OECD WORKSHOP
AGRI-ENVIRONMENTAL INDICATORS
LESSONS LEARNED
AND FUTURE DIRECTIONS

23-26 March 2010
Leysin Switzerland
HIGHLIGHTS

The main conclusions that emerged from the Workshop include:

1. Visible and incremental progress in developing agri-environmental indicators (AEIs) has been made across OECD countries over the past five to ten years, but progress has been uneven.

2. A growing number of countries are introducing regulations and legal requirements that mandate regular AEI collection and reporting. In these cases AEIs are being used to help evaluate the success of implementing sustainable agricultural strategies, but there is less evidence of their use for policy design.

3. AEI development often involves chasing a moving target, as the emergence of new issues, data and methods and techniques to collect and process data pose a perennial challenge to keep AEIs policy relevant.

4. Progress has been made across most OECD countries in developing water quantity and quality indicators, and to a more limited extent biodiversity indicators, and for many OECD countries there is interest but limited progress in developing AEIs that cover farm management, pesticide risks, land use changes, and social issues.

5. While the Driving Force–Pressure–State–Response framework provides a useful structure in which to organise AEIs, reference points, targets, thresholds, benchmarks, etc., are crucial for assessing progress toward policy objectives and sustainable agricultural goals.

6. Scaling up indicators from the farm to catchment to country levels is complex, with differences across countries. But there is some urgency in moving beyond just constructing and reporting national level AEIs, although data availability and quality remains a big challenge for many AEIs.

7. Significant progress has been made in many OECD countries in using AEIs in integrated analytical systems and models for policy analysis. The potential to make greater use of this analytical capacity, however, appears not fully exploited and the challenge remains to mainstream the capacity into policy decision-making.

8. An increasing number of countries using AEIs to analyse a specific problem that leads to a policy response and action.

9. Public and policy maker awareness of AEIs in many countries is at a low level and this is limiting their use. Fewer AEIs that are simple but not simplistic, and use of new information and communication technologies, can help build greater awareness of AEIs.

Workshop recommendations to identify possible future directions and priorities for work on AEIs in both the OECD and across OECD and non-member countries, including international organisations, identified the need to:

1. Respond to policy makers’ demands with fewer but easier to understand indicators. The OECD meeting of Agriculture Ministers (February 2010) noted the importance of climate change, green growth and pressures on land and water in the context of achieving sustainable agriculture and asked OECD to work on these issues.

2. Continue efforts to incorporate indicators into policy analysis and evaluation.

3. Further develop the capacity to merge bio-physical and socio-economic data into integrated models to deliver comprehensive analysis required to inform the policy debate.

4. Feature headline indicators more prominently (e.g. nutrient balances).

5. Explore new ways to use indicators and databases and to express the diversity and distribution of environmental effects related to agriculture.

6. Establish networks to share experiences of developing AEIs and possibly use OECD as a clearing house for related national AEI information and data.

7. Improve the communication of AEIs to policy makers and the wider public.

8. Consider the possibility of an OECD Workshop to further develop agri-biodiversity indicators for policy purposes (i.e. indicators of wild species and ecosystem diversity in agro-ecosystems).
1. OECD WORK ON AGRI-ENVIRONMENTAL INDICATORS

1. The focus of OECD work on agri-environmental indicators (AEIs) is primarily to provide evidence of the state and trends in the environmental performance of agriculture and support analysis of policies (ex-post and ex-ante) to explain the effects of different policies on the environment, and assess whether budgets for policies are used effectively in terms of environmental outcomes (instrumental use) and economic efficiency.

2. In developing AEIs a balance needs to be struck between simplicity and timeliness (for policy advisors), robustness (scientific soundness), and relevance for other stakeholders, including farmers. Indicators usually have to be constructed from available primary data sources with limited resources in the OECD Secretariat and member countries.

3. OECD work on developing AEIs started in 1993, but really advanced at the York workshop in 1998. Many OECD AEI workshops have brought together policy advisors, researchers, NGOs and industry. Four comprehensive reports on indicators and seven reports on specific indicator areas have been produced. OECD has provided a leading international role in developing concepts, methods and calculation of comparative OECD indicators (see the OECD website www.oecd.org/agriculture/env/indicators).

