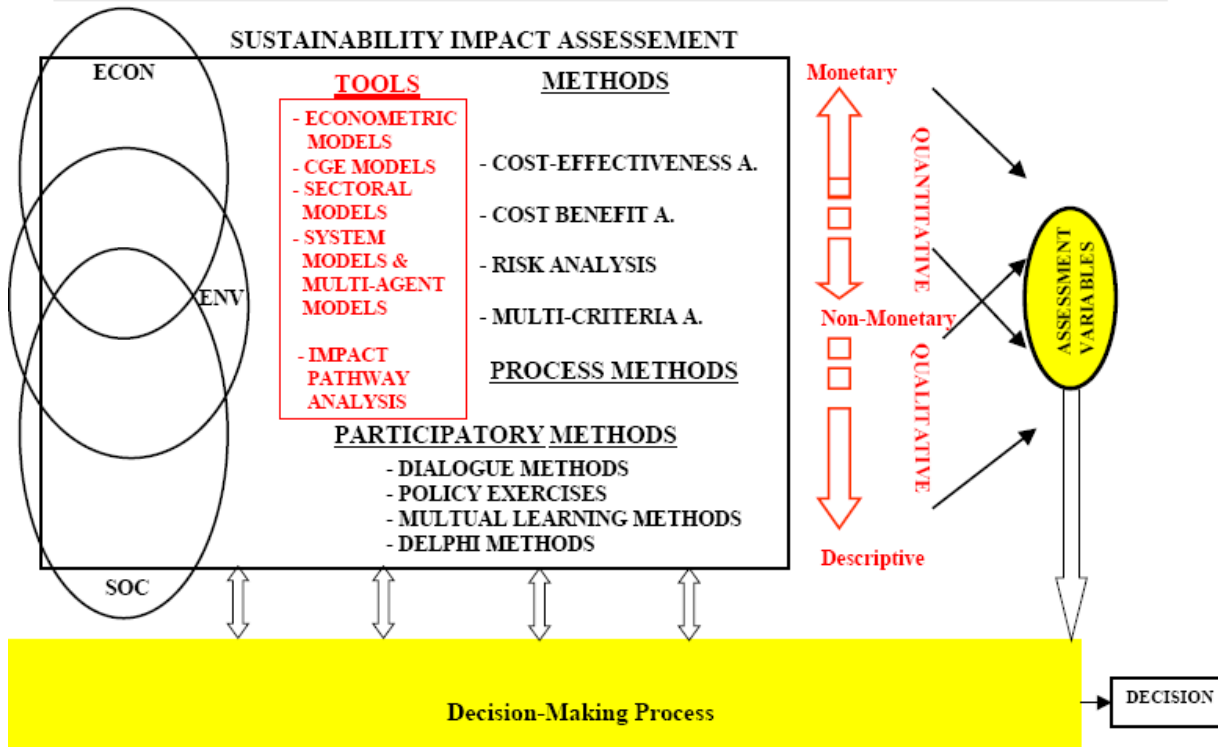
- Background
- **SIA**
- Application
- Conclusions

Theme	Sub-theme	Areas to be addressed
Economic development	Investment	1. Investment in R&D
		2. Investment in Env. Friendly technologies
		3. Consumption and inflation
	Competitiveness	4. Saving and borrowing
		5. Labour productivity
		6. Unit labour costs
		7. Life-long Learning
	Employment	8. Employment rate
		9. Unemployment rate
Poverty and social exclusion	Monetary poverty	10. Income inequality
		11. Non-monetary deprivation
	Access to Labour Market	12. Poverty-in-work
	Other aspect of social exclusion	13. Access to education
		14. Access to health care
		15. Access to housing
16. Social participation		
Climate change and energy	Climate change	36. GHG emission reduction
	Energy	37. Energy taxes
		38. Energy efficiency
		39. Renewable energy resources
		40. Management of nuclear waste
		41. Air pollution from energy use
		42. Air quality
		43. Acid rain
Management of natural resources	Biodiversity	50. Protection of habitats and natural systems and biodiversity
		51. Maintaining the carrying capacity
	Marine ecosystems	52. Over-fishing
	Fresh water resources	53. Water extraction and use
		54. Protection of surface and ground water resources
	Land use	55. Land use change
		56. Soil degradation
57. Forests		

Slide 6

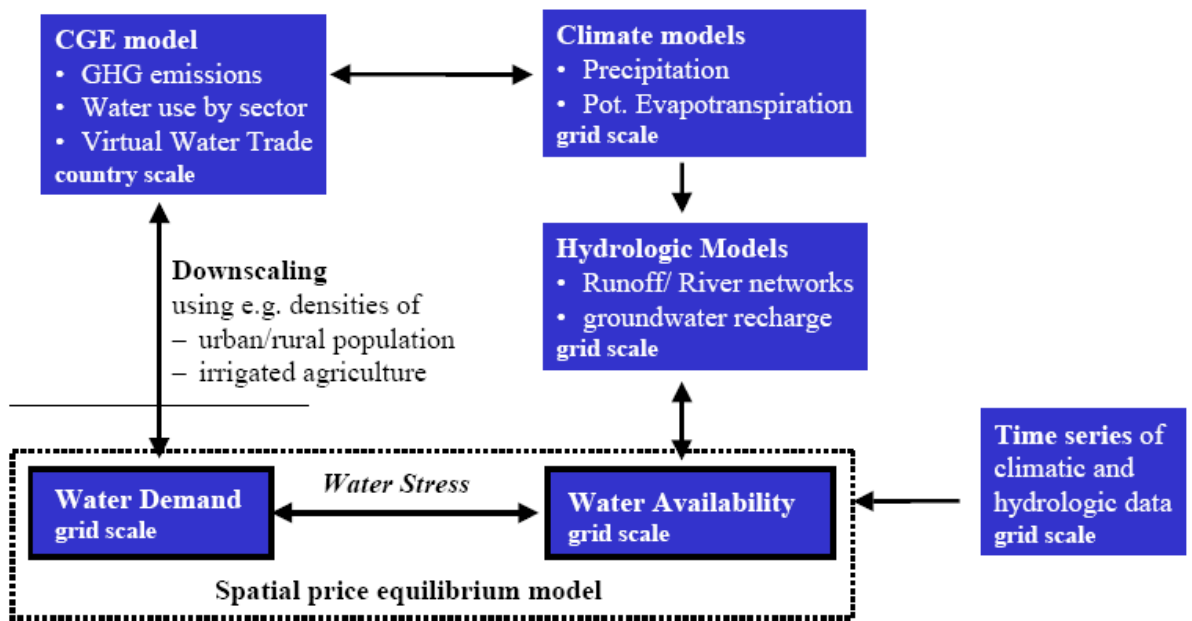


## Tools and Methods used for SIA (Tamborra 2003)



Slide 7

## Model Linkages: Global Warming and Water Stress



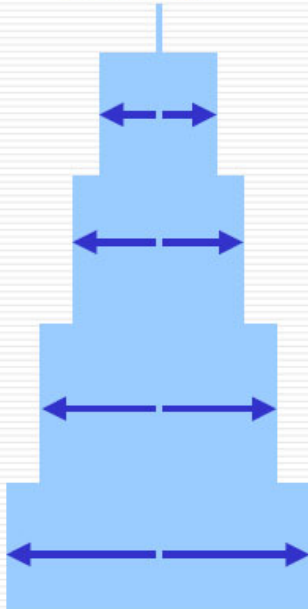
Slide 8

## Impact Assessment as Modeling Challenge

(Incomplete) List of cost determinants:

- Background
- **SIA**
- Application
- Conclusions

**Cost range**



- **Scenario interpretation:**
  - reduction targets, emission tax rates
  - revenue recycling
- **Reference situation/baseline:**
  - GDP growth, energy prices, emissions
  - tax distortions
  - elasticities
- **System relationships:**
  - involuntary unemployment
  - endogenous /induced technological change
  - market power
- **System frontiers:**
  - national versus international dimension
  - static versus dynamic analysis (myopic, clairvoyance)

Slide 9

## The Modeler's Dilemma / The Lobbyist's Escape

- Background
- **SIA**
- Application
- Conclusions

- Wide-range of model results:
  - Data
  - Assumptions
- Complexity of applied models:
  - No analytical solution
  - "Arbitrariness" of results

Results come as a black-box to non-expert modelers

Fate of non-technical policy analysts:

*"...deliver summary grunts of belief or disbelief but find it difficult to articulate reasons in a disciplined way."*

(McCloskey, 1983, p. 502)

Slide 10

## Increasing the Policy Confidence

- Background



SIA

- Application

- Conclusions

- **Systematic model comparison :**
  - Providing explanations for cross-model differences
  - Identifying policy-relevant robust insights
  - Identifying high priority areas for future research (“missing gaps”)
- **Examples:**
  - Energy Modeling Forum  
[\(http://www.stanford.edu/group/EMF/\)](http://www.stanford.edu/group/EMF/)
  - EU-TranSust  
<http://www.transust.org>
  - EU- Acropolis  
[\(http://www.ier.uni-stuttgart.de/public/de/organisation/abt/esa/projekte/acropolis/\)](http://www.ier.uni-stuttgart.de/public/de/organisation/abt/esa/projekte/acropolis/)
- **Caveats:**
  - Harmonization efforts
  - Cross-model expertise

} “Comparing the comparable”

Slide 11

## SIA: National Allocation Plans

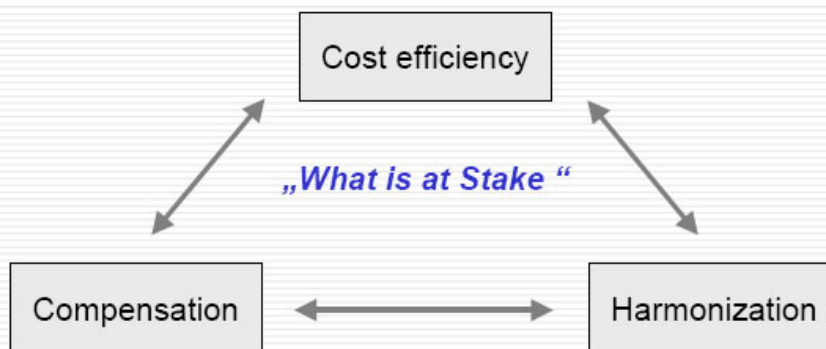
- Background

- SIA



Application

- Conclusions



- Efficiency losses through hybrid regulation:
  - energy-intensive sectors (*DIR*: eligible for EU carbon trade)
  - other sectors (*NDIR*: subject to complementary domestic regulation)
- EU-wide implementation of emissions trading: Competitive distortions across „identical“ firms in different EU countries (differences in allocation factors)
- Burden shifting between energy-intensive sectors and other sectors

Slide 12

## A Do-it-yourself Simulation Model (⇒ I.Q. Tools)

- Background

- SIA

- Application

- Conclusions

### Analytical framework:

- Multi-sector, multi-region model of the EU based on marginal abatement cost curves (MACCs)
- Flexible calibration to empirical data on abatement possibilities

### Web-based interface:

- Inputs:
  - Specification of regional and sectoral MACCs
  - Partitioning of emission budget between DIR and NDIR sectors
- Outputs:
  - Marginal abatement costs for *DIR* and *NDIR* sectors
  - Total compliance costs for *DIR* and *NDIR* sectors
  - Induced allocation factors and sectoral emission reductions
  - Comparison with *NoTrade* and *FullTrade* scenario

Slide 13

## „Assessing National Allocation Plans“ (ZEW DP 04-40)

[\(http://brw.zew.de/simac/\)](http://brw.zew.de/simac/)

The screenshot shows the SIMAC web interface with a table of national allocation plans. The table is titled "Data Input and Results" and "Name of Scenario: L\_DPT". The table has 12 columns and 15 rows (including a total row for the EU). The columns are: Carbon Emissions (1990), Carbon Emissions (1997) DIR, Carbon Emissions (1997) NDIR, Kyoto BSA vs 1990, Kyoto BSA vs 1997, Efficient Allocation Factor, Allocation Factor, No Trade C-Tax, Hybrid-Opt C-Tax, Active Scenario C-Tax (Hybrid), Active Scenario C-Tax (DIR), Excess Cost (absolute), and Excess Cost (relative). The rows represent different countries: Austria, Belgium, Germany, Denmark, Poland, Spain, UK, Sweden, France, Ireland, Italy, Portugal, Netherlands, Greece, and EU.

