

# OECD WORK ON ENVIRONMENT



2017-18



# OECD WORK ON ENVIRONMENT

2	The Organisation for Economic Co-operation and Development
3	Preface by Angel Gurría, OECD Secretary-General
4	Peer Reviews, Indicators and Outlooks
8	Climate Change
12	Biodiversity and Ecosystems
15	Water
18	Nitrogen Management
20	Environmental Policies and Economic Outcomes
23	Environmental Policy Tools and Evaluation
26	Resource Productivity and Waste
28	Sectoral Policies: Transport, Agriculture
30	Safety of Chemicals, Pesticides, Biotechnology and Nanomaterials
33	Environment in the Global Economy
36	Green Growth
42	The Committee Structures
43	EPOC Organigramme
44	The Environment Directorate
46	Selected publications and databases

# The Organisation for Economic Co-operation and Development

## Member countries

Australia	Korea
Austria	Latvia
Belgium	Luxembourg
Canada	Mexico
Chile	Netherlands
Czech Republic	New Zealand
Denmark	Norway
Estonia	Poland
Finland	Portugal
France	Slovak Republic
Germany	Slovenia
Greece	Spain
Hungary	Sweden
Iceland	Switzerland
Ireland	Turkey
Israel	United Kingdom
Italy	United States
Japan	

The OECD, which traces its roots to the Marshall Plan, groups 35 member countries committed to democratic government and the market economy. It provides a forum where governments can compare and exchange policy experiences, identify good practices and adopt decisions and recommendations. Dialogue, consensus, and peer review and pressure are at the very heart of the OECD.

OECD accession discussions are currently under way with Colombia, Costa Rica and Lithuania. Co-operation will continue with Key Partner countries, such as Brazil, China, India, Indonesia and South Africa.

The OECD is working for a stronger, cleaner and fairer world economy. The principal aim of the Organisation is to promote policies for sustainable economic growth and employment, a rising standard of living, and trade liberalisation. By “sustainable economic growth” the OECD means growth that balances economic, social and environmental considerations.

The OECD is one of the world’s largest and most reliable sources of comparable statistical, economic and social data. It monitors trends, collects data, analyses and forecasts economic development, and investigates evolving patterns in a broad range of public policy areas such as agriculture, development co-operation, education, employment, taxation and trade, science, technology, industry and innovation in addition to environment. The OECD family of organisations also includes the International Energy Agency (IEA), the Nuclear Energy Agency (NEA), and the International Transport Forum (ITF).

# Preface



“ Boosting economic growth does not mean locking the world into a high emissions and unsustainable future, we must ensure that fiscal and structural policy reforms are compatible with climate and environmental policies.”

Angel Gurría, OECD Secretary-General

**A**lmost two years after the Paris Agreement, our behaviour continues to threaten our natural environment and future prosperity. Carbon emissions continue to rise, fossil fuels continue to dominate the energy mix, and the demands of growth continue to exert unsustainable pressure on natural resources. We are also seeing an acceleration of acute ecosystem degradation, increased intensity of water stress, and continued growth in the health impacts of air and water pollution. Adding to these demands, governments find themselves in the face of immediate, competing, socio-economic challenges with rising inequalities and lacklustre productivity growth.

Whilst the scale of the task before governments is great, these challenges are not insurmountable. This OECD Work on Environment brochure details how our Organisation is helping governments face up to cross-cutting, systemic challenges with a more holistic approach that is increasingly joining the dots between environment, growth and equity.

In the spirit, the OECD report presented to the German G20 presidency in 2017, *Investing in Climate, Investing in Growth*, underlines how fiscal and structural reforms combined with coherent climate policy can generate growth that significantly reduces climate risks, whilst providing employment and health benefits. In a similar vein, our work on the circular economy and on biodiversity aims to promote policies that are environmentally effective, economically efficient and distributionally equitable.

In other areas too—from sustainable transport infrastructure to managing human impacts on the nitrogen cycle and addressing water risks—a more holistic approach to protecting the environment and promoting growth and equity are essential to lasting improvements in well-being across the population.

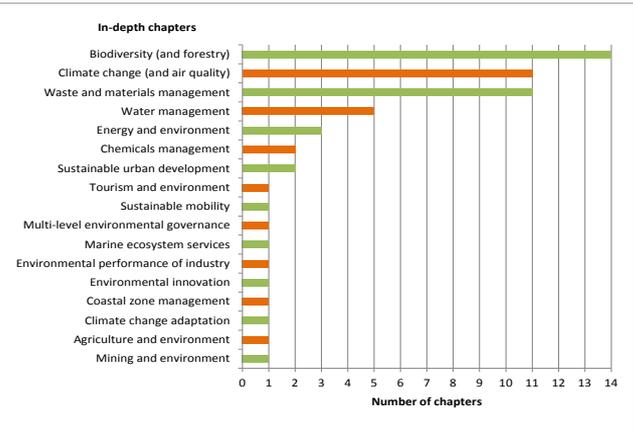
# Peer Reviews, Indicators and Outlooks

## Monitoring and analysing key environmental challenges, now and in the future

### Environmental Performance Reviews

- ▶ Environmental Performance Reviews (EPRs) provide an independent assessment and targeted recommendations aimed at improving policies that impact the environment. Most OECD countries have now been reviewed three times. OECD partner countries, such as Brazil and Colombia, have recently been reviewed for the first time.
- ▶ Each EPR is organised in two parts. The first part, common to all reviews, presents key environmental trends, the framework for environmental governance and management, and progress towards green growth: it presents the country's efforts to mainstream environment into its economic policy and to promote the greening of the economy, for example through the use of taxes and other pricing instruments. The second part provides an in-depth analysis of two topics selected by the reviewed country.
- ▶ The Working Party for Environmental Performance, made up of representatives of all 35 OECD governments and the European Commission, endorses the assessment and recommendations section of the EPRs, a central element of the peer review process.

### Topics for in-depth analysis in EPRs



### Key publications

- OECD Environmental Performance Reviews: Canada, Estonia, Korea, New Zealand, Switzerland (2017); Czech Republic, Hungary (2018)  
[www.oecd.org/environment/country-reviews](http://www.oecd.org/environment/country-reviews)

### Environmental information, data and indicators

- ▶ The OECD provides harmonised international data and indicators on the environment, and works with countries to improve their environmental information systems and establish effective mechanisms to inform the public and decision-makers.

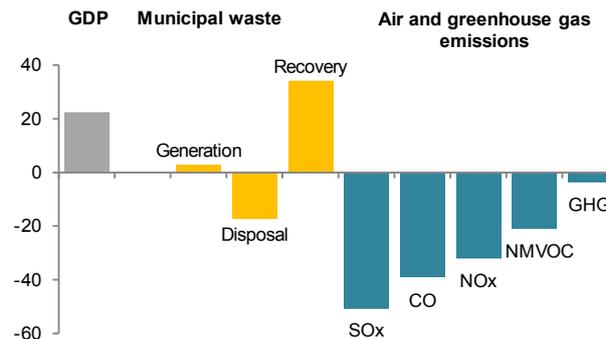


## DID YOU KNOW?

By 2020 most OECD countries will have undergone an environmental performance review three times, with key partner countries such as Brazil, China, Colombia, Peru, Russia and South Africa also the subject of review.

- ▶ The data, collected from countries and international sources, are treated, harmonised and checked. The resulting indicators are used in country reviews and policy analysis.
- ▶ The OECD monitors environmental progress and performance, policy integration, resource productivity and progress towards green growth. A subset of key environmental indicators was endorsed by OECD Environment Ministers.
- ▶ Much effort is devoted to improving the data quality and the methodologies used. Work is underway on material productivity, land cover change, protected areas and population exposure to air pollution.
- ▶ To better inform on the interactions between the economy and the environment, the OECD supports the implementation of the System of Environmental Economic Accounting (SEEA). Work is underway jointly with the OECD Statistics Directorate to develop accounts on air and greenhouse gas emissions, natural assets and material flows, and to improve data on environmental expenditure and taxes.

