



## Final Program

# Climate Change and Impact Assessment

*Special Symposium  
Aalborg, Denmark 25-26 October 2010*



### IAIA

International Association  
for Impact Assessment

[www.iaia.org](http://www.iaia.org)

Symposium Host

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# Welcome

## Welcome to Aalborg

*It is a pleasure to welcome all of you to Aalborg and to the IALA Special Symposium on Climate Change and Impact Assessment!*

*Climate change represents one of the most significant challenges of our time. The impacts have both global and local dimensions, and require actions from global 'deals' to citizens' actions. The climate challenge is made up by a broad range of challenges like complexity, unpredictability, distribution of impact and inequality, risk of trade-offs between climate change and other environmental concerns, uncertainty and uncertainty avoidance, capacity building, and not least, 'governance landscaping' for handling climate change.*

*During the symposium, we will focus on challenges and opportunities, including aspects of mitigation as well as adaptation, and on how assessment methodologies in combination with planning, policy and decision-making can help handle climate challenges.*

*The timing of the symposium is special and important! We hope it will provide a thought-provoking and creative environment for all participants, and will foster mutual understanding, inspiration and solutions for the range of climate challenges.*

*Let us make the symposium a new impetus for enhancing and strengthening the dimension of climate change in impact assessment, and for strengthening the climate component in planning and policy-making.*

*The symposium scientific committee, all theme leaders, members of DCEA, and IALA Headquarters staff are dedicated to making your stay productive and fun. We warmly thank them all and everyone else who has helped. We are also sincerely appreciative of the sponsorship and support provided by The Obel Foundation, The Municipality of Aalborg, The North Denmark Region, The Port of Aalborg, Scandinavian Airlines (SAS), Siemens Wind Power, Aalborg University and DCEA.*

*During the symposium, we hope you will not hesitate to ask any member of the IALA Headquarters team or DCEA to help you with information and ideas.*

*Most sincerely,*

**Lone Kørnøv**  
*Chair of the Symposium*

**Jonathan Allotey**  
*IALA President*

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### Conference Venue

Aalborg Congress & Culture Centre  
Europa Plads 4  
9000 Aalborg, Denmark  
Tel: +45 9935 5555  
E-mail: akkc@akkc.dk  
www.akkc.dk

## Sunday 24th October

**18.00 – 19.30**    **Opening Reception and Registration**  
at the Aalborg Museum of Modern Art,  
KUNSTEN

## Monday 25th October

**08.00**            **Registration Opens**

**09.00 – 10.30**    **Plenary**

- Dr. Ross Marshall, keynote speaker
- Professor Nicholas Stern, video

**11.00 – 12.30**    **Parallel Sessions**

- Danish Environmental Assessment Day (Hall East)
- Social Impact Assessment I
- Waste Management Strategies & Plans I
- Climate Change & Development Cooperation I
- Climate Change & Infrastructure I

**12.30 – 13.30**    **Lunch**

**13.30 – 15.00**    **Parallel Sessions**

- Danish Environmental Assessment Day II (Hall East)
- Social Impact Assessment II
- Waste Management Strategies & Plans II
- Climate Change & Development Cooperation II
- Climate Change & Infrastructure II

**15.00 – 16.00**    **Poster Session**

**16.00 – 16.30**    **Plenary**

- Eric Berlow, keynote speaker

**16.30 – 18.00**    **Parallel Sessions**

- Embedding Climate Change in Professional Practice I (Hall East)
- Carbon Calculators I
- Water & Climate Change
- Scenarios and Future Thinking for Impact Assessment in a Changing Climate I
- Climate Change & Infrastructure III

**19.30**            **Conference Dinner** at Nordkraft

## Tuesday 26th October

**08.00**            **Registration Opens**

**09.00 – 10.30**    **Parallel Sessions**

- Embedding Climate Change in Professional Practice II (Hall East)
- Health Impact Assessment I
- Decision Making & Governance
- Landscape & Ecosystem Services I
- Scenarios and Future Thinking for Impact Assessment in a Changing Climate II

**11.00 – 12.30**    **Plenary**

- Prof. Viriato Soromenho-Marques, keynote speaker
- André Jol, keynote speaker

**12.30 – 13.30**    **Lunch**

**13.30 – 15.00**    **Parallel Sessions**

- Embedding Climate Change in Professional Practice III (Hall East)
- Health Impact Assessment II: Workshop
- Urban Planning & Regional Strategies
- Landscape & Ecosystem Services II
- Carbon Calculators II

**15.30 – 17.00**    **Closing Plenary**

## Wednesday 27th October

**09.00 – 17.00**    **Nordic Research Day**

**09.00 – 17.00**    **Technical Visits**



*A work of art entitled “The Climate Challenge” will be created by local painter Lars Bonde during the symposium. All participants will contribute.*

# Overview of Parallel Sessions

	Hall East	Gæstesalen	
Monday	11.00-12.30	<b>Environmental Assessment Day I</b> Erfaringer med klimaændringer i miljøvurdering <i>Page 25</i>	<b>Social Impact Assessment I</b> Assessing resource-dependency & vulnerability <i>Page 15</i>
	13.30-15.00	<b>Environmental Assessment Day II</b> Initiativer for klimaændringer i miljøvurdering <i>Page 25</i>	<b>Social Impact Assessment II</b> Responsiveness to climate change adaptation policies <i>Page 15</i>
	16.30-18.00	<b>Embedding Climate Change in Professional Practice I</b> A view of existing mechanisms for integrating Climate Change into professional IA practice <i>Page 8</i>	<b>Carbon Calculators I</b> A view of different carbon calculators for local authorities – opportunities and challenges for future IA practice <i>Page 11</i>
Tuesday	9.00-10.30	<b>Embedding Climate Change in Professional Practice II</b> From challenge to opportunity: Identifying what needs to be done to embed climate change in IA practice <i>Page 8</i>	<b>Health Impact Assessment I</b> HIA and climate: State of the art and institutional approaches <i>Page 10</i>
	13.30-15.00	<b>Embedding Climate Change in Professional Practice III</b> Shaping the European Commission's forthcoming: Practical guidance and recommendations for integrating climate change and biodiversity into EIA/SEA procedures <i>Page 8</i>	<b>Health Impact Assessment II: Workshop</b> The future needs and themes for Health Impact Assessment in the context of Climate Change <i>Page 10</i>

# Overview of Parallel Sessions

	Radosalen	Musiksalen	Latinerstuen
	<p><b>Waste Management Strategies &amp; Plans I</b></p> <p>Waste management strategies, SEA and climate change in the UK and other developed countries</p> <p><i>Page 19</i></p>	<p><b>Climate Change &amp; Development Cooperation I</b></p> <p>Mapping the knowledge base for climate change mainstreaming</p> <p><i>Page 14</i></p>	<p><b>Climate Change &amp; Infrastructure I</b></p> <p>A view of the current practice of impact assessment of climate change in infrastructure planning</p> <p><i>Page 16</i></p>
	<p><b>Waste Management Strategies &amp; Plans II</b></p> <p>Waste management, climate change and SEA in India and other emerging economies</p> <p><i>Page 19</i></p>	<p><b>Climate Change &amp; Development Cooperation II</b></p> <p>Lessons from practice</p> <p><i>Page 14</i></p>	<p><b>Climate Change &amp; Infrastructure II</b></p> <p>Lessons from practice</p> <p><i>Page 16</i></p>
	<p><b>Water and Climate Change</b></p> <p>Marine and river basin water quality and ecosystem assessment and management in a changing climate</p> <p><i>Page 20</i></p>	<p><b>Scenarios and Future Thinking for Impact Assessment in a Changing Climate I</b></p> <p>Water scenarios for Europe</p> <p><i>Page 13</i></p>	<p><b>Climate Change &amp; Infrastructure III</b></p> <p>Ways to move forward</p> <p><i>Page 16</i></p>
	<p><b>Decision Making &amp; Governance</b></p> <p>Uncertain Futures: The State of Climate Change Planning in Denmark Today</p> <p><i>Page 8</i></p>	<p><b>Landscape &amp; Ecosystem Services I</b></p> <p>Challenges and Opportunities in Using Impact Assessment Tools in Landscape Planning for Climate Mitigation and Adaptation</p> <p><i>Page 21</i></p>	<p><b>Scenarios and Future Thinking for Impact Assessment in a Changing Climate II</b></p> <p>Scenario-building in Spitsbergen, Arctic</p> <p><i>Page 13</i></p>
	<p><b>Urban Planning &amp; Regional Strategies</b></p> <p>Computer Says “Not Sure”: The role of path dependencies and increasing returns in planning for climate change</p> <p>Integration of climate change in urban and regional planning: Experiences from Danish SEA</p> <p><i>Page 19</i></p>	<p><b>Landscape &amp; Ecosystem Services II - Round Tables</b></p> <p>How impact assessment tools can help create mitigation</p> <p>Adaptation strategies that enhance landscapes and support ecosystem services</p> <p><i>Page 22</i></p>	<p><b>Carbon Calculators II</b></p> <p>Unintended consequences of using carbon calculators (carbon footprint) in IA and decision making: How to avoid pitfalls</p> <p><i>Page 11</i></p>



## **‘The Changing Role of the Impact Assessment Practitioner’ by Dr. Ross Marshall**

As a professional body of specialists, have we got our focus right when seeking to act as a fulcrum between the climate science and its practice *in situ*, and between the scientific community and developers/plan makers and the wider stakeholder community?

*Dr. Ross Marshall is Executive Manager within The Environment Agency (UK), with responsibility for the National Environmental Assessment Service (NEAS). NEAS provides environmental leadership and technical support across a wide range of Agency functions, notably the £725 million/year capital infrastructure plans and programmes for Flood & Coastal Risk Management, Navigation, Fishery Conservation and Water Quality. The team is comprised of 70 project managers and technical specialists in environmental management & impact assessment, Town & Country Planning, Landscape Architecture, Heritage and Archaeology. NEAS is also heavily involved compensating for UK climate change losses on Natura sites through the creation of replacement coastal and riparian habitat.*

*The Environment Agency is Europe’s biggest Environmental Regulator and a lead UK authority on Climate Change management and the UK’s major producer of ELA/SEA Reports.*

*Ross Marshall was formerly President of the International Association for Impact Assessment (IAIA) and a previous Board Member of IEMA. He is a visiting Senior Research Fellow at Strathclyde University’s David Livingstone Centre for Sustainability.*



## **Professor Nicholas Stern will provide a video address.**

*Professor Lord Nicholas Stern, IG Patel Chair and Director, LSE Asia Research Centre; EOPP Associate.*

*Professor Stern’s research and publications have focused on the economics of climate change, economic development and growth, economic theory, tax reform, public policy and the role of the state and economies in transition.*

*His first books were on tea in Kenya and the Green Revolution in India (where he lived for 8 months in a village in Northern India in 1974/75). He has written books on crime and the criminal statistics in the UK and a few on public finance and development. Growth & Empowerment: Making Development Happen was published in April 2005. The Stern Review on the Economics of Climate Change was published in October 2006 ([www.sternreview.org.uk](http://www.sternreview.org.uk)), and in printed form by Cambridge University Press in January 2007. He has published more than 15 books and 100 articles. A Blueprint for a Safer Planet was published by Random House in April 2009.*

*Lord Nicholas Stern was the recipient of IAIA’s 2010 Global Award.*



### ‘Simplicity on the Other Side of Complexity’ by Eric Berlow

Climate change poses complex challenges for where to invest scarce resources into adaptation and mitigation actions. Governance is complex, environmental sustainability decisions are complex, the economy is complex. All have many interacting and interdependent components, and one problem can cascade into many. The good news is that complexity isn’t always complicated. Research into complex ecological systems is discovering that the more complex the system, the ‘simpler’ it may be to understand. The more we step back and embrace complexity, the more chance we have of finding simple solutions with far-reaching impacts.