	Carbon Emissions (1990)	Carbon Emissions (1997) DIR	Carbon Emissions (1997) NDIR	Kyoto BSA vs 1990	Kyoto BSA vs 1997	Efficient Allocation Factor	Allocation Factor	No Trade C-Tax	Hybrid-Opt C-Tax	Active Scenario C-Tax (Hybrid)	Active Scenario C-Tax (DIR)	Excess Cost (absolute)	Excess Cost (relative)
	[Mt]	[Mt]	[Mt]	[%]	[%]	-	-	[Euro/C]	[Euro/C]	[Euro/C]	[Euro/C]	-	[% Hybrid-Opt]
Austria	14	5	10	13	18.6	0.48	0.48	162	34.1	34.7	33.9	0	0
Belgium	32	9	27	7.5	17.78	0.4	0.4	103	34.1	35.3	33.9	0	0
Germany	266	97	137	21	10.2	0.81	0.81	33	34.1	32.9	33.9	0	0
Denmark	15	10	9	21	37.63	0.32	0.32	98	34.1	36.8	33.9	0	0
Poland	14	8	8	0	12.5	0.79	0.79	53	34.1	36.9	33.9	0	0
Spain	58	23	48	-15	6.06	0.89	0.89	22	34.1	34.9	33.9	0	0
UK	152	48	94	12.5	6.34	0.91	0.91	26	34.1	35.4	33.9	0	0
Sweden	14	3	12	-4	2.93	0.96	0.96	16	34.1	34.7	33.9	0	0
France	103	16	89	0	1.9	1.09	1.09	10	34.1	33.4	33.9	0	0
Ireland	7	4	5	-13	12.11	0.77	0.77	35	34.1	30.8	33.9	0	0
Italy	108	38	73	6.5	8.2	0.81	0.81	40	34.1	35.1	33.9	0	0
Portugal	12	5	10	-27	-1.6	1.12	1.12	0	34.1	33.7	33.9	0	0
Netherlands	55	17	44	6	13.83	0.56	0.56	76	34.1	35.3	33.9	0	0
Greece	19	10	13	-25	-3.26	1.13	1.13	0	34.1	35.1	33.9	0	0
EU	869	293	579	8.56	8.53	0.81	0.82	0	34.1	0	33.9	0	0

Slide 14

## Agenda

- Background

- SIA


- Application

- **Conclusions**

- Increasing policy demand for SIA tools: comprehensive cost-benefit analysis (trade-offs)
  - Quantitative models provide (causal/logical) lens on data:
    - consistency – complexity- robustness
  - The modeler's experience "One issue – one model" – but:
    - canonical models
    - usefulness of structured model inventory as a policy analyst's user guide (cook-book) including sample applications (paper and interface)
  - (Limited) Role of economic analysis:
    - Providing explanations for differences in impact assessment (data, assumptions)
    - Identifying high priority areas for future research ("missing gaps")
    - Identifying policy-relevant robust insights
- ⇒ Rationale basis for equity-efficiency debate (policy design)

## The Environmental Dimension of Impact Assessment - Learning from Experiences


Julia Hertin  
SPRU - Science and Technology Policy Research  
University of Sussex



Slide 1

## Introduction


- Positive aspirations of integrated appraisal
  - coherence between policy areas
  - high quality of regulation
  - transparency of decision-making
- ...but also concerns about risks to environment
  - bias against environmental impacts
  - de-regulation agenda
  - strategic use of assessments against environment



Slide 2

## Introduction (2)


- Review experiences with environmental / integrated policy appraisal to draw lessons
  1. Safeguarding the environmental pillar
  2. Supporting the analysis
  3. Using appropriate methodologies
  4. Improving process standards



Slide 3

## Experiences with appraisal


- EU: Impact Assessment, Green Star
- UK: Environmental Policy Appraisal, Regulatory Impact Assessment
- NL: Environment-Test, Business-Test
- US: Regulatory Analysis



Slide 4

## 1. Safeguarding env'l pillar


- Trend towards integrated appraisal with explicit environmental dimension
- Implementation deficit of appraisal
- Environmental aspects often marginal in practice
  - strong political commitment to procedure (UK), especially its contribution to SD
  - rigorous process of selecting impact areas (NL)



Slide 5

## 2. Supporting the analysis


- Barriers to analysing env'l impacts
  - outside area of expertise and interest
  - politically sensitive
  - 'technically' difficult
- provide sufficient resources (UK)
- central 'help desk' (NL)
- close involvement of env'l department (several EU IAs)



Slide 6

## 3. Methodologies


- risk of methodological bias through focus on CBA/CEA (US, partly UK and NL)
  - partial analysis because env'l effects are difficult to monetise, (NL)
  - failing to reflect distribution, irreversibility, futurity
  - overestimating cost of env'l policies
  - use flexible *framework* methodology
- better guidance on analysing uncertain effects, innovation effects and choice of methodologies



Slide 7

## 4. Process standards

- important for analysis as well as transparency
  - careful timing and iterative process (UK)
  - timely consultation on assessment, not just the policy (some EU IAs)
  - well-resourced and transparent evaluation process (Canada)
  - power of evaluating department to delay/block the proposal (UK)



Slide 8

## Conclusions

- appraisal leads to a slow learning process rather than radical change
- procedures and institutions matter
- match between ambitions and resources / political commitment crucial
- important to maximise buy-in from all departments, especially desk officers



Slide 9

**Externe**

Workshop  
, The Environmental Dimension of Impact Assessment'

The Impact Pathway Approach for Assessing Environmental Impacts  
Rainer Friedrich  
IER University of Stuttgart

Methodology: the impact pathway approach  
Exemplary Applications

Slide 1

**Externe**

For what purposes can estimations of external costs be used?

Impact analysis and ranking of alternative policies/projects  
Cost-benefit-analysis of a policy/project  
Scoping – identification of weak points of policies/projects  
Aid for internalising external costs – ‚getting the prices right‘  
Sustainability and welfare indicator; assessment of impacts/ damage categories;

Slide 2

**Externe**

Main Features of the Impact Pathway Approach

- 1) Quantitative weighting  
->prerequisite for ensuring transparency and reproducibility
- 2) Results are expressed in monetary units  
->allows transfer of values, units are conceivable, direct use of results in CBA and for internalising via taxes possible

Slide 3

**Externe**

Main Features of the Impact Pathway Approach

- 3) Assessment of impacts is based on the preferences of the affected well-informed population  
This implies:  
Valuation of damage, not of effects/pressures (e.g. emissions of pollutants)  
Available information should be explained before measuring preferences  
->Ensures consistency
- 4) Impacts depend on the time and site of the activity !  
-> Bottom-up approach needed: the 'impact pathway approach'

Slide 4

**Externe**

Impact Pathway Approach

Pollutant/Noise Emission → Transport and Chemical Transformation; Noise Propagation → Differences of Physical Impacts → Monetary Valuation

Calculation is made twice: with and without project!

Slide 5

**Externe**

Case-study: Stuttgart-Mannheim Trajectory and population distribution

Slide 6

**Externe**

Changes of PM<sub>2.5</sub> concentrations along highway due to diesel passenger car

Slide 7

**Externe**

Quantification of impacts and costs

Concentration Response Function:  
Number of *Respiratory Hospital Admissions (RHA)*  
 $= 3.46 \cdot 10^{-6} \cdot \Delta PM_{2.5} \cdot Population$

Number of RHA due to 1 trip from Stuttgart to Mannheim by Diesel Passenger Car:  $7.0 \cdot 10^{-8}$

Slide 8



**ExternE**

**Examples For Included Impact Pathways (I)**

Impact Category	Pollutant / Burden	Impacts
Human Health – mortality	PM <sub>10</sub>	Reduction in life expectancy due to short and long time exposure
	SO <sub>2</sub> , O <sub>3</sub>	Reduction in life expectancy due to short time exposure
	Benzene, BaP, 1,3-butad., Diesel part., radioactive subst.	Reduction in life expectancy due to long time exposure
	Noise	Reduction in life expectancy due to long time exposure
Human Health – morbidity	Accident risk	Fatality risk from traffic and workplace accidents
	PM <sub>10</sub> , O <sub>3</sub> , SO <sub>2</sub>	Respiratory hospital admissions
	PM <sub>10</sub> , O <sub>3</sub>	Restricted activity days
	PM <sub>10</sub> , CO	Congestive heart failure
	Benzene, BaP, 1,3-butad., Diesel part.	Cancer risk (non-fatal)
	PM <sub>10</sub>	Cerebrovascular hospital admissions, cases of chronic bronchitis, cases of chronic cough in children, cough in asthmatics, lower respiratory symptoms
	O <sub>3</sub>	Asthma attacks, symptom days
	Noise	Myocardial infarction, angina pectoris, hypertension, sleep disturbance
	Accident risk	Risk of injuries from traffic and workplace accidents

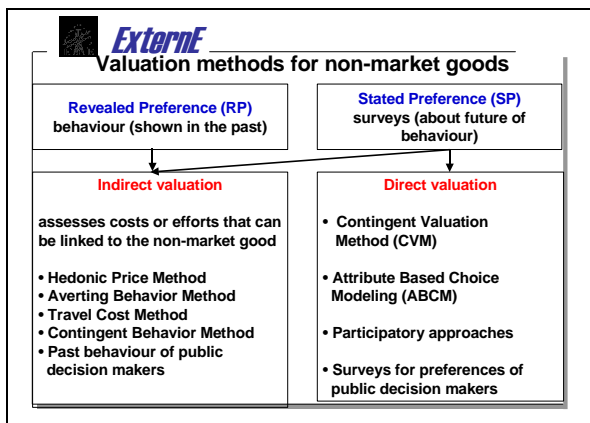
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**ExternE**

**Examples For Included Impact Pathways (II)**

Impact Category	Pollutant / Burden	Impacts
Building Material	SO <sub>2</sub> , Acid deposition	Ageing of galvanised steel, limestone, mortar, sand-stone, paint, rendering, and zinc for utilitarian buildings
	Combustion particles	Soiling of buildings
Crops	SO <sub>2</sub>	Yield change for wheat, barley, rye, oats, potato, sugar beet
	O <sub>3</sub>	Yield change for wheat, barley, rye, oats, potato, rice, tobacco, sunflower seed
	Acid deposition	Increased need for liming
Global Warming	N, S	Fertilising effects
	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, N, S	World-wide effects on mortality, morbidity, coastal impacts, agriculture, energy demand, and economic impacts due to temperature change and sea level rise
Amenity losses	Noise	Amenity losses due to noise exposure
Ecosystems	Acid deposition, nitrogen deposition, change of land use, loss of forest area	Acidity and eutrophication (avoidance costs for reducing areas where critical loads are exceeded)

Slide 10



Slide 11

**ExternE**

**Quantification of impacts and costs**

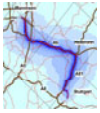
Exposure Response Function:

$$\text{Number of Respiratory Hospital Admissions (RHA)} = 3.46 \cdot 10^{-6} \cdot \Delta PM_{2.5} \cdot \text{Population}$$

Number of RHA due to 1 trip Stuttgart-Mannheim by Diesel Passenger Car: **7.0 \* 10<sup>-8</sup>**

Monetary value: **4 320 €per Hosp. Admission**

Damage costs RHA per trip: **0.03 €Cent**



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**ExternE**

**Monetary Valuation**

**Average for West European Countries (best estimate)**

Health effects	Monetary value (€ <sub>2000</sub> )
Value of a prevented fatality (VPF)	1,040,000
Year of life lost (chronic effects, 3% discount rate)	50,000
Cerebrovascular hospital admission	16,730
Respiratory hospital admission	4,320
Congestive heart failure	3,260
Chronic cough in children	240
Restricted activity day	110
Asthma attack	75
Cough	45
Minor restricted activity day	45
Symptom day	45
Bronchodilator usage	40
Lower respiratory symptom	8

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**ExternE**

**Multicriteria Utility Analysis**

may complement the use of external cost estimates or may be used to determine monetary values.