## Environmental trends and GDP growth, OECD, % change 2000-14



Source: OECD Environment Statistics (database)



### Key Publications

- Green Growth Indicators (2017)
- Measuring the transformation of the economy: green growth indicators in Eastern Europe, the Caucasus and Central Asia—Policy Perspectives (2016)
- Environment at a Glance (2015)

Environmental Indicators Country Profiles: [www.oecd.org/site/envind](http://www.oecd.org/site/envind)  
[www.oecd.org/greengrowth/greengrowthindicators.htm](http://www.oecd.org/greengrowth/greengrowthindicators.htm)

## Environmental outlooks

- ▶ Based on economic-environmental modelling, the OECD Environmental Outlook to 2050 analyses the consequences of policy inaction in four priority areas: climate change, biodiversity, water, and health impacts of pollution and chemicals. It provides analyses of economic and environmental trends to 2050, and simulations of policy actions to address the key challenges.



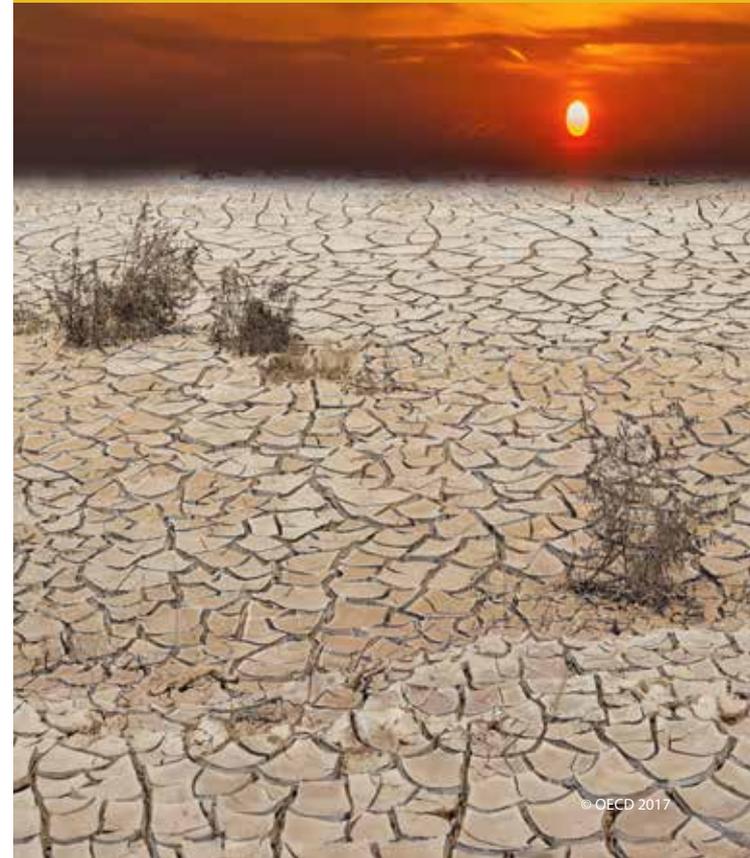
### Key Publications

- OECD Environmental Outlook to 2050: Consequences of Inaction (2012)  
[www.oecd.org/environment/indicators-modelling-outlooks](http://www.oecd.org/environment/indicators-modelling-outlooks)
- OECD Environmental Outlook to 2030 (2008)  
[www.oecd.org/environment/modelling](http://www.oecd.org/environment/modelling)



### DID YOU KNOW?

By 2050, every year, six to nine million people will die prematurely from outdoor air pollution unless better policies are introduced.



## The CIRCLE project

- ▶ The “Cost of Inaction and Resource Scarcity: Consequences for Long-term Economic Growth” (CIRCLE) project identifies how feedbacks from poor environmental quality, climatic change and natural resource scarcity may affect economic growth in the coming decades. CIRCLE has generated quantitative projections for economic growth which reflect the costs of policy inaction on climate change, outdoor air pollution and other environmental issues. These reference projections improve OECD projections of “baseline” economic growth, as well as assessments of the economics of environmental policies. They highlight the economic rationale for stringent climate and pollution policies.
- ▶ The quantitative analyses of the economic feedbacks of climate change and air pollution, as well as the assessment of the nexus between land, water and energy have been completed. The core tool to be used in the analysis is the OECD’s dynamic global multi-sector, multi-region model ENV-Linkages, which is coupled to biophysical models for an integrated assessment. Using a systems approach allows focusing on interactions between the various economic agents. The modelling work has been complemented with a study on critical materials in the OECD until 2030 and scoping analyses of the possibilities to quantitatively assess water-economy linkages and the economic feedbacks of loss of biodiversity and ecosystem services.

- ▶ Results for the climate change analysis highlights emerging negative consequences of climate change by the middle of the century, plus significant downside risks, especially in vulnerable regions in Asia and Africa. Results for the outdoor air pollution analysis reveals a significant increase in the projected number of premature deaths, not least in China and India, and very high associated welfare costs.



### Key Publications

- The Land-Water-Energy Nexus: Biophysical and Economic Consequences (2017)
- Economic Consequences of Outdoor Air Pollution (2016)
- Economic Consequences of Climate Change Damage (2015)

[www.oecd.org/environment/circle.htm](http://www.oecd.org/environment/circle.htm)



Costs of  
Inaction and  
Resource scarcity:  
Consequences for  
Long-term  
Economic growth

# Climate Change

## Responding to complexity with analysis of least-cost policies

### Economics of climate change mitigation

- ▶ The OECD is assessing the economic costs and environmental benefits of climate policies and long-term climate stabilisation scenarios. Analysis focuses on least-cost policy mixes to reduce emissions, the benefits of linking carbon markets, phasing out fossil fuel subsidies, ensuring sufficient financing and how to address concerns about carbon leakage and competitiveness impacts of climate policies. The Environmental Outlook to 2050 makes projections of climate change, as well as environmental and economic impacts of climate policies. Equity considerations have gained prominence in the face of current economic and financial challenges. As a first step in this field, innovative modelling work examines the distributional consequences of phasing-out fossil fuels subsidies in Indonesia.
- ▶ The OECD, together with the IEA, provides the Secretariat to support the Climate Change Expert Group (CCXG), a forum where climate negotiators can discuss key issues on the negotiating agenda. Recent work has focussed on elements of the Paris Agreement, including transparency of mitigation, transparency of finance, communicating progress on adaptation, climate finance tracking and effectiveness, accounting for mitigation contributions

(including land sector accounting), market mechanisms, and national emissions baselines. The CCXG's work is tailored to specific items under discussion in the UNFCCC negotiations. For the first half of 2017, the CCXG will focus on the 2018 facilitative dialogue, mitigation contributions and adaptation.

- ▶ The OECD helps countries identify and implement effective and efficient policy mixes to meet their climate commitments through analyses of the broad policy mix (economic instruments, regulations, incentives for technological innovation) as well as advice on how to best implement policy reforms.

### Key Publications

- Enhancing transparency of climate finance and climate change mitigation under the Paris Agreement: lessons from experience (2016)
- OECD Environmental Outlook to 2050: The Consequences of Inaction (2012)  
[www.oecd.org/environment/cc](http://www.oecd.org/environment/cc)  
[www.oecd.org/environment/action-on-climate-change](http://www.oecd.org/environment/action-on-climate-change)  
[www.oecd.org/environment/cc/ccxg.htm](http://www.oecd.org/environment/cc/ccxg.htm)

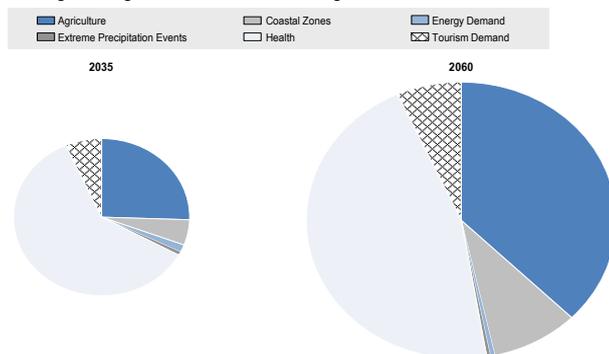


## Adaptation to climate change

- ▶ Efforts to reduce GHG emissions need to be complemented with policies and incentives to adapt to the effects of a changing climate. The OECD is working to support governments in planning and implementing effective, efficient and equitable adaptation policies.

### Attribution of damage to selected climate change impacts

Percentage change in GDP w.r.t. no-damage baseline



Source: ENV-Linkages model.

