



APPRAISAL-NIAM Joint Meeting

June 29th 2012

Palazzo Calini ai Fiumi

School of Law – University of Brescia
Via Battaglie, 58
25122 Brescia

The meeting was held in the very impressive and historic buildings of the Faculty of Law in Brescia University. Helen ApSimon thanked Luisa Volta and colleagues on behalf of NIAM for their very generous hospitality, and the opportunity to learn more about the APPRAISAL project and to come together in a NIAM meeting.

9:00 APPRAISAL Project: Presenting the APPRAISAL project to NIAM members as stakeholders and potential for participation

NOTES:

The meeting began with presentation on the APPRAISAL project (Air Pollution Policies for Assessment of Integrated Strategies at regional and Local scales. APPRAISAL is an EU FP7 Supporting & Co-ordinating action 2012 – 2015, which had held its first meeting the previous day. The project aims at reviewing the existing assessment capabilities and modelling tools used in the MS to evaluate the effects of local and regional AQ plans, and establishing a data base. The work is divided into 5 WP. WP 2 is a review trying to identify gaps in assessment methodologies in MS at regional and local scales. Later in WP4, guidelines for integrated air quality and health assessments will be developed. NIAM is invited as one of 8 stake holders of the project in parallel with IIASA. Stakeholders are invited to participate in specified project tasks.

Ana Miranda (University of Aveiro): Report of the APPRAISAL Kickoff meeting, WP 2 presentation

Ana Miranda presented the WP2 objectives. A review will be performed of air quality assessment methodologies and health impact assessment approaches in member states (MS). WP2 will start to deliver results by month 9 of the programme. The work is separated between review of models (national, regional, local), and review of air quality health impacts. There is also a focus on how uncertainty and robustness are tested. The project will develop a database, which first will be designed and given a format, and thereafter be continuously improved and maintained to compile information gathered. The database will aim to bring together all major activities in

European member states on air quality and health assessment. The purpose is to support the EU air quality policy review. All in all, the WP2 plan to deliver their results within 18 months from the start of the project. The expected impact is an improved use of scientific knowledge by policy makers and to have AQ & Health assessment guidelines for the coming revision of EU Air Quality. A NIAM representative is invited to participate at a September meeting to discuss the APPRAISAL database. NIAM members are also invited to review and contribute to the development of the APPRAISAL database.

Q: Are ecosystem aspects included?

A: No, the focus is on health aspects.

Q: Who is the expected user of the guidelines developed in the project?

A: Regional and local authorities in EU member states. Right now it's the local authorities in Brussels and Porto that have agreed to test these guidelines.

Comment: APPRAISAL is focused on Integrated Assessment Systems rather than Models. So the scope is wider, and the current practices of Integrated assessments can be identified. But there will be no new Super-Integrated Assessment Model developed within APPRAISAL.

10:30 NIAM presentations:

Stefan Astrom: Linking national emission inventories and projections with integrated assessment modelling, Swedish experiences.

Stefan presented the challenges involved with the Swedish participation in the upcoming Swedish bilateral consultation with IIASA. This involves translation between different codes and classification of sources used nationally and in the GAINS model, where there are conflicts in allocation and aggregation. Illustrations were given of how complex this could be for a steel plant, where similar emissions in a single plant may fall under very different source headings. Other countries indicated similar difficulties, and it was agreed that it would be useful to share experience of problems in translating into the GAINS format as countries undertook consultation with IIASA.

Enrico Pisoni: Sensitivity analysis to precursor emissions of multi-objective air quality control policies

The modelling uses an optimisation approach based on statistical sampling techniques towards attainment of targets. A strength of this approach is that it can be applied to uncertainty analysis involving combined variations of parameters. An illustration was provided showing how the sensitivity of output (environmental impact) can be analysed based on the uncertainty of input (emissions).

The case study results show that a given sum of emission abatement costs can give a varying level of air quality just caused by the uncertainty of emission input data. The major sources for final result uncertainties lie in uncertainty in the input data of NH₃ and PM_{2.5} with the AQ variability in Northern Italy mainly due to NH₃ uncertainties. Future work will focus on robustness (from a policy maker perspective), to reduce uncertainty of NH₃ emissions, and to quantify uncertainty/sensitivity analysis.

Andrew Kelly: Transport policy evaluation- insights and results from the assessment and modelling of two measures in an Irish context.