*Eric Berlow, a TEDGlobal 2010 Fellow, is an ecologist and network scientist. He is the founding Director of Sierra Nevada Research Institute in Yosemite National Park, where the aim is to foster synergy among science, art, education and natural resource management. Further, Eric is Adjunct Associate Professor at the University of California, part owner of Awaken Cafe in Oakland, California—an award-winning green business—and he is a partner in a non-profit network for sustainable eco-tourism.*



### ‘What Hinders a More Effective Science-Policy Interface? Lessons from the climate change ongoing crisis’ by Professor Viriato Soromenho-Marques

There is no easy transition from science to policy making. Complexity of issues, plurality of actors, antagonistic agendas and the uncertainties in the social role and status of science are among the most visible—although with deep-hidden features—obstacles to an effective science-policy interface. The case of climate change works like a kind of magnifying lens allowing us to exercise a more acute critical judgement upon the constellation of problems we may identify in this crucial area of public policy framing.

*Viriato Soromenho-Marques (1957) teaches Political Philosophy and European Ideas in the Departments of Philosophy and European Studies of the University of Lisbon, where he is Full Professor. Since 1978 he has been engaged in the civic environmental movement in Portugal and Europe. He is member of the National Council on Environment and Sustainable Development (since 1998). He was Vice-Chair of the European Environmental and Sustainable Development Advisory Councils network (2001–2006). He was one of the authors of the Portuguese National Strategy for Sustainable Development (2004). Member of the Advisory Group on Energy and Climate Change from the EC President (since 2007). Scientific Coordinator of the Environment Program from Calouste Gulbenkian Foundation (since 2007). Member of the Lisbon Academy of Sciences (since 2008). More information regarding his bibliography and activities may be found at [www.viriatosoromenho-marques.com](http://www.viriatosoromenho-marques.com)*



### ‘Climate Change Impacts, Vulnerability and Adaptation in Europe’ by André Jol

An overview of impacts of and vulnerability to climate change in Europe, including indicators on the state of the climate, impacts on terrestrial biodiversity, marine ecosystems, freshwater quality and quantity, and human health and vulnerability of sectors or regions such as agriculture and coastal areas. EU relevant policy will be presented, including follow-up to the 2009 white paper on adaptation to climate change and progress in mainstreaming of adaptation in sectoral EU policies such as the water framework directive. A short overview of national adaptation strategies will also be presented, as well as the development of the EU Adaptation Clearinghouse.

*André Jol has an M.Sc. in chemical and environmental engineering from the University of Twente, The Netherlands. He worked for more than ten years as a consultant on air pollution projects for the private and public sector. From 1996 he worked at the European Environment Agency (EEA) in Copenhagen, Denmark, initially as project manager on air pollutant emissions and greenhouse gas inventories, followed by head of a group responsible for EEA work on assessment of progress for the Kyoto Protocol targets. Since 2009 he has led a group in EEA responsible for work on climate change impacts, vulnerability and adaptation, natural hazard risks, analysis of national climate change adaptation strategies, costs of adaptation, and development of an EU Clearinghouse. The activities also include contributions to various EEA assessment reports such as “State of the Environment and Outlook” (due in Nov 2010). He represents EEA at various international meetings, including those of the UN Framework convention on climate change and the intergovernmental panel on climate change.*

# Themes

## Decision Making and Governance

*Theme leader: Tim Richardson, PhD, Professor in Urban and Mobility Studies, Department of Development and Planning, Aalborg University*

Global climate change brings changes to regional and local weather patterns. The IPCC climate models and their regional and national versions predict rising temperatures, local weather extremes, and changes in precipitation patterns with a range of potential local environmental consequences. The expected changes and the anticipated effects call for timely decision-making and capable institutions that lead society towards a sustainable future through pro-active and adaptive measures. This presents a tangle of opportunities and challenges for local government, as planners seek to effectively create and implement strategies that both reduce future emission profiles and adapt to inevitable climatic changes.

The following aspects of climate change planning at the local level will be addressed:

- The design of governance and decision-making systems
- The treatment of climate change both organisationally and within the planning process, and its influence on existing organisational structures and municipal plans
- Participation of the public and stakeholders in climate change planning
- The role of IA in climate change decision-making processes and structures in handling competing planning goals

### **Session: Uncertain Futures: The State of Climate Change Planning in Denmark Today**

Session format: An open discussion session based on research reviewing and analysing current practice in Danish municipalities.

Presenters:

- (1) Anja Wejs, PhD fellow, Department of Development and Planning, Aalborg University
- (2) Patrick Driscoll, Research Assistant, Department of Development and Planning, Aalborg University

Expected outcome: A better understanding of municipalities' experiences with climate change planning.

## Embedding Climate Change in Professional IA Practice

*Theme leaders: Monica Fundingsland Tetlow, Senior Consultant, Planning and Assessment, Asplan Viak & Honorary Research Fellow, University of Manchester*

*Josh Fothergill, Senior Adviser, Environmental Assessment, IEMA & Chair of IAIA's Ireland & UK Branch*

The strap line for IAIA's 2010 conference in Geneva was "The time for action is now!". This is clearly the case in relation to climate change in IA where the profession will play a key role in both avoiding catastrophic climate change (by reducing GHG emissions) and defining actions required to adapt both society and the environment to the inevitable changes that will occur in the global climate system. IA professionals understand the concepts of climate change mitigation and adaptation, but understanding will not be sufficient to generate the scale of changes needed if our community is to play a significant role in helping tackle this crisis. A concerted effort of both top-down and bottom-up approaches will be needed to embed climate change considerations across all aspects of IA to influence policy, plan and project decision making.

### **Session 1: A View of Existing Mechanisms for Integrating Climate Change into Professional IA Practice**

Session format: A presentation session with opportunities for delegates to ask questions and discuss the issues raised with presenters.

Learning outcomes: The session will provide delegates with a view of some of the existing mechanisms and tools being used across Europe to enhance the consideration of both climate change mitigation and adaptation into all scales of decision-making.

Presentations:

- 1. The Norwegian Climate Cure: Mitigation options and instruments in a short- and long-term perspective**  
*Elin Økstad, KLIF – The Norwegian Climate and Pollution Agency, Norway*
- 2. Climate Change in Scottish SEA: An overview of legislation, guidance and wider applications (video presentation)**  
*Neil Deasley, SEPA – Scottish Environmental Protection Agency, Scotland*
- 3. Over-Arching Principles for Considering Climate Change Mitigation & Adaptation in EIA**  
*Josh Fothergill (IEMA – The Institute of Environmental Management & Assessment, UK)*

#### 4. A Simple Methodological Framework to Incorporate Climate Change in Impact Assessment

*Miguel Coutinho & Margaret Pereira, IDAD*

– *Instituto do Ambiente e Desenvolvimento, Campus Universitário, Portugal*

In order for environmental impact assessment to fulfil its objectives, it is necessary to develop methodologies that enable the incorporation of climate change in impact assessment statements.

This paper presents a simple framework methodology that follows 6 steps:

1. Identify climatic changes
2. Identify indirect consequences of climate change
3. Analyze the impact of climate change in the environmental baseline without the project under EIA
4. Identify effects of the project on climate change
5. Identify effects of climate change over the project
6. Integrate this information on the cumulative effects assessment

The methodology was tested successfully in an EIA concerning the implementation of the high speed train in Portugal and can be easily adapted to any environmental jurisdictional context and to any typology of projects.

#### Session 2: From Challenge to Opportunity: Identifying what needs to be done to embed climate change in IA practice

Session format: Concurrent roundtable discussions allowing delegates to discuss constraints and opportunities for embedding different aspects of climate change in professional IA practice.

Learning outcomes: This session will expect delegates to actively participate in one or more roundtable discussions. Delegates will learn from each others' experiences of the challenges that constrain greater consideration of climate change in IA; share knowledge of existing tools, techniques, and examples of climate change in current IA practice; and build consensus in each discussion area on 'what needs to be done to improve the integration of climate into IA practice.'

Provisional roundtable subjects:

1. Are certain conditions (policies, mechanisms, institutional structures, etc.) required to embed climate change considerations into IA and decision-making?
2. Is there a role for IA in contributing to climate-resilient policies, plans and projects?

Note: Prior to this session, all delegates will have the opportunity to propose additional roundtable discussion topics based on ideas generated via other sessions they have attended on day 1 of the symposium.

#### Session 3: Shaping the European Commission's Forthcoming: Practical guidance and recommendations for integrating climate change and biodiversity into EIA/SEA procedures

Session format: Presentation from representatives from the Commission (DG ENV & DG CLIMA) followed by delegate discussions on issues for inclusion within this guidance. The session may be divided into 2 groups if there is a desire from delegates to discuss specific needs from an EIA (Group 1) and SEA (Group 2) perspective.

Learning outcomes: This session will provide delegates with the first opportunity to hear about the Commission's formal plans for their forthcoming climate change and biodiversity guidance for EIA and SEA. It will also provide delegates with an opportunity to ask the Commission questions about the guidance and allow them to put forward their views on what issues they believe should be included within its scope. Delegates will leave the session aware of the Commission's aims on the content of the guidance and information on its planned timetable to launch; they will also have had an opportunity to have their say at the early stages of what is sure to become an essential piece of impact assessment guidance across the EU.

# Themes

## Health Impact Assessment

*Theme leader: Søren Løkke, Associate Professor, Aalborg University, Danish Centre for Environmental Assessment*

The direct and indirect effects of climate change on health have become central issues for public health systems and research. Deeper and consistent engagement with other sectors will assist understanding of the expected health effects and importantly the promotion of mitigation and adaptation measures that are equitable and healthy.

The WHO “European Regional Framework for Action” establishes a comprehensive workplan to protect health in a changing environment: one of its key tools is “Health Impact Assessment” (HIA). HIA is well positioned to assist decision makers and public health officials in the development of frameworks to address climate change.