4. The OECD Washington workshop in 2007 reviewed progress and set the course for the current work programme on AEIs, and concluded the need to: define a limited set of specific indicators where work is needed to support OECD policy analysis; identify indicators that could be updated with minimum resource cost on a regular basis; make more use of indicators in policy studies; and to improve indicator interpretation and communication so they are clear to non-specialists.

5. Since the Washington Workshop the main OECD achievements related to AEI work include:

1. Publishing in 2008 the OECD study Environmental Performance of Agriculture in OECD countries since 1990, (and the summary report Environmental Performance of Agriculture: At a Glance, see: www.oecd.org/tad/env/indicators). This marked the completion of an extensive effort to provide comparative AEIs for OECD countries, based on agreed methodologies.

2. Establishing an OECD AEI time series database for the 30 OECD Member countries from 1990 to 2004, including 30 country chapters in their respective national language. Since the completion of this database, OECD Member countries have agreed to update the database, planning to publish revised time series in 2011 for OECD Member countries.

3. Developing the use of AEIs in policy analysis, including: their use in agri-environmental policy studies; OECD country reviews; and studies on the development of AEIs in four OECD Accession countries: Chile, Estonia, Israel and Slovenia.

6. This report describes the Workshop objectives, agenda and participation (Section 2); summarises the key conclusions that came out from the Workshop papers and discussion (Section 3); and provides a set of recommendations for the JWP to consider in its further work on AEIs (Section 4). Two annexes provide the Workshop Agenda (Annex 1) and List of Participants (Annex 2). For the complete Workshop documentation, including papers and powerpoints, background reports and weblinks, the reader is referred to the dedicated OECD website at: www.oecd.org/agriculture/env/indicators/workshop
2. WORKSHOP OBJECTIVES, AGENDA AND PARTICIPATION

2.1. Objectives

7. As part of the effort to update the AEI database it was agreed by the JWP to take stock of both recent developments and future plans in the use of AEIs by policy makers across OECD countries. In this endeavour an offer was made by Switzerland to host a Workshop – *Agri-environmental Indicators: Lessons Learned and Future Directions* – which was held between 23 – 26 March 2010 at the Hotel Mercure, Leysin, Switzerland. The Workshop objectives were to:

1. Review recent country experiences and future plans in using AEIs as a tool for policy monitoring, evaluation and analysis.
2. Assess recent uses and future directions for AEIs in integrated analytical systems and models (e.g. knowledge systems, integrated policy and projection assessment models of the agriculture-environmental interface, GIS systems, etc).
3. Communicate the results and recommendations of the Workshop, to help identify possible future directions and priorities for work on AEIs in both the OECD and across OECD and non-member countries, including international organisations (e.g. Eurostat and FAO).

2.2. Agenda

8. Taking into account the Workshop objectives outlined above the *Workshop Agenda* was organised into four Sessions as follows (see the complete Agenda in Annex 1):

1. Welcome and overview of workshop and three keynote addresses:
   - **Linking Farm-Level Measurement Systems to Environmental Sustainability Outcomes: Challenges and Ways Forward**, László Pinter, Measurement and Assessment Program, International Institute for Sustainable Development (IISD), Winnipeg, Canada; and Aimee Russillo, Liseed Consulting, Berea KY, United States
   - **Normative, systemic and procedural aspects: a review of indicator-based sustainability assessments in agriculture**, Claudia R. Binder, Institute for System Science, Innovation and Sustainability Research, University of Graz, Austria; and Giuseppe Feola, Social and Industrial Ecology, Department of Geography, University of Zurich, Switzerland
   - **Indicators in time, space and multiple domains: Lessons from applying an integrated assessment tool for agricultural systems**, Sander Jansen, Researcher, Alterra - Centre for Geo-information, The Netherlands; Martin van Ittersum, Plant Production Systems, Wageningen University, The Netherlands; and Erling Andersen, University of Copenhagen, Forest and Landscape, Denmark

2. Reviewing recent experiences and future plans in using AEIs as a policy tool, divided into three sub-sessions:
   - Overview of national AEIs
   - Soil, pesticide and nutrient indicators
   - Biodiversity and landscape indicators

2. Using AEIs in integrated analytical systems and models

3. Future directions for AEIs: Concluding discussion and recommendations
9. A field trip was held on the 3rd day of the Workshop to the Lavaux region of Switzerland, which is a UNESCO world heritage site. The visit included an excursion to an artisanal cheese cooperative and a vineyard to examine the application of agri-environmental monitoring at a local level.