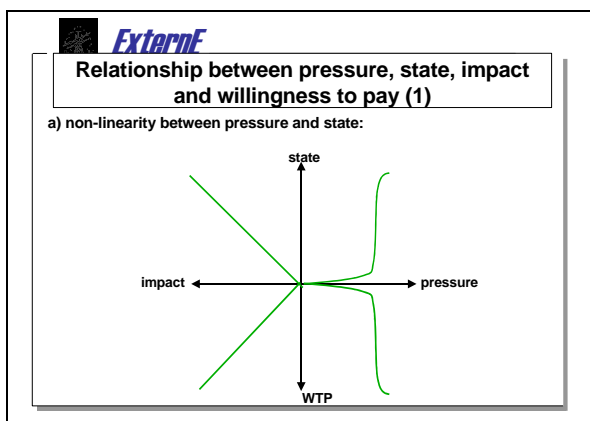
Transformation into monetary values possible, if one of the criteria uses as indicator

- the quantity of a market good
- a monetary value (costs)
- an intangible good, for which monetary values derived with other methods exist.

Differences:

- Use of monetary values as weighting factors
- Using the preference of (a representative part of) the population is preferred to using the preference of decision makers/stake holders

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**ExternE**

**Uncertainties of estimations of external costs**

2)Uncertainties are caused by

Uncertainties of models and methods used, uncertainties of input data, uncertainties about exposure-response-relationships and impacts

*These reflect uncertainty of and gaps in current knowledge.*

- Research to reduce uncertainties
- Describe uncertainty as a parameter of the impact
- Analyse decisions where these impacts played a role
- Sensitivity analysis, decision under uncertainty by decision maker

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**ExternE**

### Uncertainties of estimations of external costs

Example – precautionary principle:  
 Assessment of pollutants, where the occurrence of a damage seems possible, but the amount is not known:  
 Use of ubiquity and persistency of the pollutant and irreversibility of the potential damage as indicators for the seriousness of a potential damage

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**ExternE**

### Uncertainties of estimations of external costs

3) bandwidth of results caused by  
 different assumptions and hypotheses (discount rate, model for assessing mortality risks)  
*sensitivity analysis*  
*Stated preference (esp. participative methods)*  
*determination of hypotheses assumptions to be used by decision maker*  
 -> project HEATCO to propose harmonized guidelines for the transport sector for DG TREN,  
 recommendations for VSL and discount rates (DG Env)  
 Preparation of guidelines for the German Umweltbundesamt

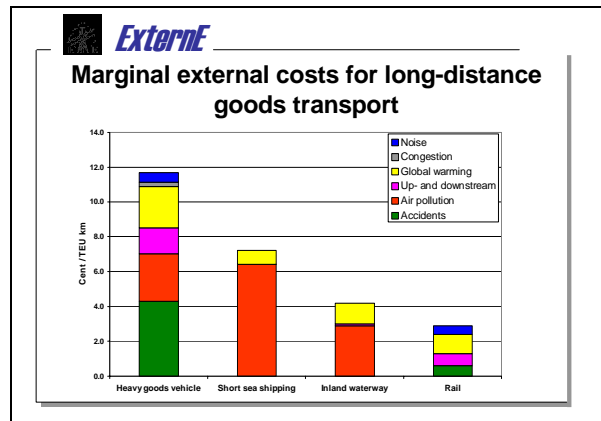
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**ExternE**

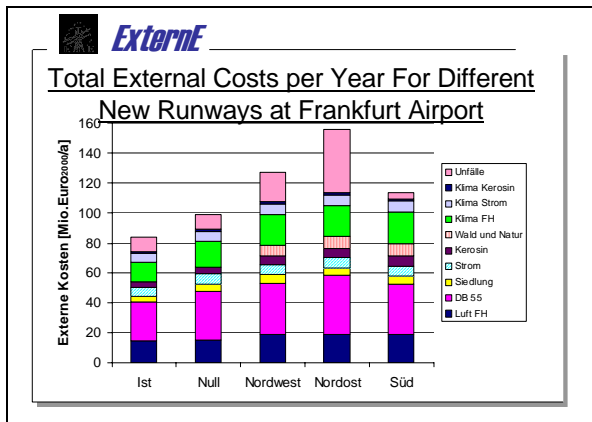
### Applications of the IPA/ExternE Methodology

EC Directives:  
 Non-hazardous waste incineration  
 Large Combustion Plant Directive  
 National Emissions Ceilings Directive  
 Daughter Directives to Air Quality Directive: ozone, CO and benzene,  
 CAFE – Clean Air for Europe  
 UN/ECE multi-pollutant multi-effect protocol  
 Numerous national applications: UK, Netherlands, Finland, Belgium, France, Ireland, Greece, Spain ...  
 Germany: external costs of biomass; renewable energies; extension Frankfurt airport;  
 In other parts of the world: Russia, China, Brasil, Ukraine

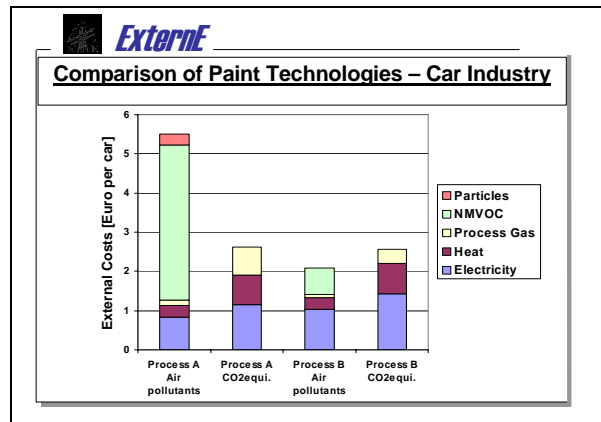
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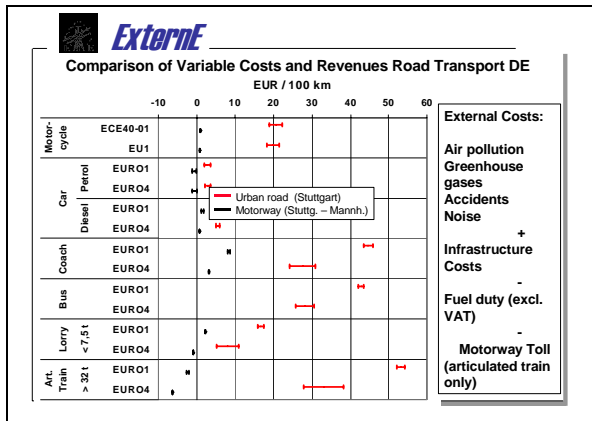
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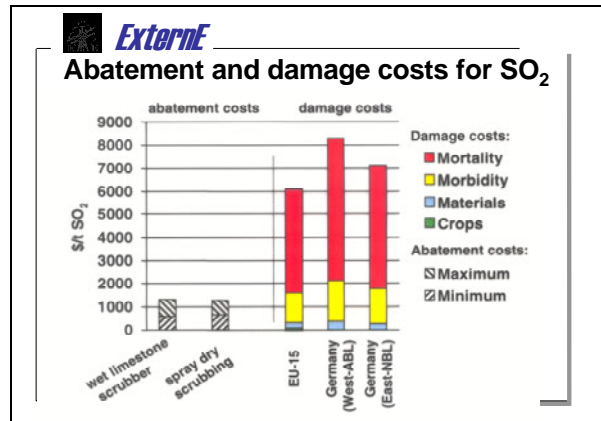
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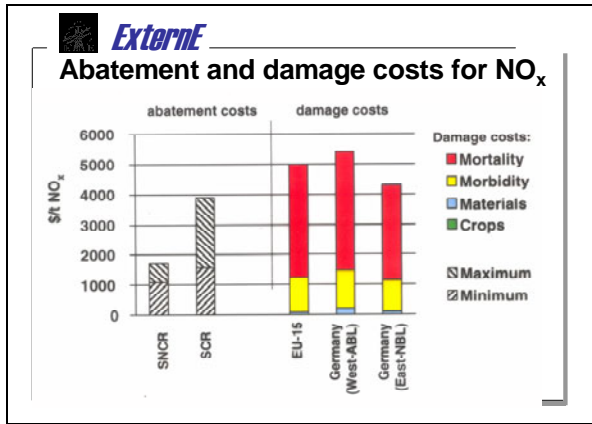
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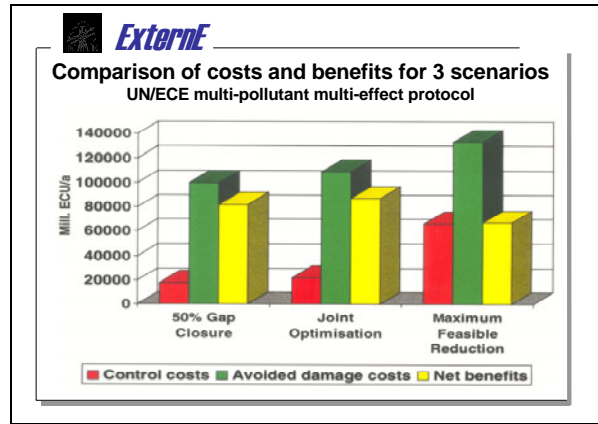
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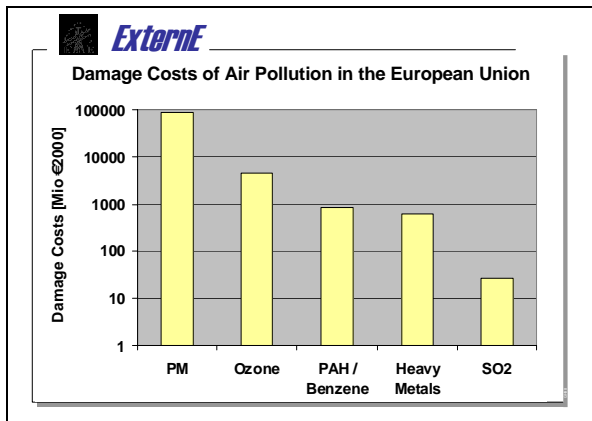
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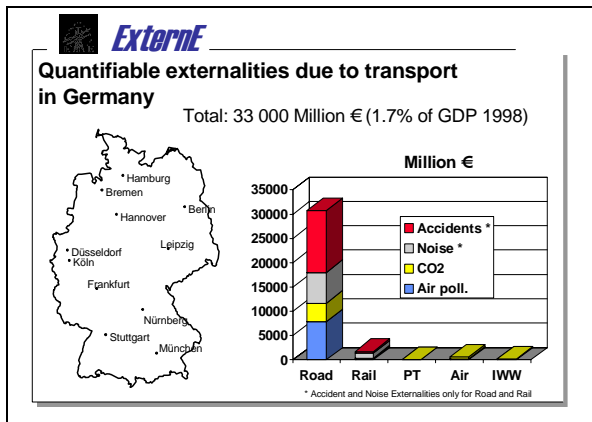


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**Human Health Impacts Due to Air Pollution in the EU 1998**

Impact	Unit	Caused by						Damage Costs [Mio €2000]
		Sulfates	Nitrates	PM <sub>10</sub>	O <sub>3</sub>	SO <sub>2</sub>	CO	
Years of Life Lost (YOLL)	[1000 years]	260	240	360	11	15	0	88000
Congestive heart failure older 65	[1000 cases]	4	4	6	0	0	0.3	48
Chronic bronchitis, adults	[1000 cases]	94	30	45	0	0	0	18000
Restr. activity days, adults	[1000 days]	34000	30000	46000	0	0	0	12000
Bronchodilator usage, adults	[1000 days]	7700	6900	10000	0	0	0	1000
Cough, asthmatics, adults	[1000 cases]	8000	7100	11000	0	0	0	1200
Lower resp. symptoms, adults	[1000 days]	2900	2600	3900	0	0	0	75
Bronchodilator usage, children	[1000 days]	920	830	1200	0	0	0	120
Cough, asthmatics, children	[1000 cases]	1600	1400	2100	0	0	0	230
Lower resp. symptoms, children	[1000 epts.]	1200	1100	1700	0	0	0	32
Chronic cough, children	[1000 cases]	700	630	950	0	0	0	550
Cerebrovascular hosp. Adm.	[1000 cases]	9	8	12	0	0	0	470
Respiratory hosp. Admission	[1000 cases]	4	3	5	9	6	0	110
Minor restr. activity days, adults	[1000 cases]	0	0	0	14000	0	0	640
Asthma attack, asthmatics	[1000 cases]	0	0	0	300	0	0	29
Symptom days	[1000 days]	0	0	0	85000	0	0	3800
<b>Total</b>								<b>130000</b>

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- 
- Summary**
- The *Impact Pathway Approach* estimates impacts and assesses them based on preferences of the effected population for a large number of impact pathways.
  - It is already widely used for decision aid in the fields of air pollution, transport and energy conversion.
  - Gaps and uncertainties exist, however will be more and more reduced due to ongoing research (e.g. on pathways involving toxic substances, heavy metals, agriculture, industrial activities, biodiversity, water and soil contamination...)