Andrew presented Irish work on transport policies focusing on 2 measures. First the implications from working from home have been analysed. The study focused on how much energy can be saved by working from home, who are the best workers for this, and what factors influence the proneness to work from home. Using census data, work data and GIS modelling, energy consumption from transport was calculated for different scenarios, working and socioeconomic groups etc. The calculations were adjusted to exclude groups that autonomously worked from home, and to keep the public transport system intact etc.

An average of 9.33 kWh per day was saved from working at home: and land use patterns, public transport availability, internet infrastructure and long commute journeys had significant impacts on the decision to work from home.

The second study presented by Andrew was about Transport taxation policies. To analyse the future impact of road transportation policies they used the modified Entwined-Ireland model. Additional fuel carbon tax, VRT and motor carbon tax, and VRT motor and fuel tax scenarios were analysed and compared to a 'current tax' scenario. The results show that demand for transport has to be considered rather than the decision to purchase a car. The impact of the taxations implies increase in diesel use and shift to smaller cars. Again it shows that there might be trade-offs between CO₂, NO_x and PM over time if taxations focus only on CO₂.

Helen ApSimon: Air quality implications of a decentralised energy scenario for London

Helen presented recent work with the UKIAM and BRUTAL models to analyse impacts of mitigation policies on the local scale. Examples of current work is inter-model comparisons on PM and NO_x concentrations, NH₃ abatement costs, and protection of Natura2000 areas. The focus in this presentation was the impact of decentralised energy scenarios for 2025.

The Mayor of London plans for 25 % of the London energy needs to be decentralised by 2025, involving large scale use of CHP plants. This motivated a case study on an energy scenario, based on the London Heat Map as a basis for heat demand. With respect to CO₂, some 0.8 Mt of CO₂ is abated, but with potential impacts on AQ from moving energy generation into the city and associated NO_x emissions. The net impact of NO_x emissions is very dependent on HOW the decentralisation is being performed. Whereas a large proportion of the decentralised energy is supplied by larger scale CCGT plants with well controlled emissions and ground level concentrations reduced by stack heights, smaller plants in the scenario contribute proportionally higher emissions and impacts for much less energy generation. Careful consideration is needed of local impacts of such plants in complex urban geometries with tall buildings.

Zbigniew Nahorski: short overview of IAM activities in Poland

Zbigniew presented the current NIAM activities in Poland. All in all, eight institutes have been involved in this work. Zbigniew described a variety of research areas related to IAM from current work by three of these institutes. Modelling of atmospheric dispersion of air pollutants, health impacts, and impact of climate change on air quality, review of emission factors, as well as a number of analyses on uncertainty of emissions and market impacts, are all examples of focus areas for these institutes.

Zbigniew also presented results from Polish modelling of current and future regional air quality in Poland.

Q: Are new projections for 2030 and 2050 being developed?

A: Details are not yet settled.

Q: To which extent is there collaboration with national agencies responsible for emission inventories etc?

A: The institutes co-operate closely with state agencies providing emission inventories.

Preliminary thoughts on future NIAM activities to promote discussion over lunch.

There have been continuing discussions on how we can continue NIAM activities. Currently we are trying to use newsletters and Skype conferences to adapt to the economic situations in the countries. In one way or the other, we need to inform each other of what the different members of NIAM are currently doing.

Q: Andrew recognizes that the NIAM contains a lot of different directions, with different research interests. To get the NIAM members aware of other members work is key for future co-operation between NIAM members. A one page newsletter with short teasers from the research groups is important for the possibility to join in future research activities.

14:00 NIAM presentations with a focus on ecosystem protection

Tim Oxley: Application of a “protectability index” to Natura 2000 sites in analysis of the benefits of emission abatement scenarios.

The Natura 2000 areas are protected according to EU law and it is of high concern to ensure that these areas do not experience deposition of air pollutants exceeding critical loads. When focusing on these designated sites, the exceedance map of critical loads looks different from the usual average area presentation used covering all ecosystem areas. So the aim of biodiversity protection can in the case of UK change since some of the exceedance is located in areas where there are no designated sites, and the designated sites contain habitats with a wide range of sensitivity. A key question is how to present the overall picture for this complex exposure pattern of designated sites and their associated habitats to policy makers. In this context a protectability index has been tested to identify different degrees of protection and where it seems unlikely to be able to protect specific habitats (unless additional local measures and restrictions close to them can help). Three scenarios have been explored, the first two illustrating improvements between different years

(2010 and 2020). The third, a 'no dry deposition from ammonia'-scenario, gives an idea of where local measures might help (since the dry deposition pattern is spatially correlated with local emissions).

