

Summary Record

OECD workshop

Biodiversity, Climate Change and Agriculture: Towards Coherent Approaches

October 25, 2017
Paris, France

The need to address biodiversity and climate change in agricultural policy is reflected in internationally agreed objectives under the Convention on Biological Diversity, the United Nations Framework Convention on Climate Change, and the Sustainable Development Goals. However this task is hindered by the often fragmented institutional context in which environmental and agricultural policy is formed. There is a need to understand interactions, minimise trade-offs and maximise synergies so as to ensure positive outcomes across biodiversity, climate change and agriculture.

The objective of this OECD workshop on *Biodiversity, Climate Change and Agriculture: Towards Coherent Approaches* was to share insights and lessons from on-going efforts across these three interlinked areas. The workshop brought together government experts, leading academics, and international organisations to discuss synergies, trade-offs and possible ways forward.

The workshop was organised by the OECD Secretariat to the Working Party on Biodiversity, Water and Ecosystems (WPBWE) with inputs from the Environment and the Trade and Agriculture Directorates, and was held back-to-back with the October meeting of the WPBWE and that of the Joint Working Party on Agriculture and Environment (JWPAE). Insights from the workshop were also intended to inform and feed into two on-going OECD WPBWE projects, namely on biodiversity, ecosystem services and agriculture, and on land use, climate mitigation, ecosystems and food.

More than 60 participants attended the workshop, including representatives from member governments, academia, international and other organisations, and the OECD Secretariat.

Opening session: Introduction and welcoming remarks

Katia Karousakis, Biodiversity Team Leader, OECD Environment Directorate and moderator for the workshop, welcomed delegates from both the Working Party on Biodiversity, Water and Ecosystems (WPBWE) and those of the Joint Working Party on Agriculture and Environment (JWPAE). She noted that the issues of biodiversity, climate change and agriculture are strongly interlinked and that it is an area of mutual interest across these two OECD Working Parties, where further synergies across the two communities can be fostered.

Simon Buckle, Head of Climate, Biodiversity and Water Division, OECD Environment Directorate, provided the opening presentation on **biodiversity, climate change and agriculture**, highlighting some of the key linkages (current and projected) between these areas and how they are intimately connected. While ecosystems provide critical services including carbon sinks, they are being lost to land use change associated with agriculture. Greenhouse gas emissions from agriculture, forestry and land use (AFOLU) set the boundaries for the pace and scale of mitigation action in other sectors to achieve the Paris temperature goal and bioenergy combined with carbon capture and sequestration provides a potentially critical technology for so-called "negative emissions". The need for more coherent approaches was presented in the context of the Sustainable Development Goals.

Guilluame Gruere, Senior Agricultural Policy Analyst, OECD Trade and Agriculture Directorate, provided **an overview of key issues linking agriculture to climate change and biodiversity**, from an agriculture policy perspective. He noted that agriculture generates negative and in some case positive impacts on biodiversity and greenhouse gas emissions, but that the sector is also facing large risks associated with climate change and biodiversity loss. He highlighted that specific policies have been trying to address these different aspects most often separately, noting also that core agriculture policies may not always be coherent with these objectives. He provided some examples of recent JWPAE work in these areas, noting in particular that the OECD agri-environment indicators data is currently being updated and will be available shortly.

Session 1: Biodiversity impacts of excessive input use in agriculture and policy responses

Overview of pesticide and fertilisers trends and policies in OECD countries. *Megha Sud*, Biodiversity Team, OECD Environment Directorate, provided an overview of the biodiversity, ecosystem and human health impacts of excessive pesticide¹ and fertiliser use; trends in pesticide and fertilisers in OECD countries; and examples of policy responses adopted across several countries, namely Denmark and France for pesticides and Japan for fertilisers. The presentation drew on a draft OECD WPBWE paper on Biodiversity, ecosystems and agriculture.

¹ Including herbicides and fungicides.