HIA has not been applied systematically, nor has it been applied across the full spectrum of proposed policies, plans, programmes, projects and actions. Several points remain open for debate. These issues will be addressed during the symposium.

The objective of this theme is to foster the debate on HIA and climate change and to promote the practical application of HIA in the climate change decision making process.

Questions:

1. What should be included in an assessment of the impacts of climate change on people’s health and their communities? This could lead to the development of detailed and systematic guidelines.
2. Can HIA make better use of cost effectiveness analysis to promote better health inclusion? This could guide to the holistic assessment of damages, adaptation costs and benefit gained.
3. HIA of adaptation and mitigation recommendations: are we supporting co-benefits or are we producing co-damages?
4. How can HIA assist the greening of the health sector in order to include climate change issues in its own planning?
5. Finally, how can HIA of policies related to other sectors address climate change?

## Session 1: HIA and Climate: State of the Art and Institutional Approaches

### (1) The Mapping of Expected Health Impacts in 2030 Among Older People Due to Climate Change

*Sara Curtis, Institute of Hazard and Risk Research and Wolfson Institute, Dept. of Geography, Durham University*

- How to develop tools to support policies and guidelines for adaptation and mitigation
- Adapting the built infrastructure supporting older people’s care

### (2) Lessons Learnt in WHO

*Bettina Menne, WHO Regional Office for Europe, Health Impact Assessment of Climate Change*

- Experiences from 13 recent HIA
- Impact assessment of policies

### (3) The EC Approach to Address Climate Change Impacts on Human Health

*Vaidotas Kuodyis, European Commission, DG Climate Action*

- Climate impacts on human health
- Potential adaptation measures
- EC actions to address this issue

## Session 2: Workshop “The Future Needs and Themes for Climate Change-Related HIA”

*Led by Gabriel Gulis and Stella Kræmer, Unit for Health Promotion Research, University of Southern Denmark*

- Introduction by Gabriel Gulis and Stella Kræmer
- Workshop discussions
- Concluding workshops

## Carbon Calculators

*Theme leaders: Per Christensen, Professor in Environmental Planning, Aalborg University, Denmark*

*Jannick Højrup Schmidt, Assistant Professor in LCA, Aalborg University, Director of the LCA-consultancy firm 2.0, Denmark*

The carbon footprint concept has in many respects taken the lead when it comes to assessing environmental impacts. This goes for countries and local authorities as well as for companies and individual persons or families. For countries, IPCC provide a framework and for companies the guidelines of WBCSD, ISO and the newly developed “Public Available Specification” from British Standard covers their needs.

Also for persons and families, “Carbon Footprint” can be calculated and then used for decision making often as smart “calculators” that easily sum of the burden of the family or the emissions from an individual commuter. These results are often presented together with the opportunity to buy different kinds of “carbon offsetting.” A multitude of such carbon calculators has been developed by consultancy firms, NGO and private companies. Most of these calculators are not reliable as their system delimitation and other methodological questions as well as not addressed in a transparent manner. Comparisons between different “calculators” have shown big differences, so generally results are not comparable.

It is even more troublesome for local authorities who wish to contribute to a “low carbon society” to make a proper calculation of the emissions. The reason for this is often connected with the problems in attributing the transportation to the individual local communities as well as attributing the total environmental costs from production of goods to the same entity.

The objective of this theme is to get an overview of this wide range of “carbon calculators” and ask the following questions:

1. How do existing “Carbon Calculators” perform?
2. How should a “Carbon Calculator” be made so that it is transparent and comparable? Should detailed and systematic guidelines be developed?
3. What are the delimitations of the “Carbon Calculator” when it comes to the goods consumed and transportation?
4. How is offsetting made and is it done in a transparent way so that changes like afforestation and new renewable energy investments can be verified? Can rules for offsetting be formulated?

### Session 1: A View of Different Carbon Calculators for Local Authorities: Opportunities and challenges for future IA practice

Session format: A presentation session with opportunities for delegates to ask questions and discuss the issues raised with presenters.

Learning outcomes: The session will provide delegates with a broad overview of tools being used in local authorities across Europe and learn about current weakness and the direction research is progressing.

#### (1) Carbon Footprints on Business Sectors and Individuals in Municipalities

*Kasper Dam Mikkelsen and Niels Karim Høst-Madsen, Niras A/S; Jannick Højrup Schmidt (2.0) Denmark*

In an effort to reduce GHG emissions, many Danish municipalities have devised plans to reduce their impact on climate change. Their primary focus has been to reduce GHG emissions from their own administration and institutions, however; recent initiatives indicate that municipalities are taking an interest in mapping emissions in a broader perspective and thus mapping emissions from the entire society.

Therefore the Capital Region of Denmark has decided to use a method that

1. Calculates the global carbon footprint from the business sectors in the Region (production perspective)
2. Calculates the global carbon footprint from citizens in the Region (consumption perspective)

The work is being carried out by NIRAS, 2.-0 LCA consultants, the Centre for Regional and Tourism Research and Statistics Denmark. The applied method is specifically developed to map 29 municipalities in the Capital Region, but it can easily be used by other Danish municipalities. With some alterations the same method can even be transferred to map regions in other countries, if they hold reliable national statistics on economy and consumption.

Calculating the carbon footprint in a consumption perspective entails a result around 18-20 tons per year per capita for the Capital Region. This is primarily due to the high income level in the region, which entails high spending on goods, foods and travels.

Thus, the results suggest that the municipalities should put even more attention into how their citizens consume. The municipalities are in a great position to start climate actions that are aimed towards consumption patterns, since it is a natural prolongation of their current work with environmental issues (Agenda 21).

This presentation will present how the calculations were made, and how the results were translated into specific actions.

# Themes

## (2) Shortcut to Corporate Sustainability Reports: Combining financial statement and input-output databases

*Kasper Dam Mikkelsen and Niels Karim Høst-Madsen, Niras A/S; Jannick Højrup Schmidt (2.0) Denmark*

There is an increasing focus on including life cycle-based information in corporate sustainability reports. This is done by including the emissions outside the boundary of the company that are caused by the activities and decisions in the company. An example is the World Resource Institute (WRI) and World Business Council for Sustainable Development's (WBCSD) with the GHG-protocols ([www.ghgprotocol.org/](http://www.ghgprotocol.org/)).

When calculating the life cycle emissions, the principles in life cycle assessment in ISO 14040/44 are used. The traditional and most used method for calculating life cycle emissions is following the physical flows upstream and downstream in the product chains, where detailed data are collected and compiled for each stage in the life cycle of the product flows. The working procedure for this is characterised as a bottom-up process, which is very time consuming. Despite the fact that significant efforts are put in the process of making the life cycle information as accurate and complete, the absolute emissions are typically underestimated due to incompleteness of data.

An alternative to the traditional bottom-up process of making LCAs is the top-down approach: input-output LCA (IO-LCA). The data in IO-LCA are based on monetary supply and use tables representing the national account for a country extended with a national emissions account. Since the data represent completeness in economic coverage and total emissions, data are by definition complete.

IO data can be used for calculating the life cycle emissions for a number of product categories (typically 60-150) in units of monetary transactions. Therefore, these data can be aligned and linked with the transactions in a company's financial statement. By doing that, the life cycle emissions of a company's activities during one year can be calculated. The alignment and linking of data and the subsequent data manipulation requires a minimum of effort. The main steps in the procedure are to categorise the purchase categories in the financial statement with the categories in the IO-database, convert uses from purchaser's prices to basic prices, adjust for the currency year, and add the emissions taking place within the company. Subsequently, additional life cycle stages can be included, e.g., the use and disposal stage. In order to increase relevance and to identify reduction potentials, the modelling of processes which are identified as environmental hotspots can be further modelled in detail using traditional bottom-up approaches.

The two main advantages of the IO approach to sustainability reports are 1) a minimum of data collection efforts are needed because all data (financial statements) are already in house, and 2) since IO data by definition represent complete data, there is no need to create more or less arbitrary cut-off rules; results are simply 100% complete as default. Thus, based on a few days of workload a complete life cycle sustainability report can be carried out. Of course it may be relatively aggregated, and some improvement potentials may not be visible. The aggregated sustainability report is an optimal starting point for the more detailed investigation, and no time is lost because of time consuming data collection and modelling of insignificant processes.

## (3) The Impacts of Regional Production and Consumption Activity on Pollution Generation: Developing a user-friendly carbon counting tool

*Janine De Fence, University of Strathclyde; Max Munday, University of Cardiff; Karen Turner, University of Stirling (UK)*

In 2008, the UK Economic and Social Research Council (ESRC) funded six Climate Change Leadership Fellowships. One of these has focussed on this issue of investigating the pollution content of trade flows in addressing the problem of climate change. One element of this research has been to identify appropriate accounting frameworks to quantify emissions under what Munksgaard and Pedersen (2001) term the 'production accounting principle' (emissions produced within the geographical boundaries of the regional/national economy—e.g., as considered under Kyoto Protocol agreements) and the 'consumption accounting principle' (emissions produced globally to meet consumption demand within the regional/national economy—e.g., as considered under environmental 'footprints'). We have adopted input-output (IO) methodology that has become the accepted approach in the academic literature (see Wiedmann *et al.*, 2007, and Wiedmann, 2009, for reviews).

However, we have concentrated on developing an approach that considers the pollution content of uni-directional trade flows using currently available IO data for the UK national and regional economies. This focus is partly motivated by the availability of reliable data, but also by the need to build up in stages what are quite complex accounting frameworks (which allow users to consider responsibility for pollution generation under a range of different perspectives/philosophies, taking into account issues of jurisdictional authority, etc.) in a transparent manner that can be more easily communicated to and understood by a wide variety of user groups. Here, we illustrate the potential usefulness of this tool for the case study of carbon counting in the Welsh economy.

## Session 2: Unintended Consequences of Using Carbon Calculators (Carbon Footprint) in IA and Decision Making: How to avoid pitfalls

Session format: A presentation session with opportunities for delegates to ask questions and discuss the issues raised with presenters.

Learning outcomes: The session will provide delegates with a broad overview of problems associated with the use of carbon calculators (carbon footprint), especially at the local level of society.

### (1) GREEN or GREY? How Can Delimitation of System Boundary Lead to Misleading Results? A case study from biomass power production

*Trakarn Propaspongsa, Lone Kørnøv, Jannick Højrup Schmidt, Aalborg University, Danish Centre for Environmental Assessment*

The study presents the use of life cycle assessment considering cause-effect relationships to identify how the impacts on ecosystems, human health, and resources can be misinterpreted by application of various system boundaries with focus only on carbon calculations. Different biomass power production schemes in Denmark using wood pellets, wood chips and straw from local and imported sources (Brazil, Chile, Baltic States, Canada, and Russian Federation) are considered in this case study. The assessment reveals significant contributions on global warming potentials from indirect land use change (0.04-1.7 kg CO<sub>2</sub>-eq. per kWh of electricity production from power production using wood pellets/chips while coal combustion scenario contributes 0.9 kg CO<sub>2</sub>-eq. per kWh of electricity production). The exclusion of indirect land use change results in wrong conclusions. The investigation further shows that the focus only on “carbon” in biomass power production leads to adverse impacts on human health (respiratory effects, human toxicity), biodiversity (from nature occupation and photochemical ozone) and society (from socio-economic impacts).