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- 
- Summary**
- For the parts of the environmental impact analysis, that already can be covered by the method, advantages are transparency, consistency and the use of measured assessment factors. To deal with gaps, the method can be combined with other methods, e.g. multi-attribute utility analysis.
  - More information and tools: [www.externe.info](http://www.externe.info)

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## Methods for Multicriteria Decision Analysis

**Ahti Salo**  
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### Participatory decision modelling

Stakeholders ↔ Decision models ↔ Deliberative dialogue  
Problem structuring  
Formulation of options

Decision models ↔ Comparison of options

System description  
• ecosystem  
• systems of energy production  
• innovation processes

Modelling and simulation  
Expert judgements  
Forecasts

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### Issues in multicriteria decision analysis

- Uses of multicriteria methods in integrated assessment
  - Problem structuring
    - » a shared assessment framework → platform for communication
    - » integration of assumptions, higher level of commitment
  - Comparison of alternative options
  - Provide a basis for debate and further deliberation
- Multicriteria methods
  - Value tree analysis (Keeney and Raiffa, 1976)
  - The Analytic Hierarchy Process (Saaty, 1980)
  - Methods of the 'French school' (ELECTRE etc.; Roy, 1980)
- Uncertainties in integrated assessment
  - Shared assumptions, timing of
  - Differences of opinion
  - ⇒ Admit incomplete information through preference programming

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### Additive multicriteria weighting

SOCIETAL BENEFIT

Environment      Health      Economy

Grant permit      Deny permit

$$v(x) = \sum_i v_i(x_i) = \sum_i w_i v_i^N(x_i)$$

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### Case I: Development of lake regulation policies

- Lake Päijänne  
- 1995-1999
- Lake Kallavesi  
- 1999-2001
- Pirkanmaa lakes  
- 1999-2003

In close collaboration with the Finnish Environment Institute

SYKE

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### Floods

Category	Damage (Estimated)
Agriculture	~500
Forestry	~100
Buildings	~1500
Roads and bridges	~200
General services	~100
Material damages in industry	~200
Losses in industrial production	~300
Others	~100
Damages in total	~2500

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### Springtime droughts

Konnivesi, 5/1999  
Kuva: Mika Marttunen

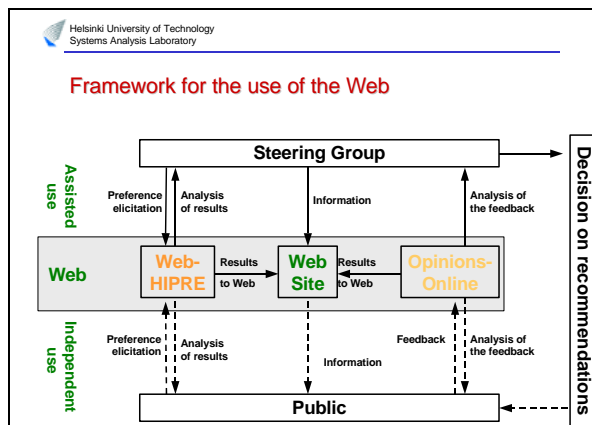
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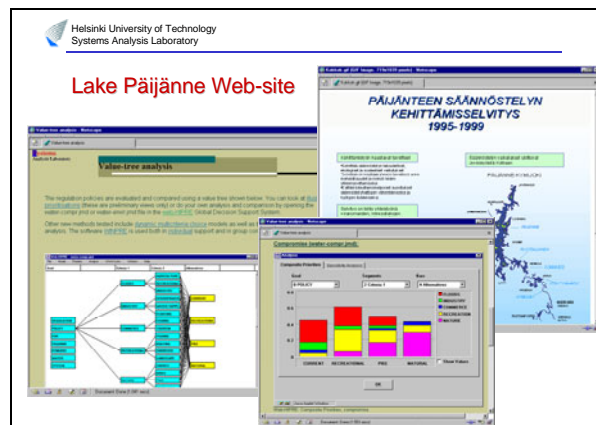
### Stages in participatory decision modelling

- 1 Initial screening of stakeholder concerns
- 2 Evaluation and modelling of the problem
- 3 Informing the public (e.g., assumptions, recommendations)
- 4 Collecting and analysing feedback from the public
- 5 Decision on policy recommendations
- 6 Public evaluates the decision

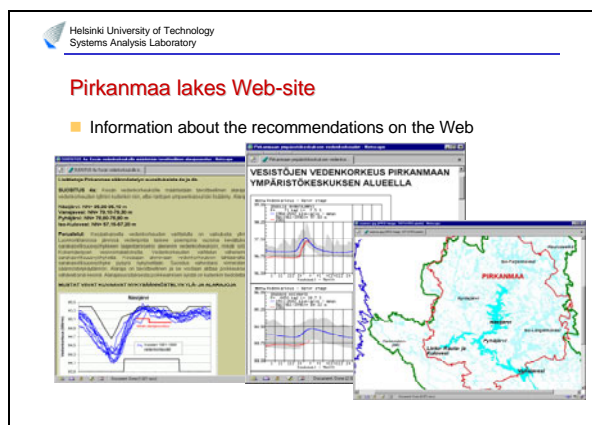
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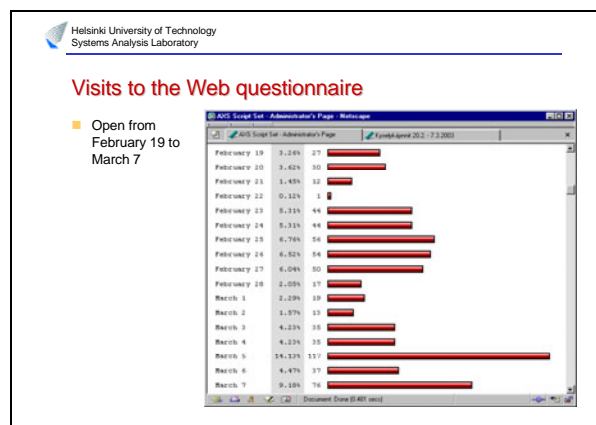
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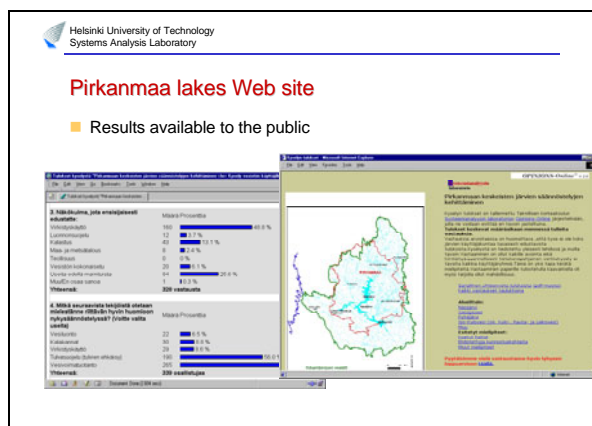
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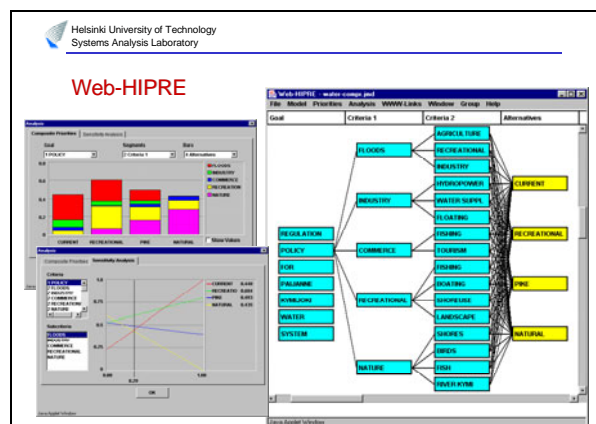
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- ### Acknowledgement of stakeholders' concerns
- Traditional ways of informing the public are needed initially
    - Web as such does not readily inform about possibilities to participate
      - Newsletters, radio, TV, ...
      - Mail questionnaires
    - Expensive to send and analyze
  - Web can be used for collecting opinions from the public
    - Helps in scoping the assessment
    - Opinions-Online (www.opinions.hut.fi)
    - Everyone does not have access to Web
      - Possibility to alternative ways to participate should be provided, too (e.g., by mail)
    - Web tools can be used by entering the opinions from mail questionnaires
    - Cost-effective, accessible, transparent

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- ### Evaluation and modeling of the problem
- MCDAs provides a transparent way to model preferences
  - Applicable with relatively small number of stakeholders
    - e.g., models approved by a Steering Group of representatives
  - Different techniques
    - Decision analysis interviews
    - Decision conferences/workshops

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### Use of Web-HIPRE (www.hipre.hut.fi)

- Decision analysis interviews
  - Analyst assures the proper use of the methods
  - Stakeholder weights and rankings can be published on the Web
- Decision conferences/workshops
  - Individual preference models under collective supervision
  - Group models
- Analysis of Web-HIPRE models of steering group members
  - Aim to understand objectives of different types of stakeholder groups
  - Collectively in local meetings
  - Published on the Web site

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### Case II : A National Programme on Climate Change

- Programme characteristics of ClimTech
  - Initiated by the National Technology Agency (Tekes) in co-operation with ministries
  - Joint development of climate and technology strategies among policy-makers and industry
  - 27 research projects, funding volume 5 MEUR, duration 1999-2003
  - Intelligence on cost efficiency, market structure and commercialisation difficulties of technology options in the near future and beyond 2015
- Six predefined topics
  - Four technology topics: (i) renewable energy sources; (ii) distributed energy production; (iii) energy efficiency and industry; (iv) non-CO<sub>2</sub> greenhouse gases, capture and utilization of CO<sub>2</sub>)
  - Two further topics on (v) commercialisation aspects and (vi) pollution models and energy systems
- Impact and opportunities of climate change

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### Participatory Evaluation Workshop

- Workshop objectives
  - Develop shared objectives and state views on future policy needs
  - Formulation of policy strategies for climate change
  - A distinction between
    - (i) application domains
    - (ii) aggregate policy options
- Setup
  - Participants** – High-level experts representing different stakeholders
  - Timing** – 6-hour workshop in April 2003
  - Technology** – Visualisation tools, group support systems, mind mapping
  - Facilitators** – Two Tekes experts (impact assessment, technology) (*extensive prior planning*)
  - Orientation** – Both before and during the workshop (*crucial!*).