Pesticide pollution and experiences with policies in Sweden. *Agneta Sundgren, Federation of Swedish Farmers (LRF)*, highlighted the various policy measures in place in Sweden, including national prohibitions on nematodes and post-harvest fungicide use on fruit and potatoes; restrictions on certain pesticides; mandatory training in pesticide use; information campaigns; and flat-rate taxes on pesticides. Despite some success in lowering pesticide use, it has been difficult to lower soil quantities of pesticides over time. She noted that Sweden has found it difficult to estimate impacts on biodiversity and there has been little evidence of reduced biodiversity risk as a result of the measures implemented. With respect to residues in water, Ms Sundgren noted that four surveillance zones have been monitored since 2004, where pesticides in surface water, groundwater and sediments are measured. Chemical substances have persisted in all of the monitoring sites over the period.

Clarification questions on the presentation included whether there was information on impacts on biodiversity over time (such as via the bird farmland indicator) in Sweden (Ireland). Ms. Sundgren indicated this data is not collected but that it is believed that biodiversity trends are on the decline. Chile asked whether it has been possible to identify cumulative effects of pesticides. Ms Sundgren responded indicating that there is a report on pesticide accumulation in water but that further information is not available. Switzerland asked whether there were links between pesticides sales data and the risk indicators. Ms Sundgren noted that overall, there is insufficient knowledge about how sales volumes affect health and biodiversity. Israel, noting human health problems with pesticides being used by the public for gardening and cleaning purposes, asked whether this was also an issue in Sweden. Ms Sundgren responded that this was not a problem due to strict permit requirements to purchase pesticides for gardening purposes.

The Netherlands asked whether there are policies in place in Sweden to encourage a shift to less harmful pesticides and whether there has been any progress with precision/smart farming. Ms. Sundgren responded that all the pesticides currently allowed in Sweden are believed to be safe. Farmers are provided with a lot of advice and support on how to use pesticides so as to avoid any harmful impacts such as resistance. Swedish universities are working on precision farming techniques, though not all farmers are using them yet. Mexico questioned the targeting of pesticides, and asked whether there were any unintended impacts of regulations. Ms Sundgren indicated that efforts are underway in Sweden to broaden and target monitoring in order to assess these issues. Austria asked whether Sweden publishes data on the use of pesticides (active substances), and if so, whether the information is made publicly available. Ms. Sundgren responded that Sweden does publish information on the chemicals of concern (active substances), but does not indicate individual pesticide products by name and the information is not sufficiently detailed to determine who uses the substance for what. The latest report from 2012 will be updated this year.

The Danish policy mix to address the environmental impacts of fertilisers. *Bror Andreas Christensen, Special Advisor, Ministry of Environment and Food*, highlighted that Denmark is a small country with a very intensive agricultural sector. For many years, policies focused on water quality, largely due to concern about the quality of drinking water from groundwater as well as eutrophication of coastal waters. Biodiversity has more recently also become a consideration. He noted that nitrogen use in Denmark increased between 1960 and 1984, but has generally been declining since, and that since 1985 a number of plans and policies are in place to try to address nitrogen and phosphorous pollution. A major intervention has been the Rural Development Programme (RDP) which in Denmark primarily is focused on addressing pollution, though there are benefits to biodiversity. Regulations to

reduce nutrient emissions have become, on average, more expensive per kg avoided over time. In the future, there will be a general regulation on nutrient use along with targeted regulations by area. The latter regulation will compensate farmers for reductions in fertiliser use.

Q&A

Australia asked what type of consultation process was undertaken to determine the compensation relating to nutrient regulations. Mr. Christensen indicated that some compensation, for catch crops, has already been implemented. The consultation process was a long one, with a lot of negotiation, and often a sensitive political issue. With regard to the planned targeted site-specific regulations, Switzerland asked how farmers had reacted to being treated differently based on the characteristics of their catchments. Mr. Christensen indicated that the general standards were lowered a bit which allowed farmers to apply more fertilisers in some areas, but included compensation for farmers who were restricted to levels below the baseline. Sweden asked whether there had use of nitrogen fixing crops to replace fertilisers. Mr. Christensen responded that no nitrogen fixing crops are covered under the subsidy scheme on catch crops as they fix nitrogen in the soil rather than removing it. Farmers can use nitrogen fixing crops on a voluntary basis; currently only organic farmers are using these crops to substitute fertilisers as this is a generally more expensive measure than using fertilisers. Canada asked whether the compensation offered to farmers was time-bound. Mr. Christensen responded that this was a political question and also depended on the EU's funding scheme. He noted that at present there is no political agreement post-2020, although this may become a measure under the new Common Agricultural Policy.