### (2) Energy Efficiency and Rebound Effects: An example of the ‘Law of Unintended Consequences’

*Karen Turner, University of Stirling, United Kingdom.*

Increased energy efficiency is commonly taken to be a ‘magic bullet’ in reducing energy use (and consequently greenhouse gas emissions). However, the notion of ‘rebound effects’ has raised questions as to the extent to which energy efficiency will actually reduce the demand for energy. Rebound effects occur because of the impact of improvements in energy efficiency on energy prices and also on income levels. In order to assess the likelihood and importance of a phenomenon such as rebound (and other potential unanticipated impacts of different types of actions aimed at improving environmental quality), a model is required that captures the complex network of interdependencies throughout the whole economy.

The objective of the research reported in this presentation been to develop such a model to examine ‘rebound’ effects in

the UK economy. This has involved developing computable general equilibrium (CGE) models of the UK national and regional economies.

Some key results/research findings are as follows:

- Rebound effects will be more important where efficiency increases occur (a) in more energy-intensive activities, such as energy supply sectors and/or (b) in sectors that are heavily traded.
- Where energy efficiency improvements take place in the household sector, the income effects that drive rebound tend to be stronger in low income households. However, this result is sensitive to whether there is habitual behaviour in household energy use, and on the specific nature of such behavior.

## Scenarios and Future Thinking for Impact Assessment in a Changing

*Theme leader: Elizabeth Wilson, Reader in Environmental Planning, Oxford Brookes University*

Climate change requires us to look to longer time horizons than decision-makers are used to: we need to consider the long-term impacts of our actions, and to act now to avoid or influence future impacts. Scenarios have been developed as “coherent, internally consistent and plausible descriptions of possible future states of the world.” They offer scope for exploring the interactions of complex driving forces across a range of time scales, and it might be expected that they could play an important role in impact assessment. However, environmental impact assessments have not systematically addressed the issue of climate change, nor have they generally made the most of opportunities to extend their time horizons and to employ scenarios other than business-as-usual models.

This theme comprises two interactive sessions presenting case-studies of three projects which have developed future scenarios, and giving dedicated time to participative debate on the lessons learnt and the implications for EIA.

### Session 1: Water Scenarios for Europe

*Led by Ilona Bärlund and Martina Flörke, GRID-Wasser, Centre for Environmental Systems Research (CESR), University of Kassel, Germany*

Session format: An initial presentation of the context for the FP6 SCENES project, a stakeholder-driven development process of both qualitative and quantitative scenarios for the future of freshwater resources in Europe. The project has developed scenarios of water resources and water quality for pan-Europe in the 2050s, linking climate change and socio-economic scenarios in storyline development and quantitative modelling. The researchers will reflect on the methodological aspects of storyline development, particularly their approach to scenario-building through modelling and Story and Simulation approaches.

# Themes

This will be followed by an interactive workshop in which participants will consider

- The methodologies employed in developing the scenarios
- The usefulness and limitations of a scenario approach
- Lessons learnt in the SCENES project

## Session 2: Scenario Building

### Session 2A: CO2 Emissions Modelling & Forecasting

*Led by Franck Cachia (BioIs, lately of French Ministry of Sustainable Development (MEEDDM))*

Session format: A short presentation will be given of the objectives and the structure of the model, the first results based on French data and how it can be used to improve policy impact assessments at the national and EU level could be made.

The study objective is to provide decision-makers (at national or European level) with appropriate tools to improve their understanding of the main short to medium-term drivers of CO2 emissions. This includes sector specific drivers and allows for a quantitative assessment of the impacts of policy changes (such as improved renewable energy targets or increased taxes on fossil fuels) on CO2 emissions. The study allows for a comparison of the accuracy of modelling and impact assessments between bottom up and direct (global) approaches.

### Session 2B: Scenario-Building in Spitsbergen, Arctic

*TLed by obias Luthe, University of Applied Sciences, HTW Chur, Switzerland; Yvette Evers, Leeds Metropolitan University, UK; Eric L. Berlow, University of California at Merced, USA*

Session format: An introductory presentation of the project on scenario building in ecological-social-economic systems in a changing climate in the Arctic of Spitsbergen, Svalbard: history and lessons learnt from the initial local demand for support and the first small-scale scenario building and implementation, including outreach and communication (movie), and the need to step beyond current initiatives on Svalbard.

A second presentation will explain the transfer and upscale of this first initiative involving a 'change of angle' into the international research program ResiNet.

This will be followed by an interactive open innovation workshop in which participants will become part of the ResiNet program and intended methodology: open innovation crowd sourcing discussions on considering network analysis as a tool to 'tier' scenarios, with assessment of the current economic system on the ecological environment, feedbacks on the social system, impacts of environmental changes, and development of alternatives and scenarios.

Theme outcomes:

- Lessons learnt from experience with scenario development
- Understanding of barriers to and opportunities for futures thinking
- Proposals for dissemination of lessons from practice
- Recommendations for the Washington Symposium on the scope for employing such approaches in EIA and SEA

## Climate Change and Development Co-Operation

*Theme leaders: Matthew Cashmore, University of East Anglia; Rob Verheem, Netherlands Commission for Environmental Assessment*

Climate change affects all people, but it is in developing countries that the adverse impacts will be most acutely felt, particularly amongst the poorest and most vulnerable members of society. This theme will examine state-of-the-art knowledge on how IA tools (such as EIA and SEA) can and are being used to promote climate change mainstreaming in developing countries. The goal of the theme is to establish, through open and frank dialogue, an actionable agenda for building mainstreaming capacity through joint working, efficient co-ordination, and the timely dissemination of latest developments and practical experiences.

### Session 1: Mapping the Knowledge Base for Climate Change Mainstreaming

This session will consist of presentations and deliberation, through which a picture will be developed of:

- What guidance and integration tools are available, or are being developed
- Gaps and overlaps in guidance resources and tools
- Opportunities for greater co-ordination and co-operation in future work on guidance and tools

### Session 2: Lessons from Practice

This session will involve presentations on practical experiences of climate change mainstreaming and discussion of lessons learned. It will showcase innovative practices from a variety of developing countries and policy contexts. We will also discuss mechanisms to promote the timely and broad dissemination of emerging experiences in the future.

Theme outcomes:

- Dissemination of, and dialogue on, guidance, tools and practical experiences
- A directory of available guidance and tools
- Proposals for the future dissemination of lessons from practice
- Recommendations for co-ordination and collaboration in climate change mainstreaming work that will be taken forward to the Washington Symposium in November

## Social Impact Assessment

*Theme leader: Dr Ana Maria Esteves,  
Community Insights Pty Ltd*

### Session 1: Assessing Resource Dependency & Vulnerability

#### (1) Community Sensitivity Index to Assess the Capacity of Remote Communities to Adapt to Climate Change

*Andreas Sadler, Coakes Consulting, Australia*

The impacts of climate change will likely affect different communities in different ways. However, it is also likely that some communities will be better placed than others to respond and adapt to change. Therefore, in the context of climate change, it is useful to consider the predicted community-level impacts of climate change in relation to an assessment of a community's capacity to adapt to those impacts.

Within the social sciences, much research has been undertaken to consider the nature of communities, how they function and their ability to manage and respond to change. In this vein, the sustainable livelihood approach and its focus on community capitals (natural, economic, social, physical and human) is particularly useful, providing a fundamental basis for identifying and further enhancing community capacity and resilience.

This presentation will outline how such capitals may be assessed at a local level, through the development of a "Community Sensitivity Index" (CSI), and how such an approach can be used to inform decision making and the development of structural adjustment and enhancement initiatives at regional and community levels. Following an overview of the methodology, the practical application of the index will be illustrated through an example of how it has been applied in the north west of Australia to assess the capacity of remote communities to adapt to changes resulting from the impacts of climate change on the Pilbara oil and gas industry.

#### (2) Using the Concept of Resource Dependency to Understand Climate Change Impacts in Primary Enterprises and Industries

*Dr Nadine Marshall, CSIRO Ecosystem Sciences and Climate Adaptation Flagship, Townsville Australia*

Climate change is altering the quality and availability of natural resources with far-reaching implications for resource users and the extensive social and economic systems that they support. More than ever, resource-users will need to anticipate, and prepare for, climate-related changes, and institutions will need to be particularly supportive, if resource industries and the extended social systems dependent on them are to be sustained. A strategy for industries, communities and decision-makers to

adequately support the capacity of resource users to cope and adapt to climate change, is through identifying climate risk, or the likely social impacts that climate change may infer. I use the cattle grazing and commercial fishing industries in Australia to illustrate how the concept of resource dependency can provide vital information about the vulnerability of resource users to climate change. I assess dependency in terms of (i) attachment to place, (ii) attachment to occupation, (iii) family circumstances, (iv) employability, (v) networks, (vi) financial circumstances, (vii) business characteristics, (viii) local knowledge and skills, and (ix) attitudes and behaviour. Strategies to assist primary enterprises and industries to cope and adapt to the impacts of climate change may require identifying ways to reduce the dependency on natural resources through increasing strategic skill sets and networks.

#### (3) Round table discussion: What needs to be done to improve the integration of 'vulnerability to climate change' into IA practice?

*Facilitated by Dr Ana Maria Esteves, Director,  
Community Insights Pty Ltd, The Netherlands*

### Session 2: Responsiveness to Climate Change Adaptation Policies

#### (1) Social Impacts of Climate Change and Climate Adaptation in Finnish Rural Areas

*Rauno Sairinen, Professor, University of Eastern Finland*

The paper introduces results from a recently completed project, which was part of the Finnish national research programme for climate adaptation (ISTO). In Finland, the climate change adaptation has to date been studied mainly from the perspectives of environment, economy and infrastructure. There is a clear lack of studies that concern the social and community dimensions of climate change adaptation. These questions refer to concrete impacts in people's everyday life, cultural and social practices and community capacities for future changes. The aim of the project was to study how rural areas are affected by climate change and climate adaptation policies and what kind of social and community impacts there possibly exist.

Research tasks included the following: 1) How should we analyse and make typologies about the social impacts of climate change and adaptation into it? 2) How are climate impacts understood in rural areas of the region of Varsinais-Suomi (land use practices and natural resource usage)? 3) How and through which mechanisms are these impacts intertwined to people's everyday life, welfare, and future expectations (social impact mechanisms)? 4) Who are the relevant actors concerning the social and community impacts?