The analysis showed that some 6 000 habitats are experiencing deposition exceeding critical loads, with some sights being beyond help. For low sensitivity habitats, higher levels of protection are achievable throughout the country. For the very high sensitivity habitats (lowland bogs etc), designations are largely within the 'difficult to protect' categories except in more remote parts of the country. This implies that special attention including possibilities for local measures will be needed for these habitats.

The study concludes that there is a very small improvement in the protection of habitats by the year 2020 according to the baseline. Significant increases in habitat protection appear to be possible if local NH₃ emission abatement can be implemented. This study is done for eutrophication but is not available in the same way for acidification due to multiple pollutant nature of acidification problems.

Wilfried Winiwarter: The ECLAIRE project: effects of climate change on air pollution impacts and response strategies for European ecosystems.

Wilfried presented the ECLAIRE project that started in October 2011. The ECLAIRE project focuses on exploring how air pollution impact in the future is affected by a changing climate. The ECLAIRE project is linked to other projects such as the PEGASOS (Atmospheric chemistry & CC) and ECLIPSE (Climate forcing of non UNFCCC gases) projects. These projects will profit from ECLAIRE work and vice versa.

The ECLAIRE work is based on field measurements and modelling as well as integrated risk assessment and policy tools. Both local and regional scales are considered.

Wilfried presents more in detail the work being taken under the C5 component of the programme. The key question from a policy aspect is whether today's recommended measures change in the future due to changing climate change conditions?

Ecosystems and not human health is of importance for this call. New dose-response functions will be delivered in other WP but some can be integrated into the GAINS model, hopefully. The work done in C5 will combine the cost effectiveness and optimization approach of the GAINS model with the environmental monetary quantification of ecosystem valuations.

ECLAIRE asks for input from countries regarding specific land uses or specific spatial issues related to ecosystem protection. ECLAIRE might strive to provide a framework for how to deal with local and regional ecosystem protection from an ECLAIRE perspective.

ECLAIRE has the following policy considerations:

- ECLAIRE should define its workplan so that it can deliver timely policy relevant results
- ECLAIRE should feed into the NEC / TSAP policy (2030 – 50 scenarios)
- ECLAIRE has the experience that valuation in monetary terms provides limited policy success. So ECLAIRE is considering closer link to biodiversity conventions and Natura2000 policies.

- ECLAIRE will explicitly provide information on the robustness of conclusions. “Are ECLAIRE results robust enough if central parameters/assumptions are changed”
- ECLAIRE will focus on interesting rather than on a “business as usual” case. May there be situations where the policy answers to these questions are different from where

ECLAIRE expects to deliver results on:

- New thresholds (flux-based) with possible interaction between N and O3 thresholds
- Ecosystem response and impacts under different climates assessed
- Guidance on conceivable changes in strategies due to climate change delivered
- Ecosystem information exchanged with other relevant projects

The next steps are to

Develop common scenarios towards 2050 – in accordance with TFHTAP

Have an ECLAIRE annual meeting

Get inputs from M&M groups and stakeholders

An open science meeting during the fall 2013

And further integration of NIAM to support ECLAIRE

Q: Will ECLAIRE look at the effect of CC on CL?

A: Basically yes, but also the programme will look into the changes in atmospheric composition of pollutants. Q: Will ECLAIRE look into accumulative approaches to nitrogen loads? Is this of interest for the time scale up until the year 2050?

A: This is something for nitrogen modellers to look into.

Presentation and discussion on how NIAM members can contribute.

15.30 Discussion on future collaboration and activities in NIAM

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ECLAIRE thinks that NIAM should be well suited to participate as stakeholders to the Component 5. The option to arrange C5 meetings as joint meetings with NIAM is an open and welcome option. There is also the option to look into the work being done by NIAM members and IIASA on the non-trading GHG emissions.

APPRAISAL. The first NIAM contribution would be to comment on the first version of the database structure in APPRAISAL. Secondly, to contribute with ideas for how to find different plans (assessment tools) used in countries outside of the APPRAISAL members. A web site will be available for the NIAM members to look into the project.

Currently NIAM is working in a non-funded low maintenance manner. This includes newsletters and time-by-time updates of the NIAM web page. NIAM members need to contribute information on their activities and interests in order to be successful. This includes projects etc in which they are involved or know about as well as their own specific research.

16:00 End of the APPRAISAL-NIAM Joint Meeting