2.3. Participants

10. The Workshop was attended by around 90 participants covering: 24 OECD Member countries, and three OECD Accession countries - Estonia, Israel, and Slovenia. Also, the EU was represented by the Commission, Eurostat and the EU Joint Research Centre. In addition there were 12 International Governmental Organisations (e.g. FAO, UNEP) and Non-Governmental Organisations (e.g. CropLife International, International Fertiliser Association, International Institute for Sustainable Development).

11. The Workshop participants encompassed a range of expertise from policy decision makers, statisticians, research scientists and economists, and representatives of the private sector and environmental groups (see Annex 2 for a complete list of participants).

3. CONCLUSIONS FROM THE WORKSHOP

12. The main conclusions that emerged from the Workshop papers and discussion can be grouped around five main themes: overview of agri-environmental indicator development across OECD countries; specific agri-environmental indicators; methods and data; use of agri-environmental indicators; and the interpretation and communication of agri-environmental indicators.

3.1. Overview of agri-environmental indicator development across OECD countries

1. Visible and incremental progress in developing AEIs has been made across OECD countries over the past five to ten years, but progress has been uneven.
2. A growing number of countries are introducing regulations and legal requirements that mandate regular AEI collection and reporting, for example, in Norway, Switzerland and the EU. In these cases AEIs are being used to help evaluate the success of implementing sustainable agricultural strategies, but there is less evidence of their use for policy design.
3. AEI development can involve chasing a moving target, as the emergence of new issues, data and techniques to collect and process data, pose a continuing challenge to keep AEIs policy relevant.

3.2. Specific agri-environmental indicators

1. Progress has been made across OECD countries in developing water quantity and quality indicators, and, to a more limited extent, biodiversity indicators. While discussion ranged across most AEI areas, discussion on the energy – climate change nexus, while highly topical, was limited.
2. For many OECD countries there is interest in developing AEIs that cover farm management, pesticide risks, land use changes, and social issues, but to date progress has been limited. However, some countries have made progress developing AEIs across these areas, but it has so far been difficult to generalise these approaches to establish an OECD wide AEI methodology and indicator for each of these areas.
3. Some AEI areas lack agreed and consistent definitions, especially concerning farm management, biodiversity and cultural landscape, which can be very country specific, such as defining areas of high nature value.
4. Social indicators are a weak link in assessing the sustainability of agriculture, and a major challenge for many countries is to identify clear goals for social indicators of sustainable agriculture.
3.3. Methods and data

1. While the Driving Force—Pressure—State—Response framework provides a useful framework in which to organise AEIs, reference points, targets, thresholds, and benchmarks are also crucial for assessing progress toward policy objectives and sustainable agricultural goals. Determining these targets, threshold levels, etc., can be difficult as they need to have both scientific credibility and political legitimacy. There is also the problem of determining what are sustainable levels across and within OECD countries, although there can be some commonality (e.g. safe limits for certain agricultural pollutants in water or the air).

2. Scaling up indicators from the farm to catchment to country levels is complex, with differences across countries. But there is some urgency in the need to move beyond just constructing and reporting national level AEIs. This is related to the need to show the spatial distribution of environmental effects, especially identifying areas at most environmental and/or human health risk.

3. Data availability and quality remains a big challenge for the development of many AEIs. There is now, however, widespread movement across most OECD countries towards using GIS platforms and longitudinal geospatial analysis. In times of constrained budgets to fund AEI data collection, these new technologies and data collection assessment tools offer the potential to lower costs of data provision.