- ▶ The OECD is examining how economic analysis can inform adaptation responses. The majority of OECD countries have developed national strategies to prepare for climate change. Analysis of progress to date has emphasised the need to improve decision makers' ability to understand and use climate data to make decisions that are robust in the context of uncertainty about the future.

- ▶ The OECD is focusing on how governments might best support the development of climate-resilient infrastructure networks, through improved provision of information, alignment of policy frameworks and the development of standards. The OECD is also looking at the role of insurance, and other financial protection mechanisms, in supporting the management of climate risks. The OECD supports countries and development co-operation agencies to manage adaptation as part of development activities. The report on National Climate Change Adaptation: Emerging Practices in Monitoring and Evaluation (2015) identifies four key tools that can be used to enhance learning and assess countries' progress in adapting to climate change. That on Climate Resilience in Development Planning: Experiences in Colombia and Ethiopia (2014) shows how countries are taking concrete steps to build resilience to climate change. Two country case studies, Ethiopia and Colombia, are explored in detail.



#### Key Publications

- Climate Change Adaptation and Financial Protection: Synthesis from Colombia and Senegal (2017)
- Economics of Adaptation: Moving from Theory to Practice (2015)
- Climate Change Adaptation: Emerging Practices in Monitoring and Evaluation (2015)
- Climate Resilience in Development Planning: Lessons from Colombia and Ethiopia (2014)

[www.oecd.org/environment/cc/adaptation.htm](http://www.oecd.org/environment/cc/adaptation.htm)

## Financing action on climate change

- ▶ Public and private financing for climate action needs to be scaled up significantly in the coming years to ensure that the goal of holding global warming below two degrees (2°C) is achieved. Successfully tackling climate change also requires urgent action to scale-up and shift existing public and private investments towards low-carbon and climate-resilient (LCR) infrastructure. Choices made today on the types and location of critical infrastructure will lock in future emission levels and the resilience of our economies to a changing climate.
- ▶ A broad range of policy interventions is needed. Given the current strains on public finance, mobilising investment in LCR infrastructure will require leveraging both domestic and international private investment, including institutional investors, who currently only allocate a small percentage of their assets to infrastructure.
- ▶ The OECD's Policy Guidance for Investment in Clean Energy Infrastructure is a non-prescriptive tool to help policy makers identify ways to mobilise private investment in clean energy infrastructure. In partnership with interested countries, the Policy Guidance is now being applied to specific country contexts in Clean Energy Investment Policy Reviews currently being launched.
- ▶ The OECD report on Enabling Investment and Innovation in Renewable Energy (2017) assesses empirically which investment conditions and climate policies are most critical



### DID YOU KNOW?

The green bond market is still young – it got started only ten years ago – but has experienced rapid growth. With growing market appetite for such bonds, annual issuance rose from just USD 3 billion in 2011 to USD 95 billion in 2016.

in mobilising investment and innovation in renewable electricity in G20 and OECD countries. In addition, the report on Competition, State-owned Enterprises and Investment in the Low-carbon Transition (2017) examines the influence of competition policy and state-owned enterprises on investment in renewable electricity conditions to scale-up private investment in LCR infrastructure.

- ▶ The OECD also works on innovative financing tools and institutions such as green bonds and green investment banks. Green bonds are debt instruments used to finance green projects that deliver environmental benefits. They have the potential to provide low cost, long-term sources of debt capital needed by infrastructure projects. Green investment banks are publicly capitalised banks created to leverage private investment in domestic low-carbon infrastructure.
- ▶ The OECD established the Centre on Green Finance and Investment which will help catalyse and support the transition to a green, low-emissions and climate-resilient

economy through the development of effective policies, institutions and instruments for green finance and investments (2015).

[www.oecd.org/cgfi](http://www.oecd.org/cgfi)

### Fossil-fuel support measures

- ▶ The OECD has identified and inventoried almost 800 individual policies that support the production or consumption of fossil fuels in OECD countries and six large partner economies (Brazil, China, India, Indonesia, Russia, and South Africa). The overall value of these support measures was USD 160-200 annually over the period 2010-14. In addition, the IEA estimates the value of fossil-fuel consumption subsidies in developing and emerging economies to be USD 548 billion (IEA, 2014).

[www.oecd.org/site/tadffs](http://www.oecd.org/site/tadffs)

#### Key Publications

- Mobilising the Bond Markets for a Low-Carbon Transition (2017)
- Enabling Investment and Innovation in Renewable Energy (2017)
- Competition, State-owned Enterprises and Investment in the Low-Carbon Transition (2017)
- Green Investment Banks: Scaling-up Private Investment in the Low-Carbon Transition (2016)
- Progress Report on Approaches to Mobilise Institutional Investment for Green Finance (2016)
- Aligning Policies for the Transition to a Low-Carbon Economy (2015)

[www.oecd.org/environment/cc/financing.htm](http://www.oecd.org/environment/cc/financing.htm)

[www.oecd.org/investment/green.htm](http://www.oecd.org/investment/green.htm)

### Growth, Investment and the Low-Carbon Transition

- ▶ The OECD is undertaking a major project on the economic growth and investment implications of the transition to a low-carbon, climate resilient economy in the context of the German G20 Presidency.
- ▶ Delivering on the objectives of the 2015 Paris Agreement requires fundamental shifts in our economies, including major changes in how capital is allocated. The project “Growth, Investment and the Low-Carbon Transition” analyses how low-emission and climate-resilient development can be achieved without compromising economic growth, competitiveness, or well-being across the G20 group of countries and beyond.
- ▶ The project is guided by an Advisory Council of 14 high-profile academic, government, business and civil society members and benefits from the input of a number of partner organisations to ensure its relevance to all members of the G20.
- ▶ The report Investing in Climate, Investing in Growth (2017) was delivered in conjunction with the Petersberg Climate Dialogue on 23 May 2017 in Berlin. The results of the analysis were fed into the G20 process during the German G20 presidency.

#### Key Publications

- Investing in Climate, Investing in Growth (2017)

[www.oecd.org/environment/g20-climate.htm](http://www.oecd.org/environment/g20-climate.htm)

# Biodiversity and ecosystems

## Promoting conservation and sustainable use of biodiversity and ecosystems

### Economics of biodiversity

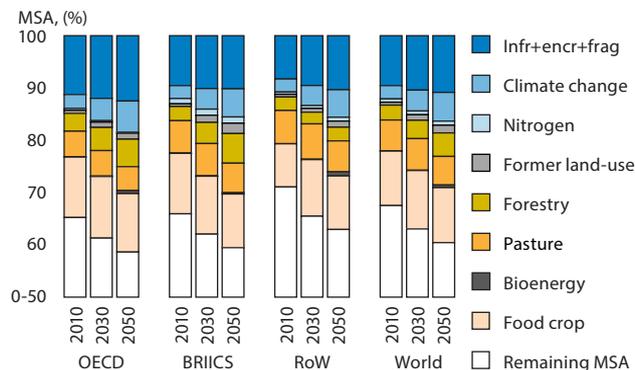
- ▶ OECD analysis focuses on the economic aspects of biodiversity – enhancing understanding of how biodiversity and ecosystems can be valued, and how these values can be captured through policy instruments and incentives to support biodiversity conservation and sustainable use. The objective is to promote policies that are environmentally effective, economically efficient and distributionally equitable. OECD work on biodiversity also supports the work of the UN Convention on Biological Diversity.
- ▶ Given recent and projected trends in biodiversity loss and degradation, there is an urgent need for: greater and more ambitious use of policies including economic instruments, more cost-effective use of existing finance for biodiversity, and mainstreaming of biodiversity in other sectors of the economy.

### Scaling up biodiversity instruments

- ▶ Recent OECD work has focused on the effective design and implementation of biodiversity offsets, as well as on the effective design and implementation of marine protected areas. Earlier work has examined, inter alia,

how to scale up financing mechanisms for biodiversity, including how to better engage the private sector. It covers lessons learned from payments for ecosystem services (PES), environmental fiscal reform, and markets for green products, and provides good practice insights.

### Sources of loss in Mean Species Abundance (MSA) to 2050



Note: 100% MSA implies an undisturbed state.