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### Workshop structure

- Establishing the context
  - Precondition for making justified evaluative statements
  - Based on visual contact, voice and intensive interaction
  - A loose process of knowledge acquisition and structuring
    - Presentations of relevant results from the ClimTech program
    - Survey results on programme implementation and utility of its results
- Building awareness through multi-dimensional weighting
  - Evaluation of the application domain-policies combinations through
    - All workshop participants had access to laptop computer
    - Inputs submitted through computer-mediated anonymous voting
    - Results presented to the whole group
  - Informal discussions during the closing phases
    - Sought to reveal the 'collective mind'
    - Shared beliefs on complementary policy issues
    - Roadmaps for future interventions.

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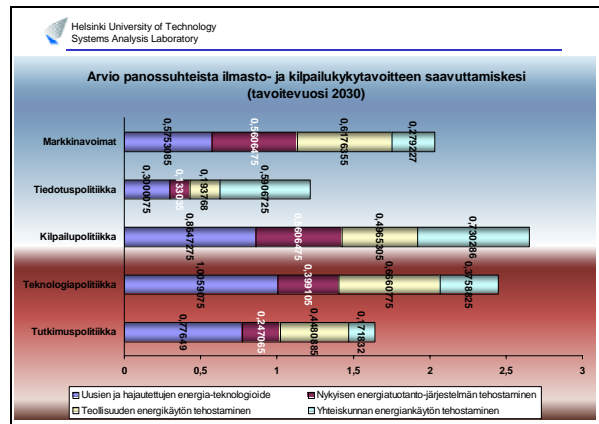
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### Two-dimensional strategy option matrix

	Research policy	Technology policy	Market forces	Competition policy	Communication policy
Efficiency of present energy production system	A1*B1	A1*B2	A1*B3	A1*B4	A1*B5
Dev't of new and distributed technologies	A2*B6	A2*B7	A2*B8	A2*B9	A2*B10
Efficiency of industrial processes	A3*B11	A3*B12	A3*B13	A3*B14	A3*B15
Dev't of the use of energy insociety	A4*B16	A4*B17	A4*B18	A4*B19	A4*B20

Arguments directed to specific/policy relevant units of analysis

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### Outcomes

- A 'top-down' multi-weighting procedure
  - Contrasts with the (multi-criteria) appraisal of policy options in isolation
  - Helps communicate the relative importance of aggregate policy options
  - Resulting weight profiles must be further refined and interpreted to account for complex interrelationships among policy measures
- The participatory process is important
  - Contributes to a shared perception of future opportunities,
  - Helps reduce some of the uncertainties about possible development paths

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### Case III: Prospective evaluation of Wood Wisdom

- Background
  - the Government launched a programme of increased R&D funding in 1996
  - a total of 100 MEUR allocated to seven cluster programmes
    - influenced by Porter's work on industrial clusters
    - promotion of collaboration among ministries, funding agencies and researchers
    - about 25% of funding from the private sector
- WoodWisdom
  - largest of the cluster programmes with a total funding some EUR 33 million
    - National Technology Agency (44%); participating companies and organisations (33%); Academy of Finland (15%); Ministry of Agriculture and Forestry (7%); Ministry of Trade and Industry (2%)
  - wood as a raw material in the pulp and paper industry and the wood products industry
    - 4 research areas (raw materials, mechanical forest industry, chemical forest industry, and the operating environment of the forest industry)
  - 21 thematic areas, 34 research consortia, 156 projects
  - 53 companies, 67 research units and 789 researchers

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### Methods of self-evaluation

- Participatory workshops
  - 15 workshops at the Helsinki University of Technology
  - consortia selected together with the funding agencies and the co-ordinator
  - most workshops attended by 7-10 people
    - steering group members
    - project managers
    - programme co-ordinator
    - process facilitator, technical facilitators
  - use of a group support system
    - application of evaluation models
    - solicitation of informal comments
- Questionnaire study
  - survey sent out to 78 projects
    - responses from 62 projects (response rate = 80 %)
  - informal comments on projects and programme-level issues

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### Examination of future research needs

A) What objectives should be stressed in this consortium in the future?

Assign 100 points to complementary objectives at each level of the hierarchy

Main goal	First-level criteria	Second-level criteria	Third-level criteria
Long-term industrial competitiveness	Strengthening of resource inputs	S&T research	Basic research Applied research Product development
		Other research areas	Economics and business research Environmental research Social research
	Development of research collaboration	Collaboration among research organisations (domestic)	Extended collaboration within existing networks Creation of new networks
		Collaboration between industry and research organisations (domestic)	Extended collaboration within existing networks Creation of new networks
		International research collaboration	

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### Unifibre

- Participants
  - co-ordinator, four steering group members
  - three project representatives
- Project presentations
  - The effect of wood anatomical structure on micro-cracking and crack growth
  - Optical methods in investigations of cracks in wood
  - Modelling of microcracking in wood
- Observations
  - unless the unique properties of Finnish wood can be harnessed, competitiveness may be undermined by rapidly growing tree species in countries from a warmer climate
  - improved facilities for the measurements of microscopic wood properties called for
  - need for increased international collaboration, basic research to be continued

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### Unifibre

Objective	Points
Basic research	27.1
Applied research	16.1
Product development	8.6
Economic research	4.9
Environmental research	3.8
Social research	0.5
Extended collaboration between domestic research organisations	9.7
Creation of new collaborative networks between domestic research organisations	6.1
Extended collaboration between domestic research organisations and firms	5.5
Creation of new collaborative networks between domestic research organisations and firms	5.9
International research collaboration	11.9

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Comments in Finnish:

- Ohjaukselliset onnit lampaan, mikä on OK. TEKES-projektilla on erilliset johtoryhmät, niiden ohjausryhmän rooli on ollut pienoisempi ja epäselvä. Haaste 1: entistä suuremman projektitehtävien toteuttaminen osapuolten kesken. Olisi ollut yhteisiä projekteja nykyisten erillisten mutta toisiinsa takevien lisäksi. Haaste 2: puun halkaistun mallintaminen numeerisesti eri sovelluksissa hyödynnettävään muotoon. haaste 3: tarvittavan laitekannan hankkiminen ja nopea yhteistyö.
- Suomalaisen puun tuotteen laadun ja niiden valmistuksen taloudellisuuden kehittämisen maailman laajalle tutkimuksen avulla.
- Onko kotimaisessa puun tuotteen tuotannossa olevia uusia ominaisuuksia (tutkimuksen lähtökohdat)? Onko nykyiset ominaisuudet yleistettävissä ekosysteemiin puulajien ja muiden materiaalien? - miten nyt kehitystä osanaista siirrettäisiin yhteiseen osanaista? Konsortioissa syntyy tutkimustehtäviä on syytä edellyttäväksi ja laajentaa kansainvälisesti.
- reuna laadun täsmällisyyden johdosta tuotteen puuttua alustettu (Pellen) kyselyä (alue voi olla tutkimuspuualue tulevaisuudessa); kloonimateriaalit perinteisesti jalostettuna tai geenitransformaation kautta jalostettuna hieroapaperiteollisuuden ameerikkalaan laatuun uudet kloonipolttajia hyödyntävät prosessit
- 1) Loppuotteiden asettamat vaatimukset puun ominaisuuksiin 2) Puun ominaisuuksien muokkaaminen loppuotteiden asettamia vaatimuksia vastaavaksi 3) Kuitujen väliet sidokset paperissa Yhteistyö jatkettava laitekannan parantamiseksi

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### Refereed papers

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Lahdesmäki, R., P. Salminen, J. Höökänen (1999): Using multicriteria methods in environmental planning and management, *Environmental Management* 26(6), 595-605.

Mustajoki, J., R.P. Hämäläinen (2000): Web-HIPRE: Global decision support by value tree and AHP analysis, *INFOR* 38(3), 208-220.

Mustajoki, J., Hämäläinen, R.P. and Marttunen, M. (2004): Participatory multicriteria decision support with Web-HIPRE: A case of lake regulation policy, *Environmental Modelling & Software* 19(5), 537-547.

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Salo, A., O. Kuusi (2001): Developments in Parliamentary technology assessment in Finland, *Science and Public Policy* 28(6), 453-464.

Salo, A., T. Kinnari, M. Hietä (2004): Responsiveness in foresight management: Reflections from the Finnish food and drink industries, *International Journal of Foresight and Innovation Policy* 1(1-2), 70-88.

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### Preference programming

- Complete information may be hard to acquire
  - alternatives and their impacts?
  - relative importance of attributes?
- Examples
  - assessment of environmental impacts
  - cost of acquiring further information
  - partial stakeholder involvement
  - fluctuating preferences
- What can be concluded on the basis of available information?
  - parametric uncertainties covered
  - structural uncertainties excluded

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### Dominance structures

- Absolute dominance
 
$$x \succ_A x' \Leftrightarrow \min \sum_i v_i(x_i) > \max \sum_i v_i(x'_i)$$
- Pairwise dominance
 
$$x \succ_p x' \Leftrightarrow \min \sum_i [v_i(x_i) - v_i(x'_i)] > 0$$
- Become increasingly conclusive

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### Decision criteria (1)

- Max-max
 
$$\max v(x^*) \geq \max v(x') \forall x'$$
- Max-min
 
$$\min v(x^*) \geq \min v(x') \forall x'$$
- Minimax regret
 
$$\max_{x \neq x'} [v(x) - v(x^*)] \geq \max_{x \neq x'} [v(x) - v(x')]$$

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### Decision criteria (2)

- Central values
 
$$[\max v(x^*) + \min v(x^*)] \geq [\max v(x') + \min v(x')] \forall x'$$
- Central weights
  - the same w.r.t. weights, assuming that scores are known
- Provide guidance when decision rules do not hold
  - associated loss of value must be examined, however!

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### Elicitation processes (1)

Derivation of results	Preference statements	
	Imprecise	Precise with error margins
Converge through interaction	<ul style="list-style-type: none"> <li>Elicit imprecise statements.</li> <li>Identify the most preferred alternative through dominance structures.</li> </ul>	<ul style="list-style-type: none"> <li>Elicit precise statements and place error margins around them.</li> <li>Identify the most preferred alternative through dominance structures.</li> </ul>
Apply decision rules	<ul style="list-style-type: none"> <li>Elicit imprecise statements.</li> <li>Obtain a recommendation through a decision rule.</li> <li>Terminate if the DM is prepared to accept the possible loss of value.</li> </ul>	<ul style="list-style-type: none"> <li>Elicit precise statement and place error margins around them.</li> <li>Obtain a recommendation through a decision rule.</li> </ul>

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### Genetically modified organisms

- Technology assessment study for the Finnish Parliament
  - commissioned by the Futures Committee
  - delivered to the Speaker of the Parliament in September 1998
  - debated in the plenary session in November 1998
    - an extensive two-hour debate, commented on by two ministers
- Precautionary Principle in Risk Management
  - commissioned by JRC/IPTS (ESTO network)
  - presented to the DG's by the Forward Studies Unit in May 1999
- Problem characteristics
  - timely and highly controversial
  - large uncertainties
  - many concerns

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### Value tree

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### Ranges of weights

	Worst Conseq	Best Conseq	Lower bound	Upper bound
Allergenicity	Average	No risk	10	25
Development of antibiotics	No risk	No risk	18	20
Unpredictable sec.	Unlikely	No risk	2	20
Becomes a weed	Unlikely	Negligible	2	20
Gene-flow to wild	Unlikely	No risk	2	20
Development of new viruses	Negligible	No risk	1	10
Effect on the soil ecosystem	Average hazard	No risk	10	40
Amount of required herbicide	A lot	Minimal	20	40
Crop Yield	Lower than average	High	100	100

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### Intermediate results

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### Ranges of attribute weights

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### Decision rules

Decision Rules	Maximax	Maximin	Central Values	Minimax Regret	Possible Loss
Organic Agriculture		✓			0.617
Integrated Pest Management	✓				0.617
Conventional Agriculture					0.764
GM Plants with segregation and				✓	0.490
GM Plants with post-release moni			✓		0.490
GM Plants with voluntary control			✓		0.490

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### Potential advantages of prospective evaluation