4. A single indicator is often not sufficient to provide a useful policy tool, and there is a need to link AEIs and integrate indicators into systems analysis to help understand, for example, the link between farm input use, farm management input practices and impacts on ecosystems related to agriculture.

3.4. Use of agri-environmental indicators

1. Linkages between policies, agriculture and the environment are complex and diverse across countries and significant challenges remain in understanding the linkages, as has been evident in modelling efforts. But a mixture of quantitative and narrative assessments are needed, backed by experiences of what has been successful and why.

2. Where AEIs have been mandated by legislation or required under international agreements to meet specific targets or threshold levels, there is an interest to know how these targets and threshold levels are determined in relation to sustainability criteria.

3. Significant progress has been made in many OECD countries in using AEIs in integrated analytical systems and models for ex-post and ex-ante policy analysis (e.g. the CAPRI and SEAMLESS models). These models can provide a sound basis for environmental impact assessment of existing and future agri-environmental policy scenarios. The potential to make greater use of this analytical capacity, however, appears not to be fully exploited and the challenge remains to mainstream the capacity into policy decision-making processes.

4. There are a growing number of countries using AEIs to analyse a specific problem that leads to a policy response and action. For example, indicators of nitrogen and energy efficiency in Swiss agriculture are assisting policy makers (depending on the direction of change of the indicators) to initiate a policy response; while the use of AEIs in Australia is helping policy makers locate areas targeted by agri-environmental investment programmes.
3.5. Interpretation and communication of agri-environmental indicators

1. AEIs help to tell a story about what is happening to the environment related to agriculture, but a suite of indicators is needed to help explain why it is happening. However, AEIs, are only one of the tools for policy makers to help evaluate and understand policy effects.

2. Communicating and acknowledging the uncertainty and reliability of AEIs is important for policy makers and other stakeholders to help understand the degree of robustness of the indicators.

3. There is currently a low level of public and policy maker awareness of AEIs in many countries, which is limiting their usefulness. But use of new information and communication technologies can help provide the opportunity to build greater awareness of AEIs.

4. Involving stakeholders in indicator development, data collection and use builds relevance, legitimacy and ownership, as summarised in Figure 1.

Figure 1. Stakeholders participation and engagement in agri-environmental indicator development

Source: Adapted from Laszlo Pinter, International Institute for Sustainable Development, Canada.
4. WORKSHOP RECOMMENDATIONS

13. The Workshop recommendations to help identify possible future directions and priorities for work on AEIs in both the OECD and also within OECD and non-member countries, including international organisations (e.g. Eurostat and FAO), include the need to:

1. Respond to policy makers’ demands with fewer and easier to understand indicators. The OECD meeting of Agriculture Ministers (February 2010) noted the importance of climate change, green growth and pressures on land and water in the context of achieving sustainable agriculture and asked OECD to work on these issues.

2. Continue efforts to incorporate indicators into policy analysis and evaluation.

3. Further develop the capacity to merge bio-physical and socio-economic data into integrated models to deliver comprehensive analysis required to inform the policy debate.

4. Feature headline indicators more prominently (e.g. nutrient balances).

5. Explore new ways to use indicators and databases and to express the diversity and distribution of environmental effects related to agriculture.

6. Establish networks to share experiences and possibly use OECD as a clearing house for related national AEI information and data.

7. Improve the communication of AEIs to policy makers and the wider public.

8. Consider the possibility of an OECD Workshop on further developing agri-biodiversity indicators (i.e. indicators of wild species and ecosystem diversity in agro-ecosystems) for policy purposes.
## ANNEX 1. WORKSHOP AGENDA

(Names underlined are those providing the presentation for multiple authored papers)