# Themes

The research approach was based on futures studies and social impact studies. The main method was argumentative Delphi method (with 15 experts from various areas of rural development, the focus area being the region of Varsinais-Suomi in Southern Finland). The main results relate to the issues of vulnerable population groups, livelihoods and areas; relevant dimensions of social impacts; and relevant actors for coping with difficult situations (such as floods and storms) and other future problems.

## (2) Towards a Typology to Analyze the Successful Implementation of Climate Mitigation Policies in Urban Areas

*Thomas Hoppe, Assistant Professor, University of Twente, Institute for Governance Studies/CSTM, The Netherlands*

Realizing environmental and climate mitigation goals in dense urban areas in the Netherlands is a difficult challenge. In this paper a typology will be presented that supports the analysis and understanding of processes concerning the implementation of policies that stimulate the adoption of climate mitigation measures in urban areas. The main hypotheses are that a high degree of process management will lead to an increasing likelihood regarding successful implementation of such a policy, whereas a high degree of institutionalized interests from other policy areas—especially urban renewal—will lead to failure in the implementation of policy strategies aimed at the adoption of climate mitigation measures. The typology will be empirically tested by presenting four case studies in which high energy efficiency measures are to be adopted in gallery flat buildings. This paper contributes to further insights in the fields of environmental energy policy implementation and sustainable cities.

## (3) Round table discussion: What needs to be done to improve understanding of community adaptation in the development of climate change policies?

*Facilitated by Frank Vanclay, Professor, University of Groningen, The Netherlands*

## Assessing Impacts of Climate Change & Infrastructure

*Theme leaders: :Charlotta Faith-Ell, WSP Civils; Jos Arts, Rijkswaterstaat*

### Session 1: A View of the Current Practice of Impact Assessment of Climate Change in Infrastructure Planning

Session format: A presentation session with opportunities for delegates to ask questions and discuss the issues raised during the session.

#### (1) Assessing Impacts of Climate Change & Infrastructure: Introduction

*Charlotta Faith-Ell, WSP Civils; Jos Arts, Rijkswaterstaat*

Transportation is one of the main sources of CO<sub>2</sub> emissions—or more broadly defined green house gas (GHG) emissions. This means that infrastructure planning has to deal with aspects of climate change. When discussing the issue of climate change in relation to infrastructure planning, there two main directions to consider: Mitigation and Adaptation. With mitigation we mean that infrastructure facilitates more (car) mobility that in turn creates CO<sub>2</sub> emissions, which leads to climate change impacts. Also, recent studies show that the construction of infrastructure itself generates large amounts of green house gas emissions.

Adaptation is the issue of how to adapt to changing weather and geophysical conditions as a result of climate change. Planning of infrastructure has to consider how to adapt to the impacts of climate change. Regarding impact assessment, both temporal scale issues (short-, long-term) and spatial scale issues (local, global) are relevant. This relates to cumulative impacts of many small, local/regional projects at the bigger geographical scale as well as a life-cycle perspective. The latter is especially interesting for the impact assessment community: planning for climate change throughout the life cycle of infrastructure development, which might link up with sustainability concepts like cradle-to-cradle.

The issue of climate change has and will change how infrastructure is planned in the future. This means that the IA community need to ask the following questions: What is the role of IA? and What's in it for us? The paper introduces the theme of climate change and infrastructure.

## (2) Towards a Climate-Resilient Society: Tools for impact assessment of infrastructure and urban development

*Berit Balfors & Ulla Mörtberg, Royal Institute of Technology, Sweden*

During recent years, climate change aspects have received increased attention in urban planning and infrastructure development. In order to effectively address impacts on climate change and measures towards energy efficiency, a strategic approach in the planning process is required. To enable an early appraisal of alternative climate change adaptation scenarios, SEA could provide a suitable framework. The application of SEA in urban planning and infrastructure development entail various challenges so as to address, e.g., cumulative impacts, transboundary and multi-scalar issues.

The incorporation of strategic issues related to climate change, call for analytical tools and methodological approaches that facilitate the planning and decision-making process. In this study we focus on the development of prediction tools and decision support systems in order to assist a comprehensive comparison of alternative strategies and identify innovative energy efficient solutions for a climate resilient society.

## (3) Integration of Climate Change in the SEA of the Swedish National Transportation Plan

*Michel Gabrielsson, Swedish Transport Administration*

The Swedish government amended the Swedish National Transportation Plan for the period 2010-2021 on 29 March 2010. The planning process was accompanied by an SEA process. One of the aspects that were investigated as likely significant in the SEA was climate change. This presentation aims at describing the process and challenges of integrating climate aspects in the National Transportation Plan.

## Session 2: Lessons from Practice

Session format: A presentation session with opportunities for delegates to ask questions and discuss the issues raised during the session. The session will end with a discussion with the participants that aims at summarising the conclusions from the two sessions.

## (4) Integration of Climate Aspects in the Stockholm Bypass Project

*Marianne Klint, WSP Civils, Sweden*

The Stockholm Bypass is a new motorway west of Stockholm that has been under investigation for several decades and a large number of different alternatives have been studied. To reduce the impact on sensitive natural and cultural environments, just over 17 km of the total of 21 km of the motorway link are in tunnels. The construction work is planned to start in 2012 and will take at least 8 years to finish. When the link opens for traffic it will be

one of the longest road tunnels in the world. By 2035, the Swedish Transport Administration estimates that the Stockholm bypass will be used by approximately 140,000 vehicles per day. In the early planning stages, the impacts to climate change were not considered at all, but during the planning process, the climate aspect has become one of the main aspects in the impact assessment. This presentation aims at describing the process and challenges of integrating climate aspects in the Stockholm Bypass project.

## (5) Challenges in Addressing the Climate Change Issues Within Impact Assessment Practice of Transport Projects in Estonia

*Heikki Kalle, Hendrikson & Ko, Estonia*

Estonia faces challenges in defining long-term goals in energy production that affect sustainable planning of transport infrastructure. As energy production questions are currently subjects of intense public debates, the impact assessments are often in a position where trade-off situations between environmental values and their social costs are hard to solve. When transport plans are considered in strategical time scale, the picture turns even more unclear and here emission levels of greenhouse gases often remain as only reliable yardstick for sustainability.

## (6) Challenges in Addressing Climate Change in IA of Modal Shift Projects

*Charlotta Faith-Ell, WSP Civils*

Modal shift is often suggested a way to reduce the impacts on climate change from infrastructure. However, modal shift is not the only solution to the aim of reducing GHG emissions since a transfer of traffic from one mode of transportation to another might give rise to other impacts for example increased noise in urban areas. This presentation builds on the experiences from a European project in which the potential to move 30 percent of the European freight traffic from road to rail.

## Session 3: Ways to Move Forward

Session format: A presentation session with opportunities for delegates to ask questions and discuss the issues raised during the session. The session will end with a discussion with the participants that aims at summarising the conclusions from the two sessions.

Presentations:

## (7) Scope for Cost-Benefit Analysis in a Changing Environment of Climate Change and Infrastructure

*Emile Dopheide, Department of Urban and Regional Planning and Geo-Information Management, University of Twente*

# Themes

Despite its limitations and the critiques from various disciplines, including from the economic discipline itself, cost-benefit analysis (CBA) is a highly institutionalized tool in the assessment of infrastructure projects and other policy interventions. Given this strong role in decision making, we might expect cost-benefit analysis also to be widely applied in the decision making around climate change and infrastructure initiatives. The huge uncertainties around the scope and impact of climate change as well as the assumptions behind valuation and time preferences imposes a major challenge to the assessment of adaptation and mitigation measures. It seems therefore opportune to review the scope of the present and future use of an assessment tool as CBA in a changing environment of climate change and infrastructure.

Some fundamental issues concerning the use of economic approaches to assess climate control are being discussed in a paper by Baer and Spash (2008). In this paper we explore the possible function and contribution of CBA in the daily practice of the assessment of adaptation and mitigation measures and the areas where other complementary disciplines have to put their efforts to overcome the limitations and simplifications of the CBA assessment.

The presentation will be in the first instance based on a recent round of interviews among academicians, professionals and policy makers about the use of CBA in infrastructure assessment over the last 10 years in the Netherlands. The respondents shed light on the scope of the application of CBA for infrastructure assessment in general and identified a number of bottlenecks in the use of CBA in the assessment for decision-making. Critical issues (not unknown) that were repeatedly mentioned: the treatment of uncertainty towards decision-makers; the black-box character of CBA; the valuation of non-market effects; trade-offs over time (discounting); and the distribution among social groups. Also the lack of synchronization of CBA in the decision making process with other assessment frameworks (EIA, SEA) was repeatedly mentioned as an issue. Still, despite these persisting bottle-necks, most of the respondents fully favour the CBA framework as tool to assess societal welfare in its broadest sense and expect a growing demand for its application. So also in the assessment of adaptation and mitigation measures CBA will remain to play a major role. In view of the already identified bottle-necks of CBA, the application of CBA in the field of climate change and infrastructure might require an even more rigorous and critical use of CBA:

- Uncertainty about the exact magnitude and impact of climate change will increase the margins of uncertainty in the assessment

- Major consequences of mitigation and adaptation measures on various stakeholder groups will ask for a more transparent presentation of CBA results
- Uncertainties within the climate change debate will impose limitations on the extent to value all the possible impacts in monetary terms
- Long-terms impacts, irreversibility and future generations are at the heart of the climate change debate and will have its implications for the practice of discounting
- Climate change and infrastructure interventions will have winners and losers, who are often hidden within the CBA results

These questions will be further elaborated with examples and will eventually require a clearer positioning of CBA in the assessment framework, capitalizing its virtues and potential and recognizing its limitations. Some ideas about this position of CBA in a changing environment of climate change and infrastructure will be outlined and discussed.

## (8) Assessing Climate Change Effects for Infrastructure Projects: What, how and when

*Werenfried Spit, Ministry of Transport, Public Works and Water Management, The Netherlands*

The exact effects of the changing climate on infrastructure are still not known in detail. It is clear, however, that both higher temperatures and changes in precipitation can influence the optimal infrastructure design. In the Dutch context there is a strong relation with the water system. Changes in climate influence the system directly, through precipitation, and indirectly through sea, river and ground water levels. On the next level the water management and water safety programmes that are being designed to cope with these changes affect infrastructure planning and are affected by infrastructure planning.

In this complex situation we need to assess the effects of climate change on planned infrastructure. Our guideline is to have a smart assessment: we need the assessment to aid the decision process. This implies starting with rules of thumb, and progressing towards more detailed calculations in the decision process. We are designing new ways of risk analysis, with our EU neighbours, to specifically address climate change issues. Together with our water safety colleagues we are investigating both the exact relations between planned infrastructure and the climate and water systems, and the optimal way to address and assess these relations.