- Speed up the evaluation process
  - the evaluation recommendations can be produced more quickly, in principle
    - » occasional dissemination of results through the internet on the very same day
- Differentiate between viewpoints
  - helps create a picture of how the viewpoints of different stakeholders differ from each other
    - » assessment of information security risks in a TLX workshop
- Explore the findings
  - helps catalyse a discussion on what the survey findings etc. really signify
    - » e.g., what kind of international collaboration is really needed?
    - » “the devil is in the detail”
- Support the implementation of recommendations
  - a forum for discussing on how the recommendations might be best implemented - facilitated discussions help ensure impartiality

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### Participatory evaluation

- Approach
  - define the objects of inquiry
    - » e.g., projects, research areas, programme-level activities
  - develop an appropriate methodological evaluation framework
    - » e.g., multicriteria decision models
  - appoint the workshop participants
    - » interest, competence, balance of stakeholders
  - consult the funding agencies
  - make use of advanced ICT tools
    - » solicit viewpoints from all the participants
    - » allow for anonymous feedback as well
    - » synthesize and discuss results “on the spot”
- Remarks
  - complements but does not replace other forms of evaluation research
  - may be helpful in deriving recommendations

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## Consideration of Innovation Effects in Impact Assessment

Knut Blind  
Fraunhofer Institute Systems and Innovation Research ISI, Karlsruhe (Germany)  
Workshop "The Environmental Dimension of Impact Assessment"  
17 June 2004  
Environmental Policy Research Centre  
Freie Universität Berlin

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Slide 1

## Content

- Innovation: Types, Stages and Determinants
- Regulation within the Innovation System Approach
- Innovation within Regulatory Impact Assessment
- Examples of Impacts of Regulation on Innovation in Energy Production and Efficiency
- Consequences for Future Impact Assessments

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Slide 2

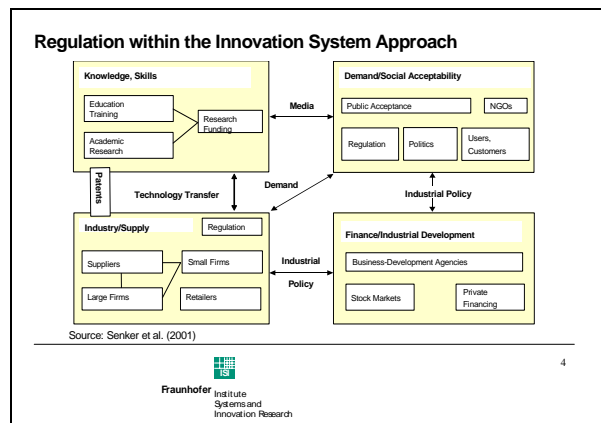
## Innovation: Types, Stages and Determinants

- Different types of innovation:
  - Product innovations
  - Process innovations
  - Organisational innovations
  - Radical vs. incremental innovations
- Stages of the innovation process:
  - Basic research -> Applied research -> Experimental development -> Market introduction -> Diffusion
  - No linear, but non-linear sequential model with several feedback loops
- Determinants:
  - Supply-side drivers: progress in science and technology
  - Demand side drivers: new or changed user needs

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Slide 4

## Innovation within Regulatory Impact Assessment (RIA)

- RIA:
  - Origins in the US with strong emphasis on competition
  - Consequence: Deregulation and liberalisation of several markets
  - OECD surveys on regulatory reform also focus mostly on competition
  - Europe: Increased implementation of RIA
- Innovation:
  - No strong emphasis on innovation as a separate impact dimension within RIA
  - Mostly considered as a positive side-effect of increased competition caused by deregulation
  - But: important dimension in dynamic markets (e.g. telecommunication), for dti (UK) and meanwhile integrated in the extended impact assessment of the EC

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## Examples of Impacts of Regulation on Innovation in Energy Production and Efficiency

- Qualitative case study:
  - Wind energy (e.g. Walz and Kotz 2004)
    - success of wind energy in Europe can be explained by public funding of R&D accompanied by offering stable demand conditions through guaranteed prices
- Quantitative studies:
  - Relationship between energy prices and patents (Grupp 1999, Popp 2002)
    - development of energy efficiency related patents react on energy prices
  - Relationship between energy prices and energy efficiency (Schleich 2001)
    - fuel efficiency is significantly influenced by fuel prices
  - Impact of the introduction of CO<sub>2</sub> tax within a macroeconomic model (Schleich et al. 2003)
    - incremental innovations and change between trajectories in the steel sector induced by CO<sub>2</sub> tax

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Slide 6

## Consequences for Future Regulatory Impact Assessments

- Explicit consideration of innovation impacts in future RIA, because:
  - Innovation can be induced by regulatory changes (especially by market based instruments)
  - Increase of the set of available technologies with positive impacts on the market (structure, volume, dynamics), but also on the environment and society
- Challenges:
  - Analysis of impact on innovation differentiated by type of regulation
  - Often different, sometimes contradicting impacts depending on the type of innovation (e.g. incremental or radical (Blind et al. 2004)) and on the phase of innovation
  - Consideration of soft and indirect regulations (e.g. labelling, product liability), but problem to construct adequate indicators and to quantify impacts, and self-regulation (e.g. via standardisation (Blind 2004))
  - RIA within the framework of the innovation system approach

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Slide 7

# Impact Assessment and Lead Markets for Environmental Innovations

Klaus Jacob,  
Environmental Policy Research Centre,  
FU Berlin

Slide 1

## Overview

- Results from Case Studies on Lead Markets for Environmental Innovations
- Policy Patterns related to the emergence of Lead Markets
- Development of Political Strategies in favour of Lead Markets
- Possibilities for assessing positive market effects

Slide 2

## Lead Market for Environmental Innovation: Catalytic Converter

Year	Japan (%)	USA (%)	Germany (%)
73	0	0	0
75	10	0	0
77	40	0	0
79	60	10	0
81	70	40	0
83	75	60	0
85	78	70	0
87	80	75	10
89	82	78	30
91	83	80	50
93	84	81	65
95	85	82	75
97	86	83	80
99	87	84	85
01	88	85	90

Source: Beise et al. (2003)

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## Studying Lead Markets

- Review of literature on national peculiarities regarding the introduction of environmental innovations and their international diffusion
- Studying of historical cases of Lead Markets
- Developing hypotheses on the emergence of lead markets
- Studying of emerging lead markets:
  - Photovoltaic cells
  - Fuel cells for stationary and mobile applications
  - Diesel particulate filter
  - Social Responsible Investment
  - Innovations to reduce paper use
  - Innovations for paper recycling
  - VOC reduced paints
- Analysis of common features and differences
- Derivation of policy patterns and development of political strategies to support the emergence of lead markets
- Indicators to assess the lead market potentials of countries, sectors, technologies and policies

Slide 4

## Policy Patterns

- Innovations with Lead Market potential require supportive R&D policies
- Technology forcing is rare
- Minor importance of environmental taxes and other economic instruments
- Public procurement is underutilised
- Patent protection impedes broad diffusion of environmental innovations
- No strategies to further competition
- Lack of integration of R&D policies with environmental and economic policies
- Lack of measures to assess and integrate foreign preferences and to avoid idiosyncratic technologies
- No special promotion of export
- Size of the Single European Market and the institutions for the diffusion of policy innovations are favourable for the creation of lead markets, variety of European markets is not utilised
- Role of non governmental actors is limited to few cases and the developing of objectives

Slide 5

## Lead Market Potential: Chemicals

- Technologies**
  - Innovations refer to international agenda?
  - Support by Environmental Policies/actors?
  - Support for R&D in environmental innovations?
- Policies**
  - Provision of economic incentives?
  - Flexibility?
  - Substantive, long term goals?
  - Image as pioneer in environmental policy?
  - Likelihood of international policy diffusion?
  - Incentives for exports
  - Stimulates competition
  - Incentives for consideration of foreign preferences
- Sectors**
  - Technological competences?
  - Economic capabilities?
  - Export orientation?

Slide 6

## Conclusions

- National potentials for the stimulation of lead markets are underutilised
- Impact Assessment of policies has the potential to contribute to the design of innovation friendly policies
- Criteria for assessing likelihood of innovations have to be derived from
  - Technologies
  - Sectors
  - Policies
- Assessment can reveal potentials for innovation and international diffusion at least qualitatively

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## Recommendations for the Development of Lead Markets

Development of Lead Markets	Recommendations
R & D	<ul style="list-style-type: none"> <li>Identified Support for Research on Sustainability of pre-competitive Research</li> <li>Monitoring of Research and technologies to identify Lead Market Potentials</li> <li>Support of the Creation of Technology Clusters in respect of their Lead Market Potential</li> </ul>
Pilot Applications	<ul style="list-style-type: none"> <li>Utilisation of the diversity of the European Markets to establish Pilot Markets</li> <li>Support of Pilot- and Demonstration projects</li> </ul>
Demonstration Applications	<ul style="list-style-type: none"> <li>Initial Financing of Technologies for which a Lead Market Potential can be identified if the preconditions for the utilisation of scale effects are given</li> <li>Monitoring of Pilot Markets to identify emerging Lead Markets</li> </ul>
Mass Markets	<ul style="list-style-type: none"> <li>Monitoring of preferences and needs in foreign countries</li> <li>Build Up of Infrastructures for Technologies with a Lead Market Potential</li> <li>Support of the international Diffusion of Lead Market Technologies by means of export subsidies</li> </ul>

**General Recommendations:**

- Support for Lead Markets should be concentrated to sectors with high technological competences
- Involvement of international actors
- Application of a variety of environmental policy instruments
- Utilisation of flexible instruments
- Formulation of objectives
- Co-operation of governmental actors with economic actors
- Design of exportable policy measures and regulation, monitoring of regulations abroad

Slide 8

European Commission Research

## The Environmental Dimension of Impact Assessments"

Berlin, 17.-18. June

Marialuisa Tamborra  
European Commission - DG Research

Slide 1

European Commission Research

## Achievement of past Research Framework Programmes

- **Development of economic models, specially for Climate change (specially E3 models):**
  - PRIMES, POLES, GEM-E3, NEMESIS
  - ExternE for calculating externalities in the energy sector.
- **Examples of further development of models/tools:**
  - **GECS - Greenhouse Gas Emission Control Strategy** (Co-ordinator: LEPII-EPE – University of Grenoble):
    - Co-ordinating use of different existing partial and general equilibrium models (e.g. POLES, PRIMES and GEM-E3)
    - Calculating impacts of emission constraints on energy, transport, agriculture and land use
    - Analysing consequences of introducing multi-gas flexibility at world level in different policy settings
  - **GREENSENSE - An Applied Integrated Impact Assessment Framework for the EU** (Co-ordinator: University of Bath):
    - Improving availability of data on environmental damages caused by different economic activity using the 'Impact Pathway Analysis' (ExternE).
    - Developing/ applying an environmental accounting framework incorporating sustainability issues and facilitating cost-benefit analysis.

Slide 2

European Commission Research

## Examples of contribution of research results to policy-making

- Scenario building and forecasts
- Policy simulation (e.g. economic instruments)
- Quantification of impacts
- Some examples:
  - PRIMES and POLES - Proposal and Impact Assessment of the Directive establishing a Scheme for GHG emission allowance trading;
  - NEMESIS – Assessing the impacts of the 3% of GDP in R&D in Europe by 2010
  - GECS and PRIMES - Impact Assessment of the amending Directive integrating Kyoto protocol's project based mechanisms (JI and CDM).
  - ExternE - large Combustion Plants Directive

Slide 3

European Commission Research

## Role of the Sixth Research Framework Programme to Impact Assessment

- **Area "Cross-cutting Issue for Sustainable Development" of Sub-Priority "Global Change and Ecosystems" (Priority 6.3):**
  - Support Sustainable Development and provide those tools and models for Impact Assessments.
- **Priority 8 - "Specific Support to Policies"- Area 3.4**
  - Research topics identified by DG Research in co-operation with other DGs for their own policies.
  - Area 3.4 "Forecasting and Developing Innovative Policies for Sustainability in the Medium and Long Term": support to the implementation of the EU Strategy of Sustainable Development.