Biodiversity impacts of fertilisers and policy responses in the United States. *Shawn Carter, National Climate Change and Wildlife Science Center, U.S.G.S.*, noted that nutrient restriction is generally undertaken via voluntary programmes administered under the United States Department of Agriculture (USDA). A key programme has been the Working Lands Programme, which provides incentives for environmental stewardship. He noted that, as in other countries, there has been little improvement in overall nutrient use over time. More targeted efforts however implemented in upstate New York and Iowa for example have shown promise. Mr. Carter concluded by highlighting the need for further research to clarify the links between fertiliser use and biodiversity impacts; more quantitative evaluation of the costs and benefits of nutrient management programmes; improved incentives and innovations in policy and precision agriculture; and a better understanding of co-benefits.

Q&A

The United Kingdom asked whether the U.S. government provides any support to farmers to allow them to adopt technologies for the precision application of nutrients. Mr. Carter indicated that this was not the case and highlighted that investment in training and technical guidance has not kept pace with expenditure on subsidies. The Netherlands asked about how data is gathered and reported in the U.S. Mr. Carter explained that in terms of nutrient application, some of the specific practices are tracked at the state level, and that the U.S. Environmental Protection Agency has a good database for these. He noted there is no national database for biodiversity impacts but that this would be useful. On precision

agriculture, no payments are made for the provision of precision agriculture technologies, but some support is provided to improve farmers' understanding of opportunities.

Discussion in Session 1

The United Kingdom pointed out that one issue that had not been raised in the presentations was the behavioural aspects and underlying motivations of producers and consumers. It was highlighted that in the context of encouraging tree planting on agricultural land in the U.K., financial incentives had not been effective until they had subsequently also been combined with information to farmers on how tree planting would also provide direct benefits in terms of agricultural productivity.

Following the presentation from Denmark, where it was noted that farmers have generally been supportive of policy initiatives, Israel noted that in their own experience, getting farmers on board was a lengthy process, requiring investment in education but that this also needed to be combined with regulation in order to effectuate change. The Netherlands pointed out that cultural factors and international trade were also important for farmers. In their experience, most farmers were averse to adopting new feed products with less phosphorous even though these had negligible downsides in terms of cost and efficacy. Moreover, countries which export a large portion of their agricultural production, world prices were a major decision factor.

European Union, DG AGR asked about whether farmers were motivated at all by the impacts their activities have at the global level, i.e., in terms of reaching international agreed targets, such as those under the Convention on Biological Diversity. Both Denmark and the U.S. indicated that these factors did not seem to be an important motivator for change, while local impacts on ecosystems were comparatively more tangible to farmers

Switzerland commented that, overall in the presentations, they did not see much information linking nutrient emissions with biodiversity impacts, implying a need for further research in this area. Switzerland suggested that this could be an area of research for the OECD. It was also noted that in Switzerland, no link was found between nutrient surpluses and income from agriculture. The United States asked whether either the OECD WPBWE or the JWPAE had done any work on pollinators².

On biodiversity monitoring, Israel indicated it has recently started monitoring biodiversity in a range of different habitats, with measurements taken every two years. It is expected that there will be sufficient data available for preliminary analysis in a few years. Mr. Romain Pirard highlighted that the FAO is currently trying to undertake broad assessments of benefits from biodiversity, though it is too early to discuss results. European Union, DG ENV highlighted that monitoring is recognised as a key issue within the EU and that they are currently developing a methodology for monitoring biodiversity in agricultural landscapes, with the aim to implement this in 2020. It was also noted that on the issue of pollinators, there has recently been rising awareness, particularly through the popular press. The EU is examining how to assess this more effectively in future. Switzerland noted that they found it

² See <http://www.oecd.org/chemicalsafety/testing/work-related-beespollinators.htm>

useful to complete a biodiversity assessment within a programme specifically focussed on agricultural land.