## Urban and Regional Strategies for Climate Change

*Theme leader: Maria Rosário Partidário, IST Portugal*

Presentations:

**(1) Computer Says “Not Sure”: The role of path dependencies and increasing returns in planning for climate change**

*Patrick Driscoll, Aalborg University*

The relationship between regional climate change models, path dependencies and increasing returns, with a brief exploration of how these issues play out in the case of Copenhagen and Portland, Oregon climate change strategy. One of the primary conclusions is that path dependencies in the regional energy and transport systems may have a significant influence on both the future GHG emissions profiles and the possibilities for adaptive planning measures that will need to be accounted for in current and future regional and municipal plans.

**(2) Integration of Climate Change in Urban and Regional Planning: Experiences from Danish SEA**

*Sanne Vammen Larsen,*

*Lone Kornøv, Aalborg University*

Based on the analysis of 127 Danish SEA reports on municipal and local spatial plans from 2004-2009 and six interviews with representatives from Danish municipalities, it is reviewed to what extent climate change and specifically mitigation and adaptation are actually integrated in SEA in the Danish context, and what the motivation and challenges are for such a practice. The analysis shows that climate change is integrated in approximately 50% of the SEAs reports and that the number of reports where climate change is integrated has increased over time.

## Waste Management Strategies and Plans, Climate Change and Impact Assessment

*Theme leader: Thomas Fischer (PhD), Professor and Leader of Research Cluster ‘People, Space and Place’, School of Environmental Sciences, University of Liverpool, UK*

Despite some considerable progress made over the past few decades, solid waste continues to contribute to about 2% of all greenhouse gas (GHG) emissions globally (in comparison, air traffic contributes with slightly over 1.5%, ship and rail with just under 2.5 % of all GHG emissions). This is mainly caused by methane emissions emanating from landfills, representing about 30% of all methane emissions globally. Whilst 2% may not appear large, reducing GHG from waste has been said to be relatively straightforward, particularly by avoiding landfill. Furthermore, waste could also partly contribute to bringing down the GHG share of, e.g., the electricity and heat sector, which currently stands at around 25% globally. In this context, waste management strategies and plans (WMSP) may set the scene for GHG emission reductions. In the European Union and elsewhere, WMSPs are often subjected to strategic environmental assessment (SEA). SEA may thus have an important role to play in identifying waste management options that contribute to climate change mitigation.

### Session 1: Waste Management Strategies, SEA and Climate Change in the UK and Other Developed Countries

Session format: A presentation session with opportunities for delegates to ask questions and discuss the issues raised with presenters, particularly in the light of experiences in other countries.

**(1) Municipal Waste Management Strategies, Strategic Environmental Assessment and the Consideration of Climate Change in England**

*Thomas B. Fischer (Liverpool University, UK):*

**(2) Examining and Assessing GHG Emission from Waste Management Activities Using the Environment Agency’s WRATE Model**

*David Hall (Golder Associates, UK)*

Expected outcomes:

Obtain a better understanding of SEA and climate change consideration in municipal waste management planning in the UK and other developed countries.

# Themes

## Session 2: Waste Management, Climate Change and SEA in India and Other Emerging Economies

Session format: An open discussion based session with an initiating paper from India.

### Waste Management Problems in Small Cities and Future Strategies

*Ponnusamy Devaraj (Pondicherry University, India):*

Expected outcomes:

Obtain a better understanding of impact assessment, climate change and municipal waste management planning in India and other emerging economies.

## Water and Climate Change

*Theme leader: Anders Erichsen, Senior Engineer at DHI Water, Environment & Health*

In both core and applied research and also increasingly in managing and governing bodies, there is a comprehensive understanding and an acknowledgement of climate change impacts on water volume and movement. The IPCC scenarios predict major global and regional changes in rainfall patterns and sea-level rise due to increasing temperatures.

The water quality problems are many and complex. We would therefore like to dedicate the water sessions to the 1st- and 2nd-order effects of climate change on water quality and aquatic ecosystems—and challenge participants to contribute with intriguing research results, examples of state of art assessment tools and hair-raising examples—case stories from real life.

### (1) Marine and River Basin Water Quality and Ecosystem Assessment and Management in a Changing Climate

*Klaus Hinsby, GEUS*

An integrated and distributed hydrological model was constructed for a coastal catchment on the island of Zealand, Denmark. Water supply in the area depends on abstraction from a relatively large lake located close to the sea. It is shown that the quantity of fresh water in a future climate is predicted to be sufficient to sustain water abstraction even though precipitation decreases during the summer period. However, the rising sea water level results in inflow of saltwater to the lake especially during late summer and autumn where the lake water level is relatively low and storm events results in high sea levels. The study shows that adaptation measures are needed already at a sea level rise of approximately 0.5 m if salt water inflow should not destroy the lake as a fresh water resource.

### (2) Runoff, Nutrient Loads and Freshwater Ecology in a Changing Climate in Denmark: What can we learn from historical data and model scenarios?

*Brian Kronvang, National Environmental Research Institute, Aarhus University*

Changes in the hydrology of Danish lowland rivers towards more water in general, more extreme conditions and changes in seasonality will have direct impacts on the amount of water in the landscape (floods, droughts, drainage of agricultural land) and spinoff effects on the concentration and loads of sediment and nutrients to the aquatic environment. The combination of increasing runoff and rising temperature can impact the critical recruitment periods for trout in streams and have other negative effects for other cold water species presently used as indicators for the ecological quality of Danish streams. The usefulness of combining long term monitoring data for hindcasting effects of climate change with models simulations for forecasting the effects of climate change is demonstrated for different regions and cases in Denmark

### (3) Delivering 'Science to Stakeholders' through the UK Marine Climate Change Impacts Partnership (MCCIP)

*Paul Buckley, Cefas*

The UK Marine Climate Change Impacts Partnership (MCCIP) was established in 2005 to help facilitate the transfer of peer-reviewed science to decision makers. Our latest synthesis report card, published in July 2010, covers 30 marine topics ranging from acidification to aquaculture and salinity to shipping. It includes contributions from almost 100 scientists spread across 40 research institutes.

Here we discuss our experiences of engaging both scientific and stakeholder communities into the MCCIP process. The continuing challenge of communicating evidence in a way that fairly represents the scientific community is highlighted, along with the challenges of translating an often limited science evidence base into adaptation priorities and actions for marine stakeholder communities.

### (4) Implementation of Predicted Climate Changes in the Planning of a Fixed Link Across Fehmarnbelt

*Henrik Bay, Administration Manager, Environment, Femern Belt A/S*

Predicted climate changes will be implanted in the design of the fixed link and the EIA will also be based on predicted climate changes. Although research today has demonstrated that a number of robust changes are emerging within the global warming picture uncertainties remain relatively large. This is mainly due to a limited knowledge of the climate system and its variability, errors in models as well as lack of certainty in future greenhouse gas emissions.

A few clear signals reflecting on of a broad physical understanding and converging model results are evident, if a likely upper limit of change is to be assessed. Annual mean temperatures in Denmark could increase as much as 6 degrees in a very extreme warming scenario. Conditions with sea ice around Denmark will become extremely rare. In addition incidences with severe snow related weather conditions will become rarer with increasing temperature. Annual precipitation amounts are likely to increase, but with a pronounced change in the seasonality, with wetter winters and most like drier summers. This is accompanied by an increase in 10 year (and possibly for 50 and 100 year) return values of daily precipitation amounts.

A preliminary analysis suggests an increase in the 50-year extreme wind by 3m/s (10 min average; 10 m height), i.e., from 27 to 30 m/s at the end of the century. More analysis is needed to quantify changes in intense wind speeds in the 15 to 35 m/s range, which are important for operation of a bridge in 80 to 100 height above sea level. Sea level is projected to increase even if emissions are kept at a minimum. Uncertainties related to the fate of the Greenland and Antarctic ice sheets imply that sea level rise in Denmark of 1m within the coming century could be realised. Weather related phenomenon, in particular icing and visibility, are not well analysed, and further work on the analysis of model simulations are needed to provide any information with a reasonable credibility.

## Landscapes and Ecosystem Services

*Theme leader: Orlando Venn*

Theme focus:

- How impact assessment tools can help create climate mitigation and adaptation strategies that enable landscapes which enhance ecosystem services.
- How impact assessment tools can support decision making on climate mitigation and adaptation strategies and ecosystem service provision in landscape planning and land use management

Overview for the theme:

Impacts of climate change on ecosystem services and biodiversity are excessively analysed at numerous geographical locations and spatio-temporal scales. While core research focus on complex interactions between atmospheric processes, ecosystem functioning and related services, applied research deals with mitigation and adaptation strategies linked to human-environment interactions. Here, landscape level planning, management and decision making plays a fundamental role. It is at this scale where geo-bio-physical phenomena, environmental processes and economic activities interfere with socio-cultural perceptions. Also, governance structures and decision actors are most complex at landscape level.

This session will explore the use of impact assessment tools and of the ecosystem service concept for climate change mitigation and adaptation at landscape level. Contributions and discussions will address:

- How impact assessment methods and tools can support landscape level planning and decision making which deliver climate change mitigation and adaptation strategies that enhance landscapes and ecosystem services.
- How impact assessment methods and tools can support strengthening the science policy interface for climate policy making.

### Session 1: Challenges and Opportunities in Using Impact Assessment Tools in Landscape Planning for Climate Mitigation and Adaptation

#### (1) Biodiversity and Resilience Against Climate Change

*Arend Kolhoff; Orlando Venn, Treweek  
Environmental Consultants*

#### (2) Processes and Tools for Impact Assessment for Landuse Management

*Aranka Podhora, ZALF*

Examining how impact assessment tools and landuse planning can enable the mitigation of risks of indirect landuse changes from biofuels production.

# Themes

## (3) Role of Natura Assessment in Climate Change Mitigating and Adaptation with Special Reference to Maintaining and Enhancing of Ecosystem Services

*Kaja Peterson, SEI Tallinn*

## (4) Landuse, Biofuels and Impact Assessment Tools: Getting to sustainable climate change mitigation options

*Orlando Venn, TEC*

How IA tools and landuse planning can be used to support ecosystems that are resilience to the effects of climate change.

## Session 2: Two parallel Round Tables. Facilitated discussions on how impact assessment tools can help create mitigation and adaptation strategies that enhance landscapes and support ecosystem services.

**(Round Table 1)** Facilitated discussion: Evidence and knowledge that demonstrate how landuse planning and management practices enable the mitigation of risks of indirect landuse change from biofuels production.