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<td>09:00 – 09:30</td>
<td>Chair Session 1:</td>
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<td>Teresa AVELAR</td>
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<td>Lisbon, Portugal</td>
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<td>09:30 – 10:15</td>
<td>WELCOME AND OVERVIEW OF WORKSHOP</td>
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<td>Dominique KOHLI, Head of the Strategic and Evaluation Unit,</td>
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<td>Federal Department of Economic (DFE), Federal Office of Agriculture</td>
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<td>Kevin PARRIS, Senior Agricultural Policy Analyst,</td>
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<td>Agricultural Policies and Environment Division, OECD,</td>
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<td>KEYNOTE ADDRESSES</td>
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<td>Linking Farm-Level Measurement Systems to Environmental</td>
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<td>Sustainability Outcomes: Challenges and Ways Forward</td>
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<td>László PINTER(^a) and Aimee RUSSILLO(^a), Measurement and</td>
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<td>Assessment Program, International Institute for Sustainable</td>
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<td>Normative, systemic and procedural aspects: a review of indicator-</td>
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<td>Claudia R. BINDER(^1) and Giuseppe FEOLA(^2)</td>
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<td>1. Institute for System Science, Innovation and Sustainability</td>
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<td>Research, University of Graz, Austria; 2. Social and Industrial</td>
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<td>Ecology, Department of Geography, University of Zurich,</td>
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<td>10:15 – 11:00</td>
<td>➢ <strong>Indicators in time, space and multiple domains: Lessons from applying an integrated assessment tool for agricultural systems</strong>&lt;br&gt;<strong>Sander JANSEN</strong>, Researcher, Alterra – Centre for Geo-information, Wageningen, The Netherlands; <strong>Martin van ITTERSUM</strong>, Plant Production Systems, Wageningen University, The Netherlands; and <strong>Erling ANDERSEN</strong>, University of Copenhagen, Forest and Landscape, Denmark</td>
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<td>11:00 – 11:30</td>
<td>➢ <strong>General discussion</strong></td>
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<td>Tuesday 23 March</td>
<td>11:30 – 13:00</td>
<td><strong>SESSION 2 – REVIEWING RECENT EXPERIENCES AND FUTURE PLANS IN USING AEIs AS A POLICY TOOL</strong>&lt;br&gt;<strong>PART I – OVERVIEW OF NATIONAL AGRI-ENVIRONMENTAL INDICATORS</strong></td>
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<td>11:30-12.10</td>
<td><strong>Chair Session 2.1:</strong>&lt;br&gt;<strong>Robert MAYO</strong>&lt;br&gt;Senior Statistician, Statistics Division, Food and Agriculture Organization of the United Nations, Rome, Italy</td>
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<td>➢ <strong>Agri-environmental monitoring: A tool for evaluation and support of decision-making in Swiss agricultural policy</strong>&lt;br&gt;<strong>Brigitte DECRAUSAZ</strong>, Office fédéral de l’agriculture, Unité de direction Evaluation et stratégie, Secteur écologie, Switzerland</td>
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<td>➢ <strong>Information, indicators, agricultural productivity and sustainable practices: Australian case studies</strong>&lt;br&gt;<strong>Mike GRUNDY</strong>, CSIRO, Canberra, Australia</td>
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<td>➢ <strong>Using Agri-Environmental Indicators in Decision-Making: Examples from Canada and Issues to Consider</strong>&lt;br&gt;<strong>Sarah KALFF</strong>, Agri-environment Services Branch, Agriculture and Agri-food Canada, Canada</td>