Session 2: Climate impacts of agricultural practices and policy responses

Land use, greenhouse gas emissions and co-benefits. *Professor John Porter, Copenhagen University, Denmark, and Montpellier University, France,* began by highlighting that energy, population and food interact within the agricultural sector to form a 'perfect storm'. These comprise a challenge on a scale that may not have been faced before, and contain complex interlinkages. Professor Porter noted that agriculture directly influences a large number of the SDGs (SDG 2, 3, 6, 7, 11, 12, 13 and 15 for instance) and that there may be no other sector more linked to the SDGs than agriculture. IPCC reports all generally suggest that climate change is likely to have a negative impact of food crops. There is a need to consider the total costs of climate change impacts, adaptation and mitigation in unison in order to more fully understand the tradeoffs between these considerations. He also discussed the use of identities to monitor GHG emissions from the agricultural sector, and the need for 'carbonomics' and a circular carbon economy.

Soil carbon management for climate change mitigation and sustainable development in Japan. *Masayasu Asai, Ministry of Agriculture, Forestry and Fisheries,* highlighted that Japan covers a wide range of climatic zones, indicating that a variety of measures are needed for climate change mitigation. About 40% of emissions are from rice cultivation, with another 40% also stemming from the livestock sector. Mitigation responses in Japan have included direct payments to farmers to encourage compost use, to change their fertiliser application process, and to prolong mid-season drainage (which reduces methane emissions while maintaining yields). The Japanese government has also supported actions through subsidies for compost production facilities. Mr. Asai also highlighted that Japan has monitored agricultural soils since 1979, including via large scale sampling and questionnaires regarding soil management practices. This has allowed the modelling of soil organic carbon and greenhouse gas emissions. The results show that increasing soil carbon can decrease CO₂ emissions, but increase CH₄ and N₂O emissions. It is therefore necessary to combine mitigation policies for CO₂, CH₄ and N₂O. This reflects findings in other Asian countries.

Q&A

United States asked whether there is data on the costs associated with the emissions reductions described. Mr. Asai indicated that while the information is not available, they are considered to be fairly low as the changes in management practices required are marginal. New Zealand asked whether the compensation for the extended drainage of the rice paddies was a compensation for loss in yields. The response was that it is not compensation for yield loss because it has little impact on yields.

Effectiveness of agricultural GHG mitigation policies in the Netherlands. *Elmar Theune, Ministry of Economic Affairs,* started by noting that the Netherlands is a small low-lying country. 50% of its area is used for agriculture and 12% is left for nature. Agriculture comprises 19% of Dutch exports – Netherlands is the second largest agricultural exporter in the world. With regard to mitigation responses, Ms Theune noted that emissions reductions

in agriculture are complex relative to the energy sector since most emissions arrive from biotic processes (CH₄ and N₂O). Emissions from agriculture in the Netherlands have decreased over the last 25 years, mainly due to reductions in N₂O emissions from manure. On encouraging mitigation, the Netherlands relies on voluntary agreements. They also allocate money towards innovation and research, and encourage innovation through tax-reductions and subsidies. In 2006, the greenhouse sector started producing electricity from Combined heat and power (CHP) (which now amounts to roughly 10% of gas demand and the production of 10% of the electricity at no extra CO₂ emissions). Emissions of N₂O have been declining quite rapidly, largely due to changes in how manure is applied to the land. CH₄ trended down until 2002, but has remained steady since. It has been difficult to reduce rumen CH₄. The Netherlands is currently working towards a new mitigation target in the agricultural sector. The 40% emission reduction pledged in Paris has been increased to a 49% reduction by the new government in October 2017; this may be increased to 55%, depending on other efforts within the EU.

Q&A

Ireland asked whether the Netherlands accounts for the cumulative impact of emissions relating to imported feed. Ms. Theune acknowledged indirect effects, but noted that accounting and therefore assessment of emissions is generally area based and indirect emissions are not accounted for by the government yet. However there has been increasing concern regarding non-local impacts raised by individual industries wanting to minimise their carbon footprint.

Agriculture's role in global GHG mitigation in meeting the below 2°C warming objective. *Ben Henderson, OECD Secretariat*, provided an overview of direct emissions from the agricultural sector across developed and developing countries and highlighted that all of the growth in agricultural GHG emissions is occurring in developing countries, where the mitigation policy challenges are most acute. These challenges relate to measurement reporting and verification (MRV) and the need to balance mitigation with food security and development priorities. Agricultural GHG emissions were also shown to vary substantially by source in different countries. For example, emissions from enteric fermentation are especially important in Australia, the EU and Brazil. Different policy responses will therefore be needed in different countries in order to mitigate emissions from the agricultural sector. He also highlighted potential mitigation priorities and policy responses for a selection of countries, including the example of fire management to lower emissions from savannah burning in Australia, which was understood to produce substantial co-benefits. Other country examples included Brazil, Indonesia and the U.S.A.