- Introduce the topic: The challenge of indirect landuse change and biofuels, the proposal to mitigate iLUC risks and the role of landuse planning and management, the role of the “Round Table on Sustainable Biofuels” (max 15 min)
- Open discussion on iLUC, landuse planning and management (20 min)
- Introduce the exercise “group discussion in round tables” (5 min)
- Set up a roundtable asking participants to respond to the questions:
  - a) What are the barriers to landuse planning and management practices enable iLUC mitigation?
  - b) What is the role of impact assessment (strategic and project level) in delivering the kinds of landuse planning needed for mitigating iLUC risks? (30 min)
- Report back to whole group (15 min)
- Concluding remarks (5 min)

**(Round Table 2)** Facilitated discussion: How IA tools and landuse planning can be used to support ecosystems that are resilience to the effects of climate change.

- Introduce the topic: Biodiversity support and protects livelihoods. A more biodiverse environment is increasing recognised as being more resilient against climate change risks and vulnerability. How can the role of biodiversity in climate change adaptation be highlighted through impact assessment? (15 min)
- Open discussion on biodiversity, resilience, land use planning and management and impact assessment (20 min)
- Introduce the exercise “group discussion in round tables” (5 min)
- Set up a roundtable asking participants to respond to the questions:
  - a) In the light of inherent uncertainty about the long-term consequences of climate change, what adaptive management measures are to be promoted on the short term to enhance the resilience of ecosystems and to maintain valued ecosystem services?
  - b) How should these opportunities for climate change adaptation provided by ecosystems be incorporated into SEA and land use planning?
- Report back to whole group (15 min)
- Concluding remarks (5 min)

Perspectives on the issues:

- Data available for landscape planning (biodiversity data, information about agricultural systems and ecosystem services, evidence of how to achieve positive relationships between different components of a landscape)
- Processes needed for building the institutions to manage landscapes (experiences with building the capacity and institutional frameworks for stakeholders to use information to plan and adapt to changing conditions)
- How these pieces (knowledge and capacity) fit together into good policy for climate change mitigation strategies (RED) and adaptation strategies

Objectives/expected outcomes for the theme:

- Appropriate IA methods and tools for climate change mitigation and adaptation
- Understand potentials and use of impact assessment tools for decision making in landscape management
- Develop research agenda to ensure that environment assessment approaches are climate-proofed in order to ensure well-informed political decision-making

- (1) **Ecosystem Services of Rivers and Pacific Coastal Wetlands: Challenges and opportunities for integrating climate change into project EIAs and CEAs in Mexico**

*Sergio Contreras, University Centre of Biological and Agricultural Sciences (CUCBA), University of Guadalajara, Mexico*

*Javier Clausen, ITESO University, Guadalajara, Mexico*

- (2) **Climatools. Decision Tools for Adapting to a Changing Climate: Tools, tests and cooperation**

*Karin Mossberg-Sonnek, PhD, Swedish Defence Research Agency FOI*

*Karin Edvardsson Björnberg, PhD, Dept of Philosophy, Logic and Scientific Method, London School of Economics/Dept. of Philosophy, Royal Institute of Technology*

*Maria Vredin Johansson, PhD, Dept. of Economics, Uppsala University*

*Susanna Bruzell, MSc, Tyréns AB*

*Maria Larsson, MSc, Tyréns AB*

- (3) **Effective Coastal Environment Management by Conjugation of Bio-Purification and TMDL Estimation in Masan Bay**

*Ki-Hyuk Eom, PhD fellow, Marine Environmental Impact Assessment Center, National Fisheries Research & Development Institute, Busan, Korea*

*Gui-Young Kim, PhD fellow, Marine Environmental Impact Assessment Center, National Fisheries Research & Development Institute, Busan, Korea*

*Dae-In Lee, PhD fellow, Marine Environmental Impact Assessment Center, National Fisheries Research & Development Institute, Busan, Korea*

- (4) **Factors Influencing Waste Management in Jinja Municipal Council (JMC)**

*B. Nabatanzi, Environmental Awareness Agency, Masaka, Uganda*

*H. Luyiga, Uganda Change Agent Association, Kampala, Uganda*

*S. Namuwonge, Uganda Convention for Development, Kampala, Uganda*

- (5) **The Impacts of Climate Change Conditions on the Industrial Carrying Capacity of Yazd Area**

*Kamran Shayesteh, Ph.D. Student, Faculty of Environment, University of Tehran, Iran*

- (6) **Climate Change on Sand Transport in the Alluvial River Kongeå, Denmark**

*Brian Kronvang & Hans Thodsen, National Environmental Research Institute, Aarhus University, Denmark*

*Jørn Torp Pedersen, University of Copenhagen, Department of Geography and Geology*

- (7) **Climate Change: Effects of precipitation and temperature on recruitment of brown trout**

*Esben Kristensen & Hans Thodsen, Department of Freshwater Ecology, National Environmental Research Institute, Aarhus University, Denmark*

*Brian Kronvang, National Environmental Research Institute, Aarhus University, Denmark*

- (8) **Climate Change: A hindcast and forecast of water and nutrients in Danish rivers**

*Brian Kronvang, Hans Thodsen, Søren E. Larsen & Hans E. Andersen, Department of Freshwater Ecology, National Environmental Research Institute, Aarhus University, Denmark*

- (9) **Sustainable Event Initiatives at Aalborg Special Symposium on Climate Change & Impact Assessment and Nordic Research Day**

*Nikolaj Bichel & Lise Kirk Nordensgaard, Danish Centre for Environmental Assessment, Aalborg University, Denmark*

# Nordic Research Day on Impact Assessment

## Programme

### 09.00 – 10.30 Welcome and Introduction to the Day

- Tim Richardson, The Danish Centre for Environmental Assessment, Aalborg University

#### Keynote: “History of the Nordic Impact Assessment Research Community”

- Tuija Hilding-Rydevik, The Swedish University of Agricultural Sciences
- Gert Johansen, The Danish Ministry of Environment

#### Keynote: “Looking Forward: Introduction to the Themes of the Day”

- Lone Kørnøv, The Danish Centre for Environmental Assessment, Aalborg University

### 10.30 – 11.00 Break

### 11.00 – 12.30 Poster Café: “What is the Current Status of Nordic IA Research?”

Posters will provide a snapshot of ongoing research across the Nordic countries.

### 12.30 – 13.30 Lunch

### 13.30 – 15.00 Parallel Sessions. Working groups will explore research issues, challenges and agendas around the following themes:

- Impact Assessment and Climate Change (follow-up from the Symposium)
- Integrating impact assessment into broader planning processes
- Effectiveness of impact assessment
- Research and practice: Engagement in and around IA research
- Public participation in impact assessment
- Health Impact Assessment

### 15.30 – 16.30 Rapportage and Closing Discussion

#### Registration, welcome and keynotes

Aalborg University  
Bertil Ohlins Vej, Auditorium B  
9220 Aalborg East, DK

#### Lunch and poster café

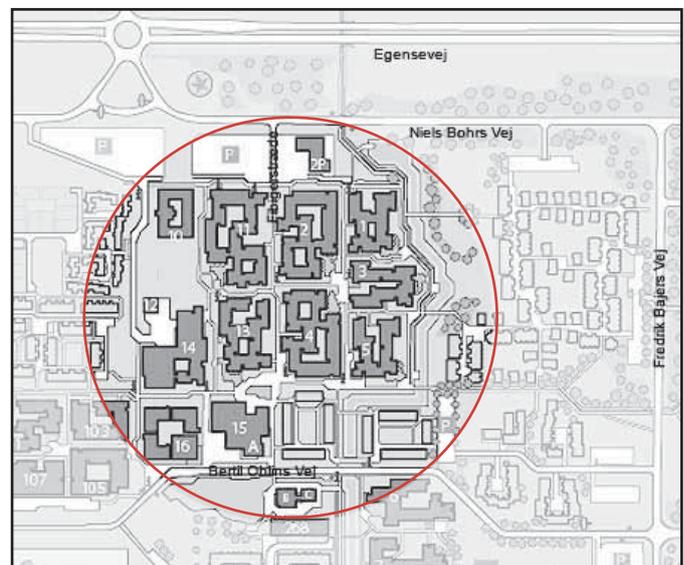
Fibigerstræde 15

#### Parallel sessions

Fibigerstræde 13, rooms 53, 55  
Fibigerstræde 11, rooms 1, 3, 9

#### Rapportage and closing discussion

Bertil Ohlins Vej, Auditorium B



# Miljøvurderingsdag / Danish Environmental Assessment Day

(In Danish only)

Klima indgår i såvel SMV som VVM, og indebærer at vi kan bruge miljøvurderingen som en mulighed for at forebygge og tilpasse os klimaforandringer. Miljøvurderingsdag 2010 ser på hvilke erfaringer og muligheder der eksisterer i dag i kommuner, regioner og hos rådgiverne.

Miljøvurderingsdag 2010 er inddelt i to sessioner. Den første er fokuseret på erfaringer og udfordringer med at integrere klimaændringer i miljøvurdering, mens den anden er fokuseret på fremadrettede initiativer for at forbedre arbejdet med klimaændringer i miljøvurdering. Der lægges i programmet vægt på en blanding af oplæg og interaktive workshops med mulighed for erfaringsudveksling.

## 11.00-12.30

### Session 1 Erfaringer med klimaændringer i miljøvurdering

- **Overblik over erfaringer fra by- og sektorplanlægningen med klimaændringer i SMV**  
*Sanne Vammen Larsen og Lone Kørnøv, Dansk Center for Miljøvurdering*
- **Klimaeffekter i VVM**  
*Sesse Bang, Rambøll*

### Workshop 1 Udfordringerne ved integration af klimaændringer i miljøvurderinger

## 13.30-15.00

### Session 2 Initiativer for klimaændringer i miljøvurdering

- **Region Nordjylland som klimaregion – perspektiver for klimaarbejdet**  
*Mette Arleth, Region Nordjylland*
- **Bæredygtighedsstrategi i Region Syddanmark – samspillet mellem kommunale klimaplaner og regionale udviklingsstrategier og miljøvurdering**  
*Vita Jokumsen, Region Syddanmark*
- **Anvendelse af CO2 kortlægninger i kommuneplanlægningen og miljøvurdering**  
*Anne-Mette von Benzon, COWI*

### Workshop 2 Eksempler på igangsatte eller ønskede initiativer

Notes

# General Information

## ■ Registration and Conference Folder

Upon registration you will be provided with the symposium program, participants list and nametags. As part of our sustainable event initiatives implemented for this symposium there will be no conference folder for the symposium. For more information on our sustainable initiatives, please visit our poster area during the symposium or visit the symposium website.

Notebooks are provided in the break area for your convenience.

## ■ Language Used

The primary language of the symposium is English. The spoken language of Denmark is Danish, but most Danes speak English.

## ■ Venue

All plenary sessions will take place in Hall East.

Parallel sessions will take place in breakout meeting rooms on the first floor. Please see the map on page 27 and the program for exact location of the various parallel sessions.

The venue has wireless Internet. Information with username and password is available from the information desk or the organiser office.