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<td>➢ <strong>Development of Agri-environmental indicators in Austria</strong>&lt;br&gt;<strong>Ingeborg FIALA</strong>, Federal Ministry for Agriculture, Forestry, Environment and Water Management, Unit II/5, Vienna, Austria</td>
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| 12:10 - 13:00 | **Discussion Opener: David S. SPRAGUE**, National Institute for Agro-Environmental Sciences, Tsukuba, Japan  
|         | **General discussion**                                                   |
| **Tuesday 23 March** | **SESSION 2 – REVIEWING RECENT EXPERIENCES AND FUTURE PLANS IN USING AEIs AS A POLICY TOOL**  
| 14:15 - 18:00 | **PART 1 – OVERVIEW OF NATIONAL AGRI-ENVIRONMENTAL INDICATORS (continued)**  
|         | **14:15 - 14.45**  
|         | - *The ARMS: A Survey Supporting Indicator Development and Economic Policy Analysis*  
|         | - *Experiences in using AEIs as a policy toll in the Norwegian agri-environmental programme*  
|         |   **Bjørn HUSO**, Norwegian Agricultural Authority, Norway  
|         | - *Regionalised Agri-Environmental Monitoring on a Farm-Based Activity-Report Data Network*  
|         |   **Silvio BLASER**, Agroscope Reckenholz-Tänikon Research Station ART, Switzerland  
|         | **14.45 – 15.25**  
|         | - **Discussion Opener: Robin MACKAY**, Agri-environment Services Branch, Agriculture and Agri-food Canada, Ottawa, Canada  
|         | - **General discussion**                                                   |
|         | **15:25 – 15:55**  
|         | - *EU Agri-Environmental indicators and the Rural Development CMEF indicators (Common Monitoring and Evaluation Framework) a coherent system of analysis*  
|         |   **Angelo INNAMORATI**, European Commission, Directorate-General for Agriculture and Rural Development, Unit H1 – Environment, GMO and genetic resources, Brussels, Belgium  
|         | - *Eurostat tender on direct and indirect data needs linked to farms for Agri-Environmental Indicators (AEI)*  
|         |   **Ludivine BAUDOUIN**, Eurostat, Luxembourg  
|         | - *Experiences with the evaluation of agricultural practices for EU Agri-Environmental Indicators*  
|         |   **Hans-Peter PIORR**, University of Applied Sciences, Eberswalde  
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<td><strong>Discussion Opener: Nathanaël PINGAULT</strong>, Office of environmental strategy, Directorate of agriculture and agro-food policy, Ministry of Agriculture and Fisheries, Paris, France</td>
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<td>16.35 – 17.05</td>
<td><strong>Break</strong></td>
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<td><strong>Application of agri-environmental indicators in Portugal</strong>&lt;br&gt;<strong>Rui PEREIRA and Teresa AVELAR</strong>, Directorate for Policy and Planning, Ministry of Agriculture, Rural Development and Fisheries</td>
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<td><strong>French environmental certification scheme: Co-construction of environmental performance indicators</strong>&lt;br&gt;<strong>Alexandre MEYBECK</strong> and <strong>Nathanaël PINGAULT</strong>, Office of environmental strategy, Service of agro-food and sustainable development strategy, Directorate of agriculture and agro-food policy, Ministry of Agriculture and Fisheries, Paris, France</td>
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<td>17.25 – 18.00</td>
<td><strong>Discussion Opener: Ludivine BAUDOUIN</strong>, Eurostat, Unit E1 - Farms, Agro-Environment and Rural Development&lt;br&gt;Agri-environmental indicators, Luxembourg</td>
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**Wednesday 24 March**<br>**SESSION 2 – REVIEWING RECENT EXPERIENCES AND FUTURE PLANS IN USING AEIs AS A POLICY TOOL**<br>**PART II – SOIL, PESTICIDE AND NUTRIENT INDICATORS**