Discussion in Session 2

Ireland noted that agricultural mitigation of GHG emissions is a sensitive issue because of the links to food security, particularly in developing countries. Another challenge is the fragmented nature of emissions in agriculture. There are often many smallholdings in agriculture rather than few large companies as, for example, in energy. Policy makers must, therefore, weigh-up efforts against administrative burden. There are also likely to be challenges in monitoring and measuring of agricultural emissions.

Professor John Porter noted that forestry in Europe is sequestering very little carbon at present because it generally comprises older trees rather than those in their active growth

phase. Arguably, what we need to consider is reforestation in order to take up *more* carbon in Europe.

Jenny Calder (OECD Environment Directorate) asked whether the Netherlands could share their experience on the effectiveness of awareness-raising programmes aimed at reducing meat consumption. The Netherlands responded that these programmes have not been particularly effective so far. For many years meat consumption was increasing, but this increase has been slowing down in recent years. The number of people that do not eat meat on a daily basis is increasing, which is a promising sign. However the Netherlands thinks it will be hard to reduce consumption further.

The United Kingdom asked whether it would be worth thinking of a more positive approach. For example, could the UK look at more timber framing for housing? Are there other sectors of the economy that agriculture could feed into? For example, could agricultural products replace some of the materials in industrial processes? And could this, in turn, reduce emissions in other sectors?

Austria noted that around the world a lot of traditional agriculture with low use of energy and other inputs is now transforming into new farming modes, and that we need to consider how technology can make this a more positive transition.

On the framework describing planetary boundaries, Chile noted that many are linked with agriculture. Chile also questioned the role that food waste might play in reducing emissions in agriculture.

On the importance of measuring agricultural emissions, New Zealand cited a recent workshop they facilitated which was focused on agricultural inventories and emissions, and suggested that this sort of activity could be very valuable. Professor John Porter noted that the use of both top-down and bottom-up measurement approaches would increase robustness.

The issue of carbon leakage was also raised. Ben Henderson (OECD Secretariat) noted that uncertainty regarding carbon leakage tends to be largest when we think about things like carbon trading. With emissions intensities declining over time and global population set to peak this century, we may yet see absolute reductions in many agricultural emissions this century. Sweden emphasised the importance of being aware of leakage links, particularly given that the objectives of the workshop relate to policy coherence and that the broader impacts of policies must be considered.

Session 3: Misalignments, trade-offs and synergies across biodiversity, climate change and agriculture

Integrating trade-offs and synergies into land use decision-making. *Professor Ian Bateman, Land, Environment, Economics and Policy Institute, University of Exeter, U.K,* began by highlighting the need to take into account market values as well as non-market values in land use and agriculture. He noted the vast information resources in Europe, which allow researchers to look at the influence of many factors in determining land use. These

resources allow the development of models that perform well and are able to closely simulate actual patterns of land use. Changes in land use over time are likely to have substantial impacts on nitrogen and phosphorous use, GHG emissions from livestock and GHG emissions for land. These will have major impacts on the environment, which can be modelled as well. The University of Exeter is currently developing a tool to test policy questions using all of the ecosystem values amenable to robust measurement. This tool will eventually be available online and free of charge. They are also developing a routine to 'optimise' land use focussing on these different values.

Q&A

Denmark noted that the EU is currently working towards reforming the CAP, and remarked that this sort of tool would likely be extremely valuable in this process. Sweden asked whether it was possible to use the online tool to evaluate implications of different types of payments, and to have it available for taxpayers to explore. Professor Bateman replied that was one of the main objectives of the research. In response to The Netherlands' question regarding the parameters of the willingness to pay calculations relating to amenity value, Professor Bateman pointed out that the analysis looks at day trips in order to trace this. While other values clearly exist, they had included only those things that could robustly be quantified have been included.