## ■ Dining

Lunches and coffee breaks will be provided at the symposium venue. Based on the information provided in the registration form, vegetarian meals will be provided.

The symposium dinner will take place at Skråen Nordkraft, Kjelleups Torv 5, DK-9000 Aalborg on Monday 25 October at 19.30. Dinner includes soft drinks, beer and wine.

## ■ Smoking

Smoking in public places is prohibited.

## ■ Climate

The average day temperature in Denmark in October is 12 degrees Celsius or 53.6 degrees Fahrenheit. The October weather is often quite unpredictable, so you may want to bring an umbrella.

## ■ Currency and Credit Cards

The Danish currency is the Krone (DKK), which is subdivided into 100 øre. 100 DKK corresponds per 29 September 2010 to 18.06 US Dollars (USD) and 13.42 Euro (EUR).

Visa, Eurocard, Diners Club, American Express and MasterCard are widely accepted credit cards.

## ■ Sales Tax

Sales tax is included in the marked price of merchandise.

## ■ Opening Hours for Banks

Banks and ATM machines are located throughout Aalborg. With a few exceptions, banking hours are from 9.30 to 4.00, Thursdays to 6.00. On Saturdays and Sundays all banks are closed.

## ■ Opening Hours for Shops

- Mondays - Thursdays 10.00 - 5.30/7.00
- Fridays - 10.00 - 7.00
- Saturdays - 10.00 - 2.00
- Sundays - closed. You can find a few things open from 7.00-11.00, such as bakeries, flower and souvenir shops.

## ■ Taxi and Bus Services

Taxi services can be pre-booked online at [www.aalborg-taxa.dk](http://www.aalborg-taxa.dk) or by phone +45 9810 1010. The price for a trip from Aalborg Lufthavn to Aalborg City is approximately DKK 150 – depending on traffic. All taxis at Aalborg Taxa accept cash or credit card and most drivers speak English.

Bus No. 2 will take you from Aalborg Airport to Aalborg City in approximately 15 minutes. The service runs every 15 minutes on weekdays and 1 every hour on Sundays. The cost is DKK 18 and tickets are bought on board from the driver - cash only.

## ■ Symposium Locations

Please see map at on page 27.

## ■ Sustainability Evaluation

Shortly after the event you will receive an e-mail from the Danish Centre for Environmental Assessment, containing a link to a questionnaire about your carbon related behavior during the event. We wish to find out if the information and encouragement that you have found on these pages has in any way affected your behavior before, during or after the event. We are grateful for your participation.

## ■ Useful Links

### Tourism

[www.visitaalborg.com](http://www.visitaalborg.com)  
[www.aalborg.dk/engelsk/visiting/](http://www.aalborg.dk/engelsk/visiting/)

### Weather

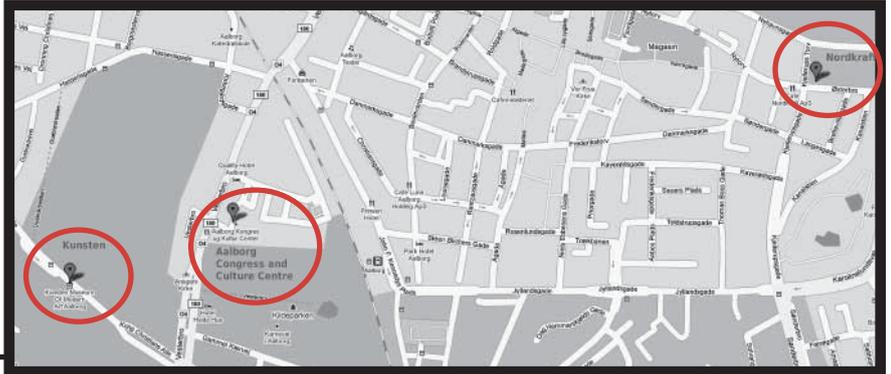
[www.dmi.dk/eng/index/forecasts.htm](http://www.dmi.dk/eng/index/forecasts.htm)

### Transport

Aalborg Airport  
[www.aal.dk/default.asp?PageID=87](http://www.aal.dk/default.asp?PageID=87)

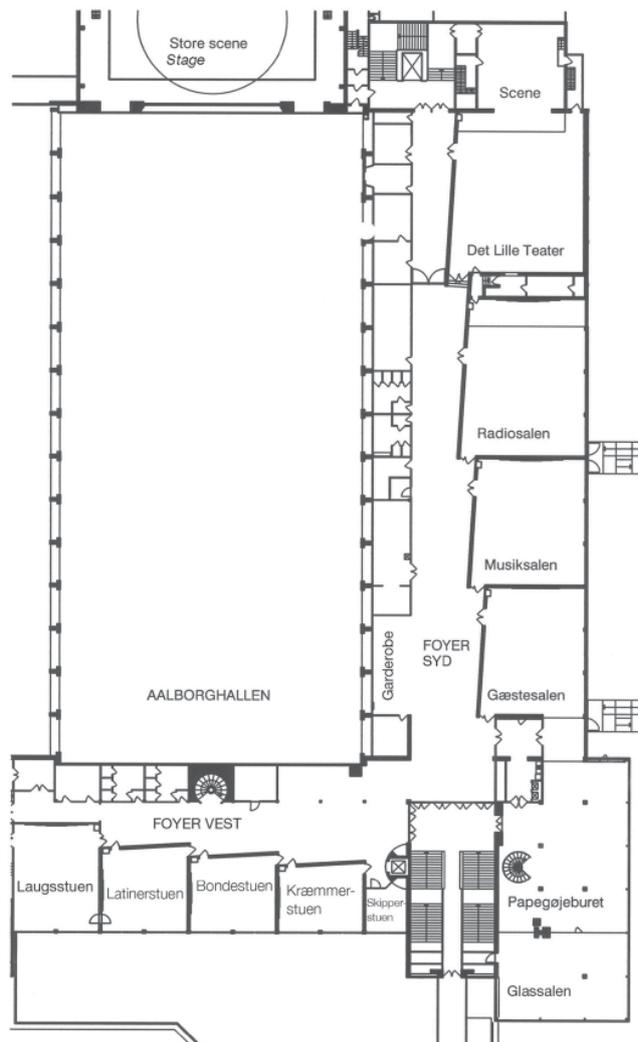
# Symposium Locations

## Symposium locations



## AALBORGHALLEN

MØDELOKALER 1. SAL - MEETING ROOMS 1ST FLOOR



Venue

## Aalborg Kongres & Kultur Center

Europa Plads 4 · Postboks 149 · 9100 Aalborg  
Tlf.: +45 9935 5555 · akkc@akkc.dk

[www.akkc.dk](http://www.akkc.dk)

# Host and Committees



## About the host institution

### The Danish Centre for Environmental Assessment

The Danish Centre for Environmental Assessment (DCEA) is an innovative research and knowledge platform at Aalborg University. DCEA carries out wide ranging research across the field of impact assessment, including environmental assessments of plans, programmes, projects, and life-cycle assessments of products and services.

DCEA is a non-profit organisation, which is involved in collaboration and partnerships with authorities, companies and the general public, and with the aim of ensuring democratic and sustainable development.

A key foundation for DCEA is the objective to support sustainability in societal decision-making and outcomes of the processes. DCEA see its role as 'change agents' that contribute to the critical use of environmental assessment tools, at an early stage in the process from policy generation to implementation—and as an agent that promotes better quality assessments. Furthermore, DCEA contribute to theory and practice on current issues and hot topics such as climate change.

**DCEA, Aalborg University, Department of Development & Planning**

Fibigerstræde 13 | DK-9220 Aalborg East DENMARK 1 | Phone (AAU) +45 9940 8287 | <http://dcea.dk/english/>

## About IAIA



The International Association for Impact Assessment was organized in 1980 to bring together researchers, practitioners, and users of various types of impact assessment from all over the world.

IAIA members number over 2,500 and reside in over 120 countries. IAIA activities are carried out locally and regionally through its extensive network of Affiliates and Branches.

**IAIA's Vision:** IAIA is the leading global network on best practice in the use of impact assessment for informed decision making regarding policies, programs, plans, and projects.

**IAIA's Mission:** IAIA provides an international forum for advancing innovation and communication of best practice in all forms of impact assessment to further the development of local, regional, and global capacity in impact assessment.

**IAIA's Values:** IAIA promotes the application of integrated and participatory approaches to impact assessment, conducted to the highest professional standards.

IAIA believes the assessment of the environmental, social, economic, cultural, and health implications for proposals to be a critical contribution to sound decision-making processes, and to equitable and sustainable development.

**International Association for Impact Assessment**

Headquarters 1330 23rd Street South, Suite C, Fargo, ND 58103-3705 USA | Phone +1.701.297.7908 | [www.iaia.org](http://www.iaia.org)

## Climate Change and Impact Assessment

*Special Symposium  
Aalborg, Denmark  
25-26 October 2010*

## Committees

### IAIA Special Symposium

**Lone Kornøv**, Aalborg University, Denmark (Chair)

**Martin Lehmann**, Aalborg University, Denmark (Co-chair)

**Weston Fisher**, The Cadmus Group Inc., USA

**Tim Richardson**, Aalborg University, Denmark

**Lise Nordensgaard**, Aalborg University, Denmark

**Mat Cashmore**, University of East Anglia, UK and Swedish University of Agricultural Science, Sweden

**Charlotta Faith-Ell**, WSP, Sweden

**Josh Fothergill**, Institute of Environmental Management & Assessment, Great Britain

**Maria Rosário Partidário**, IST, Technical University of Lisbon, Portugal

**Elisabeth Wilson**, Oxford Brookes University, Great Britain

**Hussein Abaza**, Egypt

**Annika Otterstedt**, SIDA, Sweden

**Jannick Schmidt**, 2.-0 LCA Consultant, Denmark

**Steffen Lervad**, City of Aalborg, Denmark

**Per Christensen**, Aalborg University, Denmark

**Eskild Holm Nielsen**, Aalborg University, Denmark

### Nordic Research Day

**Tim Richardson**, Aalborg University, Denmark (Chair)

**Lone Kornøv**, Aalborg University, Denmark (Co-chair)

**Martin Lehmann**, Aalborg University, Denmark

**Per Christensen**, Aalborg University, Denmark

**Søren Løkke**, Aalborg University, Denmark

**Asdis Hlökk Theódórsdóttir**, Reykjavík University, Iceland

**Mikael Hildén**, Finnish Environment Institute, Finland

**Tuija Hilding Rydevik**, Swedish University of Agricultural Science, Swedish EIA Centre, Sweden

**Martin Lund-Iversen**, Norwegian Institute for Urban and Regional Research (NIBR), Norway

**Gert Johansen**, Ministry of Environment, Denmark

**Jørgen E. Olesen**, Århus University, Denmark

**Bo Elling**, Roskilde University, Denmark

**Monica Fundingsland Tetlow**, Asplan Viak, Norway