Infr+encr+frag: Infrastructure + encroachment + fragmentation

RoW: rest of the world

Source: OECD Environmental Outlook to 2050; output from IMAGE

## Monitoring and evaluation

- ▶ A key challenge in efficiently allocating biodiversity finance is the need to ensure appropriate design and implementation of biodiversity instruments so as to best achieve their intended goals. This includes the need to develop appropriate indicators for biodiversity instruments, and ensuring robust monitoring and reporting frameworks. Indicators, for example, are critical to assess trends, establish business-as-usual baselines, quantify benefits, target biodiversity expenditures and enable the assessment of policy interventions over time. Recent work examined how to derive policy response indicators for biodiversity, for Aichi Target 3 on Incentives and for Aichi Target 20 on resource mobilisation from OECD work on environmental expenditure and policy instruments.
- ▶ The OECD tracks policy instruments for the environment in its PINE database, including policy instruments for biodiversity. These include biodiversity-relevant taxes, charges and fees; tradable permits; and others.

## Mainstreaming biodiversity into sectoral and development policies

- ▶ The drivers of biodiversity loss and degradation often stem from policies in other sectors and areas such as agriculture, fisheries, forestry, and climate change. Linkages between biodiversity and other sectoral policies are complex and greater efforts are needed to mainstream biodiversity into decision-making processes across the economy. Recent work

on The Political Economy of Effective Biodiversity Policy Reform examines the political economy of reform in areas such as agriculture and fisheries. Current OECD work is focusing on how to enhance synergies and address trade-offs between biodiversity and development policy, at national and sector level (e.g. agriculture, forestry, fisheries), and is also examining the role of development co-operation.

- ▶ The OECD also monitors external development finance targeting biodiversity objectives through its Creditor Reporting System using the biodiversity “Rio marker”. In 2014-15, total bilateral biodiversity-related aid commitments by the OECD Development Assistance Committee (DAC) members allocated about USD 8.7 billion on average per year, representing 6% of total bilateral official development assistance (ODA).



### Key Publications

- Marine Protected Areas: Economics, Management and Effective Policy Mixes (2017)
- Mainstreaming Biodiversity into Development (2017)

### DID YOU KNOW?

Terrestrial biodiversity is projected to decline by a further 10% by 2050 without more ambitious policies to protect it.

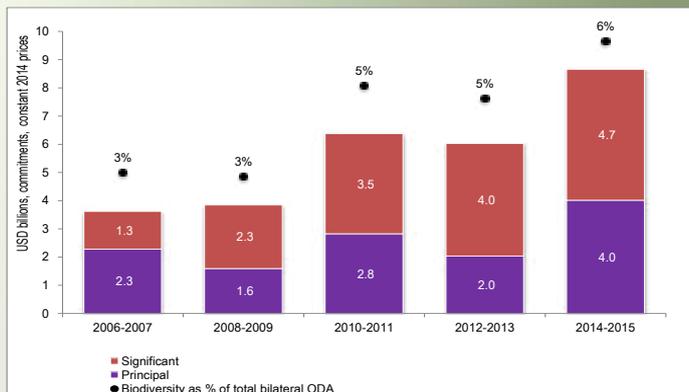


## Key Publications (cont'd)

- The Political Economy of Effective Biodiversity Policy Reform (2017)
- Marine Protected Areas: Economics, Management and Effective Policy Mixes (2017)
- Biodiversity and Development: Mainstreaming and Managing for Results (2017)
- Biodiversity Offsets: Effective Design and Implementation (2016)
- Biodiversity Policy Response Indicators (2015)
- The Role of National Ecosystem Assessments in Influencing Policy Making (2014)
- Scaling up Finance Mechanisms for Biodiversity (2013)
- OECD Environmental Outlook to 2050: The Consequences of Inaction (2012)

[www.oecd.org/environment/resources/biodiversity](http://www.oecd.org/environment/resources/biodiversity)

## Bilateral Biodiversity-related official development assistance (ODA) 2006-2015



Source: OECD DAC Creditor Reporting System Statistics, November 2016, <http://oe.cd/RioMarkers>

# Water

## Achieving water security

### OECD Horizontal Programme on Water

- ▶ This programme is undertaken by the Environment Policy Committee (EPOC) in partnership with the Agriculture, Regional Development Policy, Regulatory Policy and Development Assistance Committees.
- ▶ In December 2016, the OECD Council, OECD's governing body, adopted a new Council Recommendation on Water. The Recommendation captures the key OECD policy guidance on water management. It covers water quantity, water quality, water risks and disasters, governance and financing. It was developed through a 2-year consultation process with delegates from member countries and stakeholder groups. Accession and non-member countries are welcome to adhere to the Recommendation on Water. Work continues to facilitate implementation in adherent countries.

### The economics and governance of water

- ▶ The Global Dialogue on Water Security and Sustainable Growth, a joint initiative by the OECD and the Global Water Partnership, emphasises the importance of water security for growth. The 2015 OECD-GWP report *Securing Water*,

Sustaining Growth demonstrates how investment in water security drives growth. The Sustainable Development Goals recognise the critical contribution of water to sustainable development. However, investment in water security falls short of global needs and the impacts on communities, economies and the environment are still significant. The OECD Policy Perspectives on Water, Growth and Finance explains this does not result from a shortage of finance, but from inadequate risk-returns in the water sector.

- ▶ Together with the World Water Council and the Netherlands, the OECD has established a Roundtable on Financing Water to facilitate an ongoing dialogue between the water and finance communities (broadly interpreted) on how to overcome the global challenges of financing investments that contribute to water security and sustainable growth. Specifically, the Roundtable will: i) seek to diagnose the barriers and opportunities in securing finance for water infrastructure investments; ii) deepen understanding of the priority and context-dependence of addressing water security as a critical component of the SDGs; iii) build understanding of the necessary policies and enabling conditions needed to effectively address these challenges; and iv) develop practical recommendations for action.

- ▶ Dedicated OECD work continues on two particular water-related risks:
  - Water resources allocation and the implementation of abstraction charges as cogent responses to risks of water scarcity. The report *Water Resource Allocation: Sharing Risks and Opportunities (2015)* provides guidance on the design and the reform of water allocation regimes. It proposes a “Health Check” to assess the robustness of existing regimes. A follow-up report will examine the specific issues facing groundwater allocation. The Health Check is being adjusted to reflect the specificities of groundwater allocation.
  - After decades of regulation and large investments to reduce point source water pollution, water quality challenges endure in OECD countries due to under-regulated diffuse sources of pollution (agricultural and urban). The report *Diffuse Pollution, Degraded Waters: Emerging Policy Solutions (2017)* examines the water quality challenges, trends, drivers and impacts facing OECD countries. It proposes a policy framework to tackle diffuse water pollution and presents innovative case studies of diffuse pollution control. Future OECD work on water quality will examine how governments can mitigate risks related to contaminants of emerging concern, building on on-going scientific developments
- ▶ The OECD Water Governance Initiative was set up as an international multi-stakeholder network where delegates

from public, private and not-for-profit sectors share good practices in support of governance in the water sector. It has led to the development of the OECD Principles on Water Governance, which have been incorporated in the OECD Council Recommendation on Water. The governance of water regulators is also a major focus of OECD work.

### National policy dialogues on water

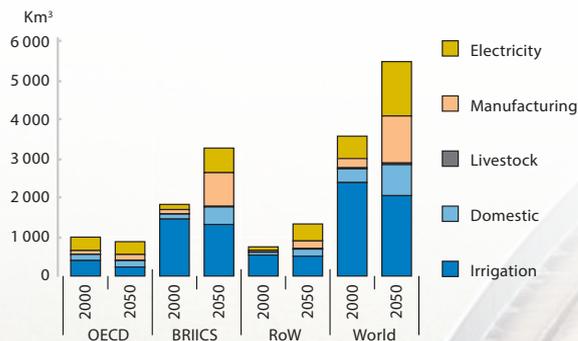
- ▶ The OECD supports ambitious water policy reforms in selected countries, on demand. These combine robust analyses of water economics and governance with insights from international practitioners, in the framework of national policy dialogues on water.
- ▶ Water Policy Dialogues have so far been undertaken in Mexico, the Netherlands, Brazil and Korea. They have helped to inform the water policy agenda.

#### DID YOU KNOW?

In France, at current pace, a full replacement of existing networks would take 160 years for water supply networks and 140 years for waste water collection and treatment.

- ▶ The OECD continues to provide support to the transition economies of Eastern Europe, the Caucasus and Central Asia (EECCA) to improve their environmental and water policies, integrate environmental considerations into the processes of economic, social and political reform and gradually shift to a green growth and sustainable development model. As a key implementing partner of the European Union Water Initiative (EUWI), OECD work on policy reforms in the region are aimed at the economic and financial dimensions of sustainable water resources management, the reform of water supply and sanitation systems, and enhanced transboundary cooperation in water basins.

## Global water demand



RoW: rest of the world.

This graph only measures blue water demand and does not consider rainfed agriculture.

Source: Environmental Outlook Baseline; output from IMAGE.

© OECD 2017

## Key Publications

- Diffuse Pollution, Degraded Waters: Emerging Policy Solutions (2017)
- Allocation of Groundwater (2017)
- Towards a National Strategy on Sustainable Sanitation in Armenia (2017)
- Domestic Support Mechanisms for Water Supply and Sanitation in Moldova (2017)
- OECD Council Recommendation on Water (2016)
- Policy Perspectives on Water, Growth and Finance (2016)
- Financial Management of Flood risk (2016)
- Water Governance in Cities (2016)
- Improving Economic Instruments for Water Resources Management in the Republic of Buryatia (Lake Baikal Basin) (2016)
- Reforming Economic Instruments for Water Resources Management in Kyrgyzstan (2016)
- Sustainable Business Models for Water Supply and Sanitation in Small Towns and Rural Settlements in Kazakhstan (2016)
- OECD Principles on Water Governance (2015)
- Water Security for Better Lives (2013)
- Environmental Outlook to 2050: The Consequences of Inaction (Water chapter) (2012)

[www.oecd.org/water](http://www.oecd.org/water)

[www.oecd.org/environment/outreach/partnership-eu-water-initiative-euwi.htm](http://www.oecd.org/environment/outreach/partnership-eu-water-initiative-euwi.htm)

# Nitrogen Management

## Developing a framework for nitrogen management policies

### Addressing human impacts on the nitrogen cycle

- ▶ In its unreactive form, nitrogen is abundant, making up nearly 80% of the earth's atmosphere. But all known forms of life need nitrogen in a reactive (fixed) form that is bonded to carbon, hydrogen, or oxygen, most often as organic nitrogen compounds (such as amino acids), ammonium, or nitrate. For example, reactive nitrogen is an essential input for plants to grow and thus to food production.
- ▶ Since the 1950s and as part of efforts to achieve food and energy security, reactive nitrogen production has greatly increased, causing unprecedented changes to the global nitrogen cycle. This is largely due to the increased production of nitrogen fertiliser, by far the largest human source of reactive nitrogen. During the twentieth century, mankind has also produced increasingly other forms of reactive nitrogen as a by-product of combusting fossil fuels and as a component of wastewater.
- ▶ The abundance of anthropogenic sources of nitrogen in terrestrial, aquatic and atmospheric ecosystems has adverse effects on public health and the environment. For example, ocean dead zones are rapidly increasing because of excess

nutrients (coupled with warming waters). There are more than 600 ocean dead zones in the world seas today (from scattered reporting up to 1970). And the outlook is grim, as river discharges of nutrients into the sea are projected to continue to increase.

- ▶ The OECD project on the human impacts on the nitrogen cycle, supported by the OECD Nitrogen Expert Group, is assessing the use of different policy approaches to manage the unwanted release of nitrogen.
- ▶ This project aims to take a holistic view of nitrogen policies across a wide range of emitting sectors, including agriculture, energy, industry, transport and households. Work in 2014 surveyed nitrogen instruments in use in OECD countries. Based on a literature review and a workshop co-organised with the Long-Range Transboundary Air Pollution Convention (CLRTAP) Task Force on Reactive Nitrogen (TFRN), 2015-16 provided a conceptual framework for designing policies to address the health and environmental impacts of reactive nitrogen, such as atmospheric pollution (e.g. smog and ground level ozone) and water pollution (e.g. eutrophication). A report will be released in 2017.



### Key Publication

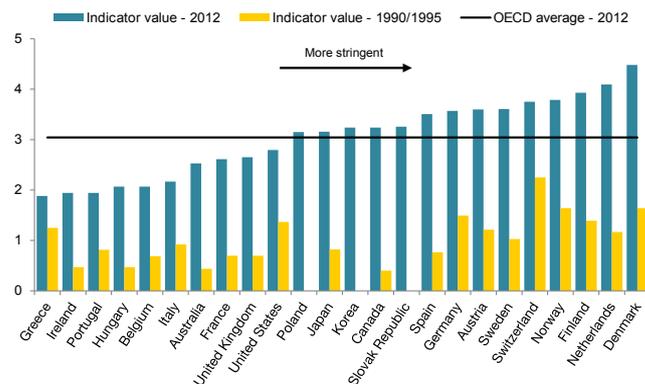
- [Managing the Human Impacts on the Nitrogen Cycle \(2018\)](#)

# Environmental Policies and Economic Outcomes

## Ongoing empirical work sheds light on the economic effects of environmental policies

- ▶ The effects of environmental policies on economic performance are a subject of heated debate. On the one hand, environmental policies have been argued to burden economic activity, as they raise costs without increasing output and restrict the set of production technologies and outputs. On the other hand, the Porter Hypothesis claims that well-designed environmental policies can encourage innovation, gains in efficiency and profitability, which can outweigh the costs of compliance.
- ▶ Joint work between the OECD Environment Directorate and the Economics Department on Environmental Policies and Productivity Growth has laid the ground for empirical analyses of the economic effects of environmental policies. It provided quantitative proxies measuring the stringency and competition-friendliness of environmental policies. In particular, the newly-developed indicator of Environmental Policy Stringency (EPS) provided a comparable, cross-country and over-time measure of the aggregate stringency of selected environmental policy instruments. The new EPS indicator has progressively extended coverage and now covers most OECD countries and the BRIICS, ranging up until 2015. It was used in empirical analysis to gauge the effects on multifactor productivity growth, trade

The stringency of environmental policies has been increasing across the OECD



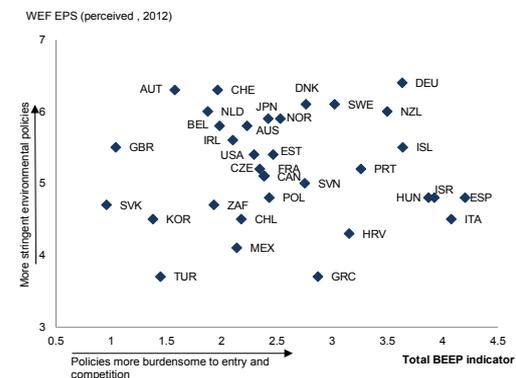
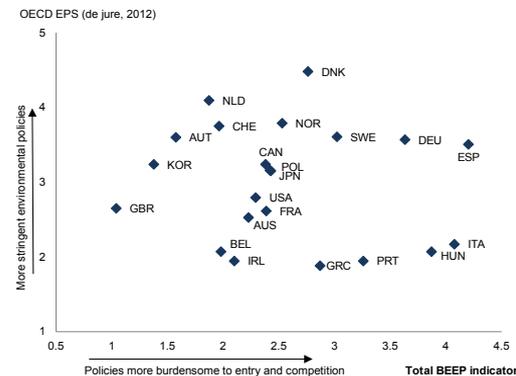
and competitiveness, investment (domestic and foreign) and innovation—at various levels of aggregation: the macroeconomic, industry and firm levels. The initial work's contribution helped show that environmental policies need not be bad for productivity and that in practice some aspects of their design can be made more friendly to entry and competition without compromising the stringency of the policy signal.

- ▶ The work is constantly developed and updated, with results being progressively published here: <http://oe.cd/oq>

### New insights on pollution haven hypothesis and firm investment

- ▶ New empirical work shed light on claims that more stringent environmental policies or higher energy prices undermine competitiveness and lead to the erosion of industrial activity to the benefit of countries with laxer regulations – the so-called Pollution Haven Hypothesis. Overall, environmental policies were not found to be a major driver of international trade patterns, even if some significant effects on specialisation could be identified. Increasing the stringency of domestic environmental policies was not found to have a significant effect on overall trade in manufactured goods, but was associated with tilting the comparative advantage away from pollution intensive industries. At the same time a corresponding advantage in “cleaner” industries could be identified.
- ▶ Similarly, higher energy prices could indeed be associated with higher outward FDI stock at the firm-level. However, the effects were small with respect to other drivers of FDI.
- ▶ Environmental policies seek to address market failures related to the protection of the environment. However, they may also increase barriers to entry and distort competition.

### The BEEP indicator and measures of environmental policy stringency



If stringent environmental policies can be designed in a way that minimises such economic burdens, they can facilitate the achievement of economic and environmental goals and a cleaner growth model. The OECD's indicator of burdens to entry and competition associated with environmental policies (BEEP) focusses on measuring barriers associated with environmental policies, in particular administrative burdens and discrimination between entrants and incumbents, and compares them with the overall stringency of environmental policies (Kozluk, 2013). An update and revision of the BEEP is foreseen in 2018, as part of the OECD Product Market Regulation indicator process. The work will focus on further data collection to improve and extend the environmental policy indicators to allow deeper and broader empirical analysis—in particular insights on how to design smarter, more effective environmental policies.

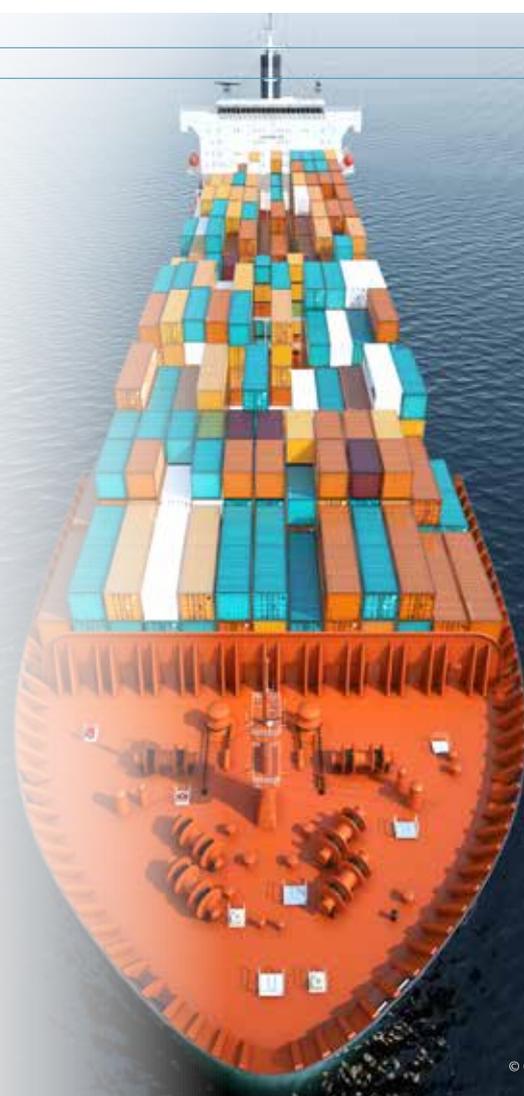
### Economic and environmental responses of firms

- ▶ In 2017-18, the work will focus on further data collection to improve and extend the environmental policy indicators to allow deeper and broader empirical analysis—in particular insights on how to design smarter, more effective environmental policies.



#### Key Publications

- Energy prices, environmental policies and investment (2017)
- Foreign Direct Investment and The Pollution Haven Hypothesis (2017)
- How stringent are environmental policies (2016)
- Do environmental policies affect global value chains? A new perspective on the pollution haven hypothesis (2016)



# Environmental Policy Tools and Evaluation

## Ensuring policies are economically efficient and environmentally effective

### Economic instruments and policy mixes

- ▶ The OECD's focus on policy instruments such as taxes, tradable permits and more efficient regulatory instruments, makes an important contribution to integrating environmental protection and economic growth.
- ▶ The OECD is doing in-depth and detailed analyses of the pricing of energy use through taxes and emission trading systems, as well as support to fossil fuels extraction or use in member and partner countries. This information will be updated and expanded further in 2017-18.
- ▶ A project on effective carbon prices estimated the costs to society per tonne of CO<sub>2</sub>eq abated using different policy instruments in selected sectors. It showed clearly that these costs were lower for taxes and emission trading systems than for other instrument categories.

### Policy evaluation

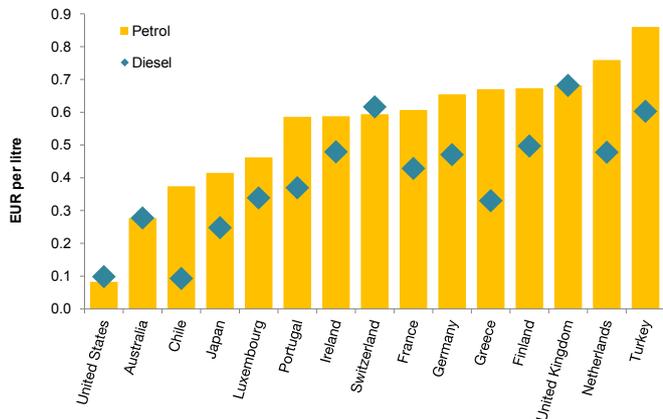
- ▶ Recent work on policy evaluation has focused on an analysis of the costs to society of outdoor air pollution. It found that in 2010 these costs amounted to USD 1.7 trillion

for OECD countries. For China, the costs were estimated at USD 1.3 trillion, and for India, USD 0.5 trillion.

- ▶ OECD is updating an earlier book on Cost-Benefit Analyses and the Environment, and is also doing ex post cost-benefit analyses of selected environmentally related taxes and tax provisions. Work is also going on to value negative environmental and health impacts stemming from the production, use and disposition of chemicals.
- ▶ Analyses have been made of the income distribution impacts of different categories of energy taxes. In 2017-18, this work will be deepened further, with analyses of approaches to address negative impacts of energy and water pricing.



## Tax rates per litre of unleaded petrol and diesel in selected OECD member countries



Source: OECD database on environmental policy instruments

### Key Publications

- Cost-Benefit Analyses and the Environment: Recent Developments (2017)
- Effective Carbon Rates: Pricing CO<sub>2</sub> through Taxes and Emissions Trading Systems (2016)
- OECD Companion to the Inventory of Support Measures for Fossil Fuels 2015 (2015)
- Taxing Energy Use 2015: OECD and Selected Partner Countries (2015)
- The Cost of Air Pollution: Health Impacts of Road Transport (2014)  
[www.oecd.org/environment/tools-evaluation](http://www.oecd.org/environment/tools-evaluation)  
<http://oe.cd/env-tax>

## Spatial Planning Instruments and the Environment (SPINE)

- ▶ Spatial planning instruments have long been used to organise and alter the distribution of human settlements and economic activity, and balance tensions between economic, social and environmental objectives. The SPINE project focuses on the evaluation of the effectiveness of spatial planning instruments in achieving environmental and economic objectives. This evaluation relies on the development of a cutting-edge modelling framework (MOLES), and the use of empirical methods and refined geospatial and georeferenced data.
- ▶ Recent empirical work in this area has explored the linkage between urban structure, air pollution and individual well-being. It has also analysed the economic effects of environmental zoning policies in France and the trade-offs between open space conservation and local public finance in U.S. urban areas.
- ▶ In 2017–18, work has a two-fold objective. First, it aims to develop a quantitative mapping of the several dimensions of urban sprawl in OECD urban areas and empirically study the relationship between these urban form indicators and environmental and economic outcomes. Second, it uses modelling and econometric approaches to analyse the effects of spatial planning and transport policy instruments, in the context of city case studies. Modelling work is based on MOLES and simulates the effects of these policies on the

environment (e.g. CO<sub>2</sub> emissions, air pollution), economic welfare and housing affordability. Empirical work focuses on the environmental and welfare effects of parking policies and the impact of urban morphology on residential energy consumption.

### Key Publications

- Urban Sprawl and the Environment: Trends and Policy Implications (2017)
- Causes and Consequences of Open Space in U.S. Urban Areas (2016)
- Environmental Zoning and Urban Development: Natural Parks in France (2016)
- Air Pollution and Urban Structure Linkages: Evidence from European Cities (2015)
- Exploring the Effect of Urban Structure on Individual Well-Being (2015)

[www.oecd.org/environment/tools-evaluation/spine-spatial-planning-instruments-and-the-environment.htm](http://www.oecd.org/environment/tools-evaluation/spine-spatial-planning-instruments-and-the-environment.htm)

### Individual Behaviour and Environmental Policies

- ▶ Environmental policies need to help individuals take into account the environmental consequences of their activities. OECD work in this area analyses how environmental policies affect individuals' decisions in the real world. To this end, it relies on economic theory and insights from behavioural sciences, and on the use of state-of-the-art empirical

### DID YOU KNOW?

Including estimates of electric appliances' lifetime operating costs in energy labels can help consumers purchase more energy efficient models.

methods. Insights from behavioural sciences can help policy makers better understand the mechanisms driving individual decision-making and eventually design more effective policies.

- ▶ Recent research in this area includes an assessment of the impacts of payments for ecosystem services on landowners' conservation efforts and an analysis of the attitude-behaviour gap in sustainable food consumption. OECD recent work also comprises a meta-analysis of empirical studies to evaluate the magnitude of the rebound effect in road transport and identify its determinants. In 2017-18, work focuses on the evaluation of the effects of environmental policy on individuals' travel behaviour and the application of insights from behavioural sciences to policy making.

### Key Publications

- Tackling Environmental Problems with the Help of Behavioural Insights (2017)
  - The Rebound Effect in Road Transport: A Meta-Analysis of Empirical Studies (2016)
- [www.oecd.org/environment/consumption-innovation/households.htm](http://www.oecd.org/environment/consumption-innovation/households.htm)  
[www.oecd.org/environment/tools-evaluation/behavioural-experimental-economics-for-env-policy.htm](http://www.oecd.org/environment/tools-evaluation/behavioural-experimental-economics-for-env-policy.htm)

# Resource Productivity and Waste

## The transition towards a circular economy

### Sustainable materials management and waste

- ▶ The OECD is developing policies that incentivise and encourage waste prevention, minimisation and recycling. Current work focuses on promoting the transition towards a circular economy in order to improve resource productivity and support green growth. This transformation requires significant changes to the way our economies operate, resulting in sectoral shifts, new business models and lower environmental impacts.
- ▶ In 2017-18, the OECD is focusing on developing a better understanding of the macro-economic effects of the circular economy through the use of in-house modelling tools; providing insights into new business models (such as product service systems) that are emerging and their potential contribution to circular economy objectives; and

a focus on plastics and the policy measures and initiatives that can help to improve recycling rates of this widely used group of materials. Furthermore, synergies will be developed with activities that the OECD's Trade Committee and the Working Party for Bio-, Nano- and Converging Technologies are currently developing.

### Key Publications

- Extended Producer Responsibility: Update Guidance for Efficient Waste Management (2016)
- Nanomaterials in Waste Streams: Current Knowledge on Risks and Impacts (2016)  
[www.oecd.org/environment/waste](http://www.oecd.org/environment/waste)  
[www.oecd.org/environment/indicators-modelling-outlooks/resourceefficiency.htm](http://www.oecd.org/environment/indicators-modelling-outlooks/resourceefficiency.htm)

### Material flows accounting

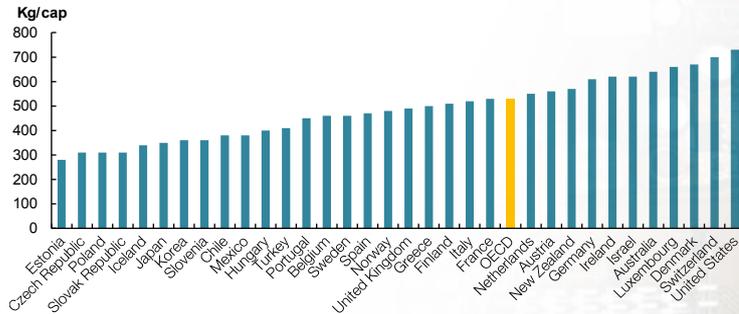
- ▶ The OECD has established a knowledge base on material flows and resource productivity, and has made advances in the development of common measures systems and indicators.

#### DID YOU KNOW?

At least 4% of annual GHG emissions could be mitigated if waste management practices were improved, such as through more material recovery.



## Municipal Waste Generation, 2012



Source: OECD Key Environmental Indicators (2014)



### Key Publications

- Material Resources, Productivity and the Environment (2015)
- Sustainable Materials Management: Making Better Use of Resources (2012)
- Guidance Manual for the Control of Transboundary Movement of Recoverable Wastes (2009)
- Measuring Material Flows and Resource Productivity (2008)

[www.oecd.org/environment/waste](http://www.oecd.org/environment/waste)

[www.oecd.org/environment/indicators-modelling-outlooks/resourceefficiency.htm](http://www.oecd.org/environment/indicators-modelling-outlooks/resourceefficiency.htm)

# Sectoral Policies: Transport, Agriculture

## Integrating environmental concerns into sector policies

### Transport

- ▶ Transport underpins economic and social development, allowing more efficient allocation of resources and increased mobility for people. Yet, there are challenges related to the environmental impacts of transport and globalisation can aggravate these challenges. A study published in 2014 indicates that the cost to society of air pollution caused by road transport in OECD countries could be in the order of USD 0.9 trillion per year.
- ▶ These costs are being increased by an ongoing shift from petrol to diesel vehicles. A working paper issued in 2014 discusses the rationale for the tax preference given to diesel vis-à-vis petrol in most OECD countries.
- ▶ Two other working papers discuss the income tax treatment of the benefits to employees of having a company-owned car at their disposal and analyse their fiscal and social costs.
- ▶ Transport is the second largest contributor to global greenhouse gas emissions. To avoid lock-in into carbon-intensive and climate-vulnerable transport infrastructure,

there is a need to shift investment towards sustainable transport infrastructure. The OECD is applying the Green Investment Policy Framework to the transport sector (see also section on Financing Action on Climate Change).

### Key Publications

- Israel's Green Tax on Cars: Lessons in Environmental Policy Reform (2016)
- The Cost of Air Pollution: Health Impacts of Road Transport (2014)
- The Diesel Differential: Differences in the Tax Treatment of Gasoline and Diesel for Road Use (2014)
- Personal Tax Treatment of Company Cars and Commuting Expenses: Estimating the Fiscal and Environmental Costs (2014)

[www.oecd.org/environment/greening-transport](http://www.oecd.org/environment/greening-transport)

### DID YOU KNOW?

Ships are responsible for 2–4% of global man-made CO<sub>2</sub> emissions and 15% of other air pollutants.



## Agriculture

- ▶ The Environment Directorate contributes to work led by the Trade and Agriculture Directorate to strengthen policies to reduce the negative impacts of agriculture on the environment, to reinforce the positive impacts, and to develop and collect agri-environmental indicators (see also the section on Water).
- ▶ In 2017–18, the OECD agri-environmental work will focus on improving sustainability in food in agriculture and on addressing climate change and water in agriculture.



### Key Publications

- Review of Agricultural Policies: Costa Rica, “Adaptation to Climate Change in Costa Rica’s Agricultural Sector” (2017)
- Farm Management Practices to Foster Green Growth (2016)
- Mitigating Droughts and Floods in Agriculture (2016)
- Alternative Payment Approaches for Biodiversity Conservation in Agriculture (2016)
- Water Risk Hotspots for Agriculture: The Case of the Southwest United States (2016)

[www.oecd.org/agriculture/sustainable-agriculture](http://www.oecd.org/agriculture/sustainable-agriculture)

# Safety of Chemicals, Pesticides, Biotechnology and Nanomaterials

## Protecting human health and the environment

### Chemical safety

- ▶ The chemicals industry is one of the world's major economic sectors. The products of the chemical industry are worth about EUR 3.8 trillion annually.
- ▶ The OECD Environment, Health and Safety (EHS) Programme aims to foster international co-operation to ensure the safety of chemicals and chemical products like pesticides, biocides, manufactured nanomaterials, and the products of modern biotechnology. It also aims to avoid barriers to trade at the same time.

### Mutual Acceptance of Data (MAD)

- ▶ The OECD Council Acts on the Mutual Acceptance of Data for the assessment of chemicals (MAD) are international agreements, which set the policies and provide the instruments that governments and industry need to test the safety of chemicals and chemical products. OECD countries must accept safety test data which has been developed in other countries using the OECD Test Guidelines and following the OECD Principles of Good Laboratory Practice. Non-tariff barriers to trade are minimised by harmonised policies and instruments, and duplicative testing is

avoided, saving governments and industry time and money. Increasingly non-OECD economies are joining the MAD system, with Argentina, Brazil, India, Malaysia, South Africa and Singapore as full adherents; Thailand as a provisional adherent; and others expected to join soon.

### Sharing the regulatory burden for pesticides and industrial chemicals

- ▶ All OECD countries regulate chemicals, pesticides and products of modern biotechnology. By using the same methodologies for determining the safety of these products, it is possible for countries and industry to share the burden of testing and even evaluation in some cases. Countries work together in the OECD to share the work load required for registering pesticides and biocides and for notifying, registering or evaluating industrial chemicals.

#### DID YOU KNOW?

By working together through the OECD, governments and industry save over EUR 150 million annually.



## Safety of manufactured nanomaterials

- ▶ OECD countries have been addressing the human health and environmental safety implications of nanomaterials since 2006. In 2013, the OECD Council recommended that its Member countries apply existing international and national chemical regulatory framework to manage the risks associated with manufactured nanomaterials. Amongst other things, this Recommendation clears the way for nanomaterials to become subject to the Mutual Acceptance of Data. To this end, work is continuing to evaluate whether existing test methods for assessing the safety of chemicals are suitable for nanomaterials. A number of projects are underway to develop test guidelines appropriate for nanomaterials.

## New and more efficient tools for getting hazard information

- ▶ Much information on the hazards associated with specific chemicals is developed through animal tests in the laboratory. The OECD is spearheading the development and use of non-animal methods such as tests with cell cultures and computer simulations. In addition to reducing the need for laboratory animals, such approaches can reduce the time and cost of testing.
- ▶ The OECD has developed a framework for using knowledge on how chemicals interact with living organisms at different levels of biological organisation, called Adverse

### DID YOU KNOW?

OECD and non-OECD governments have been working with industry, to pool expertise and funding to test the human health and environmental safety effects of 11 nanomaterials, which are currently in commerce. This testing work was completed recently and the data will be made publicly available.



Outcome Pathways. This framework will be used for interpreting the results from non-animal tests so that they can be used for regulatory decision-making. The framework will also help set priorities for developing standardised Test Guidelines that can be used to screen thousands of untested chemicals.

## Safety of bio-tech products

- ▶ The majority of OECD countries and many others have a system of regulatory oversight in place to assess the safety of products of modern biotechnology. The most common products of this type are genetically engineered crop plants used in agriculture. The OECD works to ensure that the information used in safety assessment and the methods used to collect that information are shared amongst countries. Recent focus has been on major agricultural commodities such as soy bean, maize and cotton. Today, there is a greater focus on crops important in the tropics such as cassava and papaya. The OECD is also investigating how the methodologies for safety assessment need to be adapted to new technologies, such as gene editing.

## Preventing major chemical accidents

- ▶ The OECD Programme on Chemical Accidents addresses a subject that concerns everyone who uses or handles hazardous chemicals, works in a chemical plant, or lives near one. This programme helps public authorities, industry, labour and other interested parties to prevent chemical accidents and to respond appropriately if one occurs. The major output of the programme is the Guiding Principles for Chemical Accident Prevention, Preparedness and Response which are continuously updated. These principles provide advice to public authorities, industry, employees and their representatives as well as members of the public potentially affected in the event of an accident. These Guiding Principles are complemented by a series of safety performance indicators, which serve as a guide for key stakeholders



including public authorities and industry, to determine if their implementation of the Guiding Principles has led to improved chemical safety. More recently, the OECD has published *Corporate Governance for Process Safety: Guidance for senior leaders (2017)* in high hazard industry to establish best practices for senior decision makers who have the authority to influence the direction and culture of their organisation.

### Key Publications

- OECD Guidelines for the Testing of Chemicals (series)
- Safety Assessment of Transgenic Organisms: Volume 7 (2017)
- Safety Assessment of Transgenic Organisms: Volumes 1-6 (2016)
- Safety Assessment of Foods and Feeds Derived from Transgenic Crops: Volumes 1-2 (2015)
- Guiding Principles for Chemical Accident Prevention, Preparedness and Response (2015)
- Cutting Costs in Chemicals Management: How OECD Helps Governments and Industry (2010)
- Good Laboratory Practice: OECD Principles and Guidance for Compliance Monitoring (2005)

# Environment in the Global Economy

## Making development and environment compatible and mutually supportive

### Environment and development

- ▶ Economic growth and development are intricately linked to the sound management of environmental resources. It is the poorest who rely most on environmental resources and are most affected by their degradation. Continuing collaboration between the Environment Policy Committee (EPOC) and the Development Assistance Committee (DAC) aims to support integration of environment and development issues. The main focus is on climate change and on capacity development for environmental management.
- ▶ A major focus of collaboration between DAC and EPOC has been on climate change adaptation. National Climate Change Adaptation: Emerging Practices in Monitoring and Evaluation explores how countries can best measure progress in building resilience. Current work explores how financial protection instruments, such as insurance, can be integrated into climate adaptation strategies.
- ▶ Another on-going joint project between EPOC and DAC is on Biodiversity and Development: Mainstreaming and Managing for Results. This examines how mainstreaming biodiversity is being undertaken at national and sector level, the role of development co-operation in mainstreaming biodiversity,

and explores the types of indicators that can be used to track and monitor mainstreaming progress.

### Allocation of bilateral climate-related ODA



Source: These statistics are based on data reported to the OECD DAC Creditor Reporting System (CRS) as of October 2016, based on the Rio marker approach. Data for 2015 are provisional. Detailed activity level data are available online: <http://oe.cd/RioMarkers>.

## Environment and development in Eastern Europe, the Caucasus and Central Asia (EECCA)

- ▶ The OECD Environment Directorate serves as the Secretariat of the Task Force for the Implementation of the GREEN Action Programme. Projects identified for 2017-18 are organised around four mutually supportive themes: national green economy dialogues and strategies; green finance and investment; integrating environmental, economic and sectoral policies for green growth and strengthening water management. These are done through robust policy analysis, diffusion and adaptation of good international practices, capacity development, policy dialogue at national and regional levels, and pilot application of policy tools. The GREEN Action Programme Task Force helps EECCA countries to make the best use of available finance and enhance dialogue with private sector and donors. It also contributes to the “Environment for Europe” process and supported the Batumi Ministerial Conference in June 2016.

### Trade and environment

- ▶ The Environment Directorate works with the Trade and Agriculture Directorate to better understand interactions between environmental policy and international trade. One main focus has been on regional trade agreements

and the environment including a report which investigates the implementation of environmental provisions based on surveys and implementation reports. Another focus area has been on trade and climate change with a report that sheds light on the mechanisms in explaining how climate change will affect international trade based on quantitative analysis and literature review.

- ▶ Other areas include two 2016 reports on environmental labelling schemes which provide a review of how national policies and guidelines are applied to these schemes and how governments can respond to the multiplications of these schemes. In 2012, a report on illegal trade in environmentally sensitive goods addressed data and policy challenges related to illegal trade in wildlife, fish, waste, chemicals and timber.
- ▶ In 2017-18, new work will focus on the greening of regional trade agreements investigating how trade agreements can incorporate environmental objectives.



## Co-operation with key emerging economies

- ▶ Key Partners (Brazil, China, India, Indonesia and South Africa) are invited to co-operate in several areas of OECD work on environment, including green growth, climate change, water, biodiversity, resource productivity and waste, environmental information, environmental indicators and policy instruments. Environmental Performance Reviews (EPR) of partner countries, such as South Africa (2013), Colombia (2014), Brazil (2015) and Peru (2016) have also been carried out. A review of Indonesia will start during 2017-2018 with a view to completion in 2019. A broader group of partner countries is invited to Global Forums on Environment (GFENV) on various environmental issues, providing a regular framework to substantiate the dialogue with non-OECD countries. Global Forums in 2017-18 will focus on issues including climate change, mainstreaming biodiversity and the circular economy.

### DID YOU KNOW?

About 85% of the economic output of the EECCA region is concentrated in the six resource-rich countries (Azerbaijan, Kazakhstan, the Russian Federation, Turkmenistan, Ukraine and Uzbekistan), and 85% of the region's exports are linked to energy and metals.



## Key Publications

- Inventory of Energy Subsidies in the EU Eastern Partnership Countries (2017)
- Financing Climate Action in Eastern Europe, the Caucasus and Central Asia (2016