Agricultural productivity, climate mitigation, biodiversity and the example of agro-ecology in France. *Aline Boy, French Ministry of Agriculture*, began by noting that in the past agricultural policy in France was segmented across a number of ministries. Recently a change to a cross-cutting, systemic 'whole farm' approach has been made. This necessitated policies that support the transition and encourage sustainable productive agricultural systems. Therefore, an overarching agro-ecological project combining economic, environmental and social performance at farm level as well as territorial level has been instituted. This has been given legal basis by the very first article of the new Law for the Future of Agriculture, Agrifood and Forest. In general, this mandates the consideration of environmental performance in new developments and regulation. The Ministry of Agriculture developed the main actions with stakeholders as well as 10 thematic action plans (such as the agro-forestry plan and the Ecopyto plans to reduce pesticide use, among others). This is a national project but it is also applied on a regional basis. Provisions under this include support to farmers to meet economic, environmental and social objectives. The agro-ecology project was based on research, innovation and training. Research organisations have been involved in expert training, and some themes are now being included in agricultural degrees. The project also addresses downstream consideration such as addressing food waste. Since 2014 an annual report has been published which includes a table of indicators based on observations of the impacts of policies, however it is too early to draw conclusive results from this yet.

Q&A

Denmark asked whether a farmer wanting to go into agro-forestry would be funded by EU Common Agricultural Policy (CAP) or through domestic budgets. The response was that agro-ecology plan is cross cutting so it must be accounted for in other policies. The United Kingdom asked whether food waste was assessed on the farm or further downstream. Much food is wasted in the UK because of the expectation of perfect produce. Aline Boy responded that the same issue occurs in France and therefore the government is trying to address

both on farm waste and waste further downstream. For instance they are working with supermarkets to make restrictions in terms of 'ugly' fruits more flexible. Ireland noted that the plan seemed very similar to global efforts to achieve climate smart agriculture. New Zealand noted that there is much discussion at the FAO about agro-ecology, however given that definitions of this term vary between groups, asked what the French perspective is on the broader definition of agro-ecology. Ms. Boy responded that agro-ecological systems are based on full circle cycles; that they are looking at the triple gain: economic, social and environmental; and that the intent was to retain a broad definition to encourage broader partnership.

Synergies and policy misalignments in Mexico relating to agriculture, climate and biodiversity. *Miguel Narvaez, Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food*, highlighted that Mexico is a very large country, much of which is arid, and only 13% of land is used for agriculture. It is also one of the most biodiverse countries in the world. Agriculture contributes 12% of emissions. It is also the main user of water (75%), of which 50% is lost via waste. The Ministry for Environment and Natural Resources is in charge of environmental issues. The Ministry of Agriculture recently amended the agrarian law to include climate change considerations. Mexico has one of the largest examples of Payments for Ecosystem Services programme with environmental and biodiversity objectives in the world. The majority of Mexican farmers are smallholders, but there are some much larger operations. Agri-environmental policies engage both scales of farming. Among different programs regarding agriculture, climate and biodiversity, the MasAgro program was explained. A key consideration is that at all levels these policies need to make economic sense to the farmers.

Q&A

European Union, DG AGR asked what prompted the change in Mexico's agrarian law, and how the efforts compare to those highlighted in the presentation by France. Miguel Narvaez responded that the most important change is that the collaboration between Ministries is working well. He indicated this may have been fostered by the momentum on environmental issues as a result of UNFCCC COP16 and CBD COP13 for biodiversity which were hosted by Mexico.

Policy induced synergies and trade-offs between agricultural productivity, climate mitigation and adaptation, water quality and biodiversity. *Jussi Lankoski, Agricultural Policy Analyst, OECD Trade and Agriculture Directorate*, presented a modelling approach which examined whether agricultural and agri-environmental policies are able to effectively address all policy objectives, or whether they entail trade-offs. The results show that all policy instruments create some trade-offs across policy objectives, but their performance differs greatly in this respect. A payment for green set-aside, a nitrogen fertiliser tax, and a carbon tax for soil emissions provide the fewest trade-offs (they only fail in terms of adaptation) while a decoupled crop area payment appears to provide more trade-offs than other instruments.