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<td><strong>Session 2. II Chair:</strong>&lt;br&gt;&lt;br&gt;<strong>Wendy FJELLSTAD</strong>, Norwegian Forest and Landscape Institute, Norway</td>
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<td><strong>Agri-environmental Soil Quality Indicator in the European perspective</strong>&lt;br&gt;<strong>Gergely TÓTH</strong>, Land Management &amp; Natural Hazards Unit, Institute for Environment and Sustainability, European Commission, Joint Research Centre, Ispra, Italy</td>
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<td><strong>The approach of the German Pesticide Risk Indicator SYNOPS in the frame of the National Action plan on the Sustainable Use of Pesticides</strong>&lt;br&gt;<strong>Jörn STRASSEMEYER</strong>, Institute for Strategies and Technology Assessment in Plant Protection, Julius Kuehn Institute (JKI), Federal Research Centre for Cultivated Plants, Kleinmachnow, Germany</td>
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<td>09.40 – 10.15</td>
<td>Discussion Opener: Jan KLIR, Head of Plant Nutrition Division, Crop Research Institute, Ruzyne, Czech Republic, (10 minutes)</td>
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<td>Policy targets related to nitrogen emissions from agriculture – the case of Germany</td>
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<td>Gross Nitrogen Balance and Nitrogen Use Efficiency as tools for policy analysis and evaluation</td>
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<td>Policymakers’ Priorities and Policy Linkage Using Agri-Environmental Indicators in Korea</td>
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<td>10.45 – 11.15</td>
<td>Discussant: David FERNALL, Food and Farming Group, Department for Environment, Food and Rural Affairs (Defra), York, United Kingdom</td>
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<td>General discussion</td>
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<td>11:15 – 11:45</td>
<td>Break</td>
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<td>11:45 – 12:25</td>
<td>Nutrient surplus as a tool for evaluating environmental Action Plans in Denmark</td>
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<td>Soil Nutrient Balances – reviewing and developing to meet customer needs</td>
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<td>12.25 – 13.00</td>
<td>Discussion Opener: Klaas VAN DER HOEK, RIVM Centre for Environmental Monitoring, Bilthoven, The Netherlands</td>
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<td>General discussion</td>
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<tr>
<td>13.00 – 14:15</td>
<td>Lunch hosted by Switzerland</td>
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<tr>
<td>Wednesday</td>
<td>SESSION 2 – REVIEWING RECENT EXPERIENCES AND FUTURE PLANS IN USING AEIs AS A POLICY TOOL</td>
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<tr>
<td>24 March</td>
<td>PART III – BIODIVERSITY AND LANDSCAPE INDICATORS</td>
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<tr>
<td>14.15 - 16.05</td>
<td>Chair Session 2.III: Hubert POFFET, Strategic and Evaluation Unit, Federal Department of Economic (DFE), Federal Office of Agriculture (OFAG), Berne, Switzerland</td>
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<td>Addressing the spatial resolution of agri-environmental indicators in Norway Wendy FJELLSTAD, Norwegian Forest and Landscape Institute</td>
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<td>The relevance of agri-environmental indicators used for landscape character maintenance and biodiversity protection in Slovakia Zuzana BARÁNKOVÁ¹, Luboš HALADA², Zita IZAKOVIČOVÁ³, Barbora ŠATALOVÁ¹; Institute of Landscape Ecology, Slovak Academy of Sciences, Bratislava¹; Institute of Landscape Ecology, Branch of Nitra, Slovak Academy of Sciences, Nitra³</td>
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<td>Agri environmental indicators in relation to rural development policy in Flanders, Belgium Dirk Van GIJSEGHEM, Sylvie DANCKAERT, Michael Van ZEEBROECK, Ellen MAERTENS, Department of Agriculture and Fisheries, Brussels, Belgium</td>
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| **14.45 – 15.10** | **Discussion Opener:** Guido BONATI, Head of the Environment Unit, National Institute for Agricultural Economics (INEA), Rome, Italy  
**General discussion** |
Andrea BORLIZZI, Andrea POVELLATO, Antonella TRISORIO, National Institute of Agricultural Economics (INEA), Italy  
**Agri-environmental indicators for biodiversity in the rice paddy landscape**  
David S. SPRAGUE, Shori YAMAMOTO, Tatsuya AMANO, National Institute for Agro-Environmental Sciences, Tsukuba, Japan and Kenji MATSUMORI, National Institute for Rural Engineering, Tsukuba, Japan  
**Developing an integrated monitoring system to assess agri-environmental measures effectiveness in Tuscany**  
Riccardo SIMONCINI, University of Florence, Economic Sciences Department, Italy |
| **15.40 – 16.05** | **Discussion Opener:** Dirk Van GIJSEGHEM, Department of Agriculture and Fisheries, Brussels, Belgium  
**General discussion** |
| **16.05 – 16.35** | Break |
| **Wednesday 24 March** | **SESSION 3 – USING AGRI-ENVIRONMENTAL INDICATORS IN INTEGRATED ANALYTICAL SYSTEMS AND MODELS: RECENT USES AND FUTURE PROSPECTS** |
| **16.35 – 17.05** | **Chair Session 3:**  
Pavol BIELEK, Director of the Soil Science and Conservation Research Institute Bratislava, Slovakia  
**Agri-environmental indicators in sector models: the case of nutrient balances and biodiversity**  
Franz SINABELL, Erwin SCHMID, Peter ZULKA, Christine HEUMESSER, Katharina WICK, Austrian Institute of Economic Research, Vienna, Austria |
<table>
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<tr>
<th>Time</th>
<th>Session</th>
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</table>
| 17.05 – 17.30| **Discussion Opener:** Sander JANSEN, Researcher, Alterra - Centre for Geo-information, Wageningen, The Netherlands  
**General discussion** |
| 17.30 – 18.00| **Using a Beneficial Management Practice (BMP) Adoption Index in Agri-Environmental Policy in Canada**  
Robin MACKAY, Agri-environment Services Branch, Agriculture and Agri-food Canada, Canada  
**Use of remote sensing for the assessment of farmland biodiversity**  
Ciro GARDI, European Commission, Joint Research Centre, Ispra, Italy  
**Mainstreaming carbon balance appraisal of agriculture projects and policies?: A tool for measuring Carbon-Balance in Ex-ante Project-Programme Impact Appraisal**  
Louis BOCKEL, FAO, Garry SMITH, FAO, Marjory BROMHEAD, ARD Worldbank, Martial BERNOUX, IRD FAO consultant, Marianne TINLOT, Consultant FAO |
| 18.00 – 18.25| **Discussion Opener:** Chang Gil KIM, Senior Fellow  
Agri-business Research Center, Korea Rural Economic Institute, Korea  
**General discussion** |