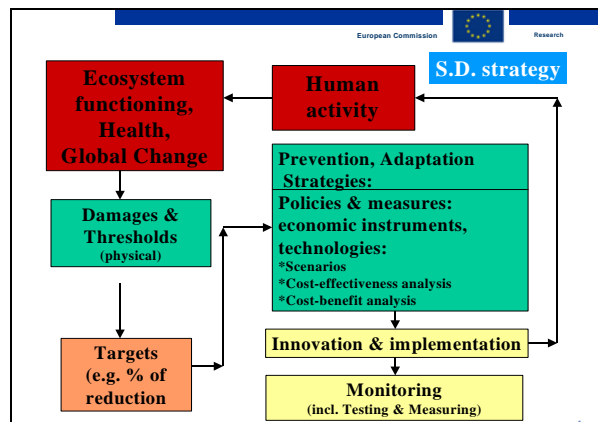
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## Priority 6.3 of the Sixth Framework Programme – Cross-cutting issues

- **Developing tools for integrated sustainability assessment and for the incorporation of sustainability in decision making processes:** the aim is to explore new approaches and tools for Impact Assessment embedding and integrating environmental, economic and social aspects in the analysis of policies.
- **Estimating thresholds of sustainability and externalities:** identification and quantification of externalities, so that economic instruments can be used to steer society on a Sustainable Development pathway.

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Slide 6

European Commission Research

## Impact Assessment Practice at the Commission

- 43 Extended Impact Assessments foreseen in 2003.
- In 2004: 46 Extended Impact Assessments.
- Learning process
- 21 out of 43 Extended Impact Assessment of 2003 – first experience

Slide 7

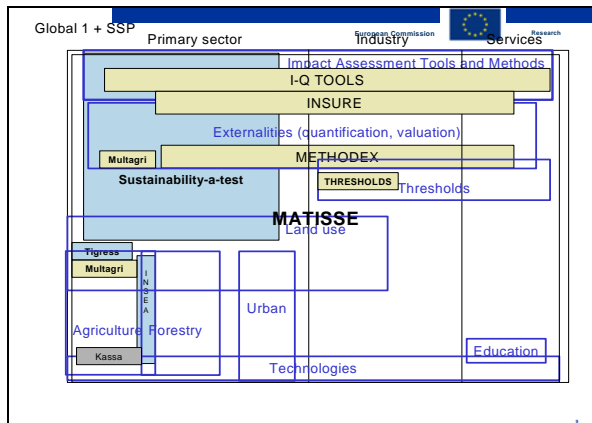
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## Some areas of Improvement and lessons for research

- Alternative options
- Comprehensive analysis
- Quantitative analysis
- Building a 'culture' of IA
- Need for appropriate tools that address all dimensions of sustainability and enable to highlight trade-offs
- Further development and wider use of quantitative tools (macro and micro models, general and partial equilibrium models etc.)

→ Dissemination and capacity building within the Commission

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### FP6 Projects on Impact Assessment

- **I.Q. TOOLS – STREP of Priority 8 (co-ordinated by ZEW)**
  - Developed with Secretariat General and inter-service Steering Group to support Impact Assessment at the Commission;
  - Qualitative and quantitative tools supporting the identification of impacts and the preparatory work for drafting Preliminary and Extended IAs and best practices manual;
  - Provide an interactive inventory of modelling tools for quantitative analysis and a macro-economic model (General equilibrium).
- **SUSTAINABILITY A-TEST – STREP of Priority 6.3 (co-ordinated by Vrije Universiteit Amsterdam –Institute for Environmental Studies (IVM))**
  - Provide consistent and peer-reviewed appraisal of common and emerging tools for sustainable development related assessments;
  - Provide and apply a framework (matrix) for the evaluation of the tools (e.g. how the tools relate, their characteristic, the circumstances under which they can be used, the constraints, the pros and cons)
  - Identify important and promising issues for targeting future research.

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### FP6 Integrated Project on Impact Assessment

- **MATISSE (under negotiation) – IP of Priority 6.3 (co-ordinated by International Centre for Integrative Studies, Maastricht Univ. - ICIS)**
  - Building a conceptual framework for Integrated Sustainability Assessment (ISA) development, implementation and evaluation;
  - Development of a future tool portfolio for ISA;
  - Test the tools in several case studies (e.g. agriculture, forestry and land-use, resource use, environmental technologies and capacity building)
  - Involvement of stakeholders and policy-makers.

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### Other related FP6 projects

- **METHODEX - Priority 6.3 (co-ordinated by AEA Technology)**
  - Calculating externalities in areas such as agriculture (multifunctionality), industry and waste;
  - Developing a policy tool that enables the use of externality data in policy contexts.
- **THRESHOLDS (under negotiation) – IP of Priority 6.3 (co-ordinated by Consejo Superior de Investigaciones Cientificas – CSIC)**
  - Developing approaches to policy formulation that take sustainability into account, integrating scientific knowledge on thresholds vulnerability of the environment and the socio-economic aspects including externalities

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### Concluding Remarks

- Impact Assessment at the Commission is an evolving learning process
- Use of existing tools available at the Commission more widely
- Role of EU Research in developing further tools and methods that incorporate all dimensions of Sustainability, thereby strengthening the Impact Assessment process itself.

Further information on IA at the Commission on:  
[http://europa.eu.int/comm/sustainable/pages/impact\\_en.htm](http://europa.eu.int/comm/sustainable/pages/impact_en.htm)  
[http://europa.eu.int/comm/governance/docs/index\\_en.htm](http://europa.eu.int/comm/governance/docs/index_en.htm)

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## I.Q. TOOLS

Indicators and Quantitative Tools  
for  
Improving the Process of  
Sustainability Impact Assessment  
Project funded by DG Research

Klaus Rennings

Workshop "The Environmental Dimension of Impact Assessments"  
Berlin, 17.-18. June  
Federal Ministry of the Environment, Nature Conservation and Nuclear Safety

Slide 1

## Contents

- State of the Art: Tools for Sustainability Impact Assessment
- I.Q. TOOLS:  
Objectives  
Project Team  
Involvement of European Commission  
Time Schedule  
Basic Structure of the Tool

Slide 2

### State of the Art I: Existing Tools for SIA

- Two groups of tools can be distinguished:
- Qualitative Tools:  
Electronic checklists  
Examples:  
IAPLUS (Environmental Dimension)  
IASTAR (all three sustainability dimensions)  
developed by DG Enterprise
- Quantitative Tools:  
Models (General Equilibrium Models, Sectoral models)  
Example:  
GEM-E3 Model  
developed by DG Research

Slide 3

### State of the Art II: Modelling Problems

- Qualitative tools (IA STAR) exist, but:
  - No quantification
  - Problem of weighting impacts
- Quantitative models have been developed, but:
  - so far no standardised versions for SIA procedure
  - only limited number of impacts and indicators addressed by each model
  - different models for different dimensions, instruments, policies
- -> need for guide on models
- -> need for more standardised versions of quantitative models, adaptable to different policy areas within time frame of IA process

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### State of the Art III: Impacts and Indicators

- Qualitative tools (IA STAR) exist, but:
  - More than 500 indicators/impacts
  - Navigation complicated, time-consuming
  - Selection of core impacts would be beneficial
- Quantitative models have been developed, but:
  - Assessment not yet integrated (ecological and economic models separated)
  - > Limited applicability concerning sustainability indicators
- -> Need of practical tool concerning handling of impacts and indicators (e.g. hierarchy of impacts with relevant data and information about available models for quantification)

Slide 5

### I.Q. Tools : Objectives

- Improvement and link of existing tools:
  - I-Tool for indicators/impacts (qualitative electronic checklists) with inventory of best practices and with list/inventory of impacts
  - Q-Tool for models (quantitative model) with inventory of models and CGE model for quantification of selected impacts
- Availability as web-based desktop tool
- Test of software for selected European policy initiatives

Slide 6

### IQ Tools: Participants and main role:

- Tool development:  
ZEW -Centre for European Economic Research, Mannheim  
Interdisciplinary Center for Scientific Computing, University Heidelberg  
IPTS Joint Research Centre Seville
- Review impacts and indicators, handbook:  
Freie Universität Berlin, Environmental Policy Research Centre AVANZI, Milano
- SIA review and handbook:  
SPRU - Science and Technology Policy Research, University of Sussex  
IEEP, Institute for European Environmental Policy, London

Slide 7

### IQ Tools Project Management: Decision Making with Commission

- Steering Group with members of project team and Commission (Secretariat General, DG RTD, other DGs):  
makes central decisions concerning indicator shortlist, targeted policy areas and selected impact assessments
- User group (including selected members from project team and desk officers from the Commission, selected by Secretariat General):  
Test of tool, consideration of user needs
- Economists Group, contributing specially for the output "extension of the model"

Slide 8



## SEA and (sustainability) impact assessment: a shared learning process?

BMU workshop, Berlin, 17-18 June

Ann Dom [ann\\_dom@eea.eu.int](mailto:ann_dom@eea.eu.int)  
Policy analysis group  
European Environment Agency



Slide 1

## EEA's role in (S)IA

- Challenge: providing support to various 'clients': DG ENV, SG, other DGs, EP, countries
- Support to certain extended IAs
  - Environmental data and assessment support
  - Participation in steering groups
- Support to method development and exchange of good practice
  - State-of-art-review in context of policy integration analysis
  - Support to method development: e.g. guidelines for environmental assessment in context of SD (GEAR-SD)
  - Exploring link with ex-post effectiveness analysis and scenario work
  - Follow-up of DG Research projects
- Networking
  - Organisation of workshops: e.g. IA session in Bridging the Gap conference
  - Link with countries through EINONET

2 - [ADO] - 16 June 2004



Slide 2

## Bridging the Gap 2004: conclusions of IA session

- Learning by doing is the best way forward
- We need credible process, that serves SD and not just political ends
- More political leadership is needed from environmental and social side
  - Look to Summit, but also Councils and new Commission to push Env't & Social dimensions of IA
  - Follow through in budgetary processes
- Enhance resource & build capacities in SecGen, DGs, countries, NGOs
- Procedural improvements
  - Oversight/co-ordination unit – independent e.g. in Secretariat General
  - Consider establishment of an external auditing function
  - Systematise the learning process, internally and externally (e.g. forum for systematic exchange of good practice)

3 - [ADO] - 16 June 2004



Slide 3

- Methodological guidelines are balanced, but in practice improvements needed:
  - Equal assessment of 3 SD pillars, making synergies and trade-offs explicit
  - Assessment has to be broader than CBA, to present e.g. multi-criteria options
  - Closing the learning circle – ex post analysis to validate
- Better engage actors – at all levels, in all stages
- Co-ordinate information providers and networks to contribute jointly to extended IAs
- Communication & consultation – should be active and reflect key findings in transparent and accessible manner

4 - [ADO] - 16 June 2004



Slide 4

## Lessons from the SEA (attempts) for trans-European transport network

5 - [ADO] - 16 June 2004



Slide 5

## The process

- IA puts the process of environmental policy integration to the test (integration versus 'being gobbled up')
- Political commitment: IA without sectoral SD strategies and targets?
- Budget commitment?
- Institutional commitment: all levels
- When? Continuously?
- Auditing process: process and quality: external auditor?
- Use in decision?
- Learning process: institutional slowness

6 - [ADO] - 16 June 2004



Slide 6

## The actors

- The more players in the field, the tougher the 'turf wars' and the more interests to reconciled
- Political leadership: strength of environment authorities/ actors vs others: should environmental authorities rethink their role?
- More stakeholders = more difficult to conduct consultation / participation
- SEA/ SIA can help policy makers to develop a common language
- Mutual confidence building can take years: staff turn over is issue or solution?

7 - [ADO] - 16 June 2004



Slide 7

## Methods

- SEA is not called SEIA
- IA > SEA + economic + social assessment
- IA requires different way of analysing, also for environmental assessment part
- How to compare effects with different time horizon?
- Money is only one measure
- SEA experience shows that
  - the process should be tiered, with methods / scope adapted to each level of policy making
  - assessment at high policy level requires specific techniques
  - the higher the policy level, the more qualitative the analysis
  - at policy level, participation and consultation is an issue
- Link ex-ante and ex-post policy effectiveness analysis!