Q&A

Ireland commented that the modelling of synergies and trade-offs seemed to be just crop based, and did not include livestock. Mr. Lankoski responded that the OECD is currently working to include livestock in the model.

Policy coherence framework for climate, land use, ecosystems and food. *Jane Ellis, Senior Climate Change Analyst, OECD Environment Directorate,* highlighted the interlinkages (both synergies and trade-offs) between the Sustainable Development Goals, the Paris agreement and the Aichi Targets under the Convention on Biological Diversity. She outlined some of the policy misalignments that have been identified in the literature as well as the 8 building blocks for a coherent national strategy for sustainable development, and discussed how this would be applied to the on-going OECD analysis on land use, climate mitigation, ecosystems and food.

Closing session: Reflections from the WPBWE Chair and JWPAE Bureau

Laure Ledoux, European Commission, and Chair of the WPBWE, provided reflections on the workshop and highlighted relevant work underway in the European Commission. She highlighted that the links between biodiversity and agriculture in the EU have been stressed in two recent policy evaluations: namely the mid-term review of the EU biodiversity strategy to 2020 and the fitness check of the EU Nature Legislation (Birds and Habitats Directives). In both cases, the conclusions clearly point to the importance of better integrating biodiversity in agriculture. All indicators show that agro-ecosystems are worse-off in terms of conservation status.

She highlighted that 30% of the current Common Agricultural Policy (CAP) is earmarked for environment and climate objectives, and that there is a tracking mechanism for biodiversity and climate objectives in the EU budget, which show that 80% of all biodiversity funding comes from the CAP. In this context it is important to know whether this funding is effective. Several of the CAP measures contribute to both climate and biodiversity objectives, but are they always implemented in a way that maximises synergies?

The discussion on the post-2020 CAP has started, with a stakeholder consultation launched early this year, attracting many responses from a range of stakeholders (322,000 submissions). A large majority said that an important objective for the next CAP was to encourage farmers to play their part in tackling climate change and protecting the environment, protecting biodiversity, reducing soil degradation, and ensuring a more sustainable use of pesticides and fertilisers. These outputs will feed into the reflection on the next steps, including the proposals for the next Multiannual financial framework (MFF) in May 2018. Some elements of reflection were also put forward in the Commission's reflection paper on the future of EU finances, which recognised the current contribution of the CAP, but also that there is "room to further improve the performance of EU agriculture policy by putting more emphasis on incentivising farmers to deliver environment and climate public goods and services and that this would require more targeted and regionally adapted support measures.

Ms. Ledoux highlighted that these issues link closely with some of the presentations and discussions at the workshop. She indicated that we already have much information and that the existing evidence should feed into the discussions for the next CAP, and in similar processes in other OECD countries. Nevertheless, she noted that further work is clearly needed, and the OECD has real added value in examining these issues. Insights from the OECD workshop already identified some interesting issues for further work, including the need for better monitoring mechanisms to assess the effectiveness of policies; the need to

develop better synergies and policy coherence amongst agriculture, biodiversity and climate, and the central role of the N cycle in these issues.

Jasper Dalhuisen, *Department of European Agriculture and Fisheries, Netherlands, and JWPAE Bureau Member*, provided the following reflections for a triple layer approach. The first layer is based on the need for actual, up-to-date and reliable biodiversity data to monitor and measure progress on how policy instruments have an effect and benefit biodiversity and the environmental system. He highlighted that this should also entail considering what the data would be used for (e.g. for monitoring and indicator development or to inform policy-making) and the spatial requirements i.e. local, national vs. global.

The second layer would entail focusing on the scientific challenges, such as how to best combine ecological, environmental and economic knowledge. More and better information is needed on which policy measures and instruments really work, and which have effect at the lowest cost. Finally, the third layer is that of the role of policy-makers, who need to bring together the first two layers while also thinking about the processes and institutional factors that may hamper the translation of data into effective policy-making. He highlighted that the OECD is well-placed to assist in this task, and should blend constructive dialogue between policy experts from a range of countries with expert insight from a range of academic disciplines.

Katia Karousakis, OECD Environment Directorate, closed the workshop by thanking all the speakers and the participants from the WPBWE and the JWPAE as well as the support team, and noted that the presentations and discussion throughout the day provided insights that would be used to feed into the two on-going OECD WPBWE projects.