**Thursday 25 March**  
09:00 – 19:00 **FIELD TRIP (hosted by Switzerland)**  
Information and logistical details on the Field Trip will be provided during the Workshop
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<tr>
<td>09:00 - 11:00</td>
<td>SESSION 4 – FUTURE DIRECTIONS FOR AGRI-ENVIRONMENTAL INDICATORS: CONCLUDING DISCUSSION AND RECOMMENDATIONS</td>
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<td>Session Chair:</td>
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<td>Utpal VASAVADA,</td>
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<td>Economic Research Service, US Department of</td>
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<td>Agriculture, Washington D.C., United States</td>
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<td>Reports from Rapporteurs</td>
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<td></td>
<td>• <strong>Session 1</strong> (Keynote addresses): <strong>Mike</strong></td>
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<td>GRUNDY, CSIRO Sustainable Agriculture Flagship, St Lucia, Queensland, Australia</td>
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<td>• <strong>Session 2.I</strong> (Overview of National AEIs): <strong>László PINTER</strong>, Measurement and Assessment Program, International Institute for Sustainable Development (IISD), Winnipeg, Canada</td>
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<td>• <strong>Session 2.II</strong> (Soil, pesticides, nutrients): <strong>Franz SINABELL</strong>, Austrian Institute of Economic Research, Vienna, Austria</td>
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<td>• <strong>Session 2.III</strong> (Biodiversity and landscape): <strong>Sigrid SKJØLÁS</strong>, Ministry of Agriculture and Food, Oslo, Norway</td>
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<td>• <strong>Session 3</strong> (AEIs and integrated models): <strong>Bob MACGREGOR</strong>, Agriculture and Agri-Food Canada, Ottawa, Canada</td>
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<td>➢ General discussion:</td>
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<td>➢ Chair’s summing up of Overview and Rapporteur reports</td>
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<tr>
<td>11:00 - 11:30</td>
<td>Break</td>
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<tr>
<td>11:30 - 12:55</td>
<td>RECOMMENDATIONS</td>
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<td>➢ <em>Recommendations for the OECD Joint Working Party on Agriculture and the Environment (June 2010)</em></td>
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<td><strong>Wilfrid LEGG</strong>, Head of Agricultural Policies and Environment Division, OECD, Paris, France</td>
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<td></td>
<td>➢ General Discussion</td>
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<tr>
<td>12:55 – 13:00</td>
<td>➢ Closing remarks and Close of Workshop</td>
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</tbody>
</table>
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