8 - [ADO] - 16 June 2004



Slide 8




SEA and SIA: a shared learning process

### SEA versus IA – information and expertise


- SEA experience shows that data should not be a barrier – creative expertise can sometimes work miracles
- 'Turf wars' also exist between expert networks
  - Expert networks have to join efforts
  - SIA has to be conducted as a team effort
  - Experts need to find a common language
- Quality of economic analysis/data/expertise is judged differently than of environmental analysis/data/expertise
- RTD is essential but should not prevent practical application

9 - [ADO] - 16 June 2004

European Environment Agency 

POLICY ANALYSIS GROUP

Slide 9



Slide 10

IA Workshop Berlin

## Procedural Aspects: common ground between EIA/SEA and IA, and the role of IA for EU policies

EEAC - the network of European Environment and Sustainable Development Advisory Councils

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Slide 1

## Overview

- Refresh memory:
  - Environmental Impact Assessment as first (?) invention by NEPA 1969
  - European Community EIA, and later SEA, as procedural instruments for environmental policy integration, finally also reflected in Art. 6 TEC
- EIA for Commission proposals (since 1992 → not done)
- Link of EIA/SEA and ERI
- EPI and SD – EIA/SEA and SIA
- Common grounds of EIA/SEA and IA in fundamental and procedural aspects . . . Lessons to be learned, also for transposing the SEA-Directive

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Slide 2

## EIA/SEA requirements, TEC for EPI, COM to perform own (S)IA

	EIA/SEA	Treaty requirements on environmental integration / Council conclusions	Requests to the Commission on EIA and SIA
1980	Start development EIA-Dir.	Environmental integration as objective of COM / 3 <sup>rd</sup> EAP (1982)	
1985	Adoption of EIA-Dir.	Art.130r(2) TEC: EIR in Single European Act (1986)	
1991-93	Start development SEA-Dir.	Improved EIR in Art.130r(2) TEC (Maastricht)	1 <sup>st</sup> Declaration on EIA (Maastricht 1992)
1996-99	Proposal for SEA-Dir. EIA-amendment-Dir.	Strengthened EIR → moved 'up' to Art.6 TEC Cardiff: Council formations to develop strategies for EPI	2 <sup>nd</sup> Declaration on EIA (Amsterdam 1997) Cardiff (1998): COM to perform EIA
2001	Adoption of SEA-Dir.	Gothenburg: SD strategy	Gothenburg: COM to perform SIA
2003			COM commitment for IA


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Slide 3

## Link of EIA/SEA and EIR

- EIA-Directive (85/337/EEC)
  - '... whereas they [the 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> EAP] affirm the need to TAKE EFFECTS ON THE ENVIRONMENT INTO ACCOUNT at the earliest possible stage in all the technical planning and decision-making processes; whereas to that end, they provide for the implementation of procedures to evaluate such effects; ...'
- Art. 1 SEA-Directive (2001/42/EC)
  - 'The objective of this Directive is to provide for a high level of protection of the environment and to contribute to the INTEGRATION OF ENVIRONMENTAL CONSIDERATIONS into the preparation and adoption of plans and programmes with a view to promoting sustainable development, ...'

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## EPI and SD – EIA/SEA and SIA

- Art. 6 TEC: Environmental Policy Integration (EPI) as prerequisite for moving towards a SD
  - Sustainability IA (Gothenburg) should be read in light of this
  - unfortunate the term was given up ( because of the combination with 'better law making/Regulatory IA' )
  - signal lost ?!
- [Why were earlier EIA requirements not implemented by the Commission?]
- Why not having made/making use of EIA/SEA experience?

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Slide 5

## EU SDS/Gothenburg – Lisbon strategy

EU SDS: long-term

SDS

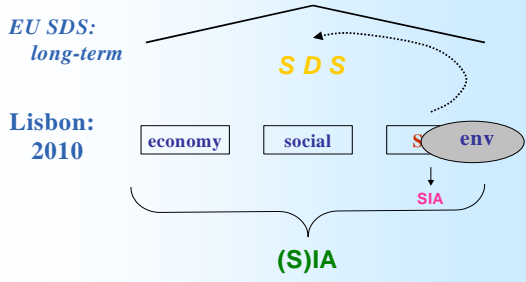
Lisbon: 2010

economy social S env

SIA

(S)IA

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## Struggles with EIA/SEA → lessons?

20 years of struggling with EIA and SEA in Europe has covered :

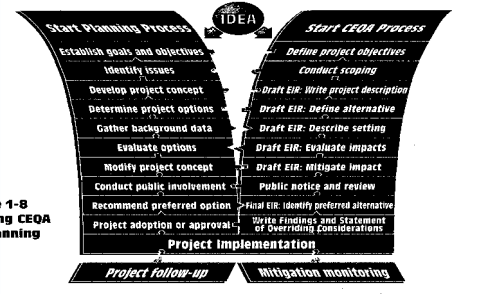
- application on which level of decision-making (with high resistance to cover more strategic levels)
  - not relevant for IA
- scope of application, i.e. which projects or plans/programs
  - screening phase introduced (EIA-amendment-Directive 1997)
- the obligatory consideration of alternatives (strengthened in EIA-amendment-Directive),
  - difficult also in case of IA
- the competence of the authority in charge, and the role of the environment authority (only consultative in all Directives), or a 'higher' level (not foreseen in all Directives)
  - deficient also in case of IA
- public participation
  - deficient also in case of IA

Questions on the process – how and when – lead to . . .

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## Design of process: (E)IA intertwined process, from the start – example California



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Slide 8

Basic accusations to EIA lead to ...

### Opposite “cornerstones” of planning and decision-making

	Positive character	Negative character	
<b>rational</b> (“100%” information)	comprehensive and structured information basis, aims at limiting risks, focused	endless information gathering, getting out of hand, paralysing, obstructing decisions	
	innovative, creative, pragmatic, open	arbitrary, unstructured, despotic, unscientific	<b>spontaneous</b> (“zero” information)
<b>binding</b> (“100%” accountable)	Objective- and target-oriented, reliable, long-term oriented	rigid, formalistic, legalistic, not adapting	<b>incremental</b>
	adapted to problems, solution oriented, case related (may be + and –)	Crisis-like “muddling-through”, no foresight	<b>flexible</b> (“zero” accountable)

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### Basics

Basic characteristics required

- Process - oriented
- Self – reflexive
- Transparent

Limitations of IA

- Aim of more rationality can be a pitfall  
→ lack of data / primary research needed (no decision? → is also a decision...)  
→ becomes technocratic

Underlying problem

- “Belief system” of actors and institutions

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### Principles in IA Guidelines: good direction

1. Get things in proportion
2. Think “outside the box”:  
- do not limit your assessment to your own policy area...  
- take into account both short and long term considerations  
- be open-minded about alternative policy options. Consider the impacts of individual elements of the policy proposal and the effects of more or less ambitious versions of the policy  
- use the assessment process to increase dialogue with other services and ensure policy coordination from the onset.
3. Consult interested parties and relevant experts  
(→ should be stronger)
4. Be transparent. (Decision-makers and external stakeholders want to understand the chain of logic in the policy process ...)
5. Use existing knowledge and experience.
6. Compare negative and positive impacts.
7. Use your judgement.

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### Conclusions

1. scope of application (*which projects or plans/programs*)  
→ Screening phase required for IA  
(vs. ALL proposals to fall under IA, first phase as checklist)
2. the obligatory consideration of alternatives,  
→ Most important step: best would be to develop alternatives in a team of concerned parties
3. the competence of the authority in charge, and the role of the environment authority, or a ‘higher’ level  
→ strong of of coordination unit required, ... steering the process, quality control (maybe externally...)
4. public participation  
→ at least put all proposals with IA on 1 website

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### Conclusions 2

5. Cooperation  
→ Working groups of “opponents” (cf. FIN example, - not necessarily with stakeholders), allow for enough time
6. Balance  
.. between pragmatic approach and accuracy → merely scientific approach can lead to endless battles

... same messages also go to member states for transposing the SEA - Directive

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## Stakeholder engagement with REACH Impact assessment

**Michael Warhurst**  
EU Chemicals Policy  
WWF European Policy Office, Brussels

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Slide 1




## Contents

- A history of REACH impact assessment
  - When was participation possible?
- Which civil society groups should have a stake in REACH?
- Why do civil society groups not engage in impact assessment processes?
- The example of the REACH extended impact assessment process
- The reality of environmental NGO capacity in the REACH extended impact assessment process
- Conclusions

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Slide 2



## Impact assessment of REACH and stakeholder engagement

- February 2001 - White Paper
  - Brief description of "costs and benefits":
    - No NGO involvement
- June 2002 - RPA/Statistics Sweden
  - "Assessment of the business impact of new regulations in the chemicals sector"
    - NGOs were consulted
- Summer 2003 - RPA assessment of internet consultation text
  - No NGO involvement
- Autumn 2003 - Extended impact assessment study, published with legislation
  - No formal NGO involvement in main study
    - consulted on choice of chemicals for unused study
    - Informal discussions - "benefits too difficult"
  - Post-publication stakeholder debates massively dominated by industry
- 2004 - Extended impact assessment process
  - Involvement, but with severe problems

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Slide 3




## Civil society stakeholders - who should participate?

- Many groups have a stake in REACH
  - Environmental NGOs
  - Consumer NGOs
  - Health NGOs
  - Unions
  - Others – development organisations, women's groups etc
- But few have engaged
  - Environmental NGOs - yes
  - Consumer NGOs - sometimes
  - Health NGOs - almost never
  - Unions –variable
  - Development organisations - never
  - Women's groups - sometimes

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Slide 4




## Why is participation so limited (when it is allowed)?

- Very limited or non-existent capacities at EU level
  - Particularly in health and development
- Lack of expertise in the issue in many NGOs
  - Complexity of chemicals legislation
  - Industry has inherent advantage when it comes to business impact discussions.
- Many competing priorities
  - EU level NGOs are poorly resourced in general
- Expertise focussed in few, very stretched, people
  - NGOs that have issue expertise and are prioritising the issue, still tend to be focussed on one person, who also has generally policy responsibility on the issue, and IA tends to happen in parallel with major political debate.
- Lack of resources to commission expertise, and often a lack of available expertise.

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Slide 5




## The further REACH extended impact assessment process

- Creation of process
  - Agreed by DG Environment, DG Enterprise, UNICE and CEFIC
    - No involvement of other stakeholders
- Working group
  - Some stakeholders have been invited
    - WWF and EEB are attending
      - Though this engagement is controversial in the NGO movement
      - Many consider that this process will inevitably do what industry wants it to do.
    - Unions are attending
    - Consumers were invited, but have no capacity
  - Many study is by consultancy employed by UNICE and CEFIC - KPMG
    - Neither WWF or EEB have yet been invited to a meeting with KPMG, even though they are supposed to be involving us
- There is clearly a huge imbalance of information and resources

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Slide 6




## The reality of environmental NGO engagement in the REACH extended process

- EEB
  - Stefan Scheuer, also responsible for all aspects of REACH policy and politics, and all water policy (from July, Policy Director of EEB; there will be a new staff member)
    - Consultant - funded externally - limited hours
- WWF
  - Michael Warhurst, also responsible for REACH policy, politics and policy support for DetoX campaign
    - May use some capacity of a part-time new policy consultant, but there are many other needs.
- This is a very challenging process
- ... but it will be politically very important

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Slide 7



## Conclusions

- NGO engagement requires:
  - Opportunity
  - Resources
  - Expertise
- At EU level many civil society stakeholders lack resources and expertise
  - Their opportunity to engage is very limited
  - The more complex the engagement, the more likely few will engage
    - The extended REACH process is probably one of the most extreme examples.
  - One key problem is lack of commitment to European decision making processes at national level - both in NGOs and Government?
- Discussion points:
  - Why is it possible to create complex and participatory procedures at national and local level, but not at EU level?
  - How can resources at National level be made available to EU-level debates
    - Including NGO and national government resources
  - How can civil society participate in such complex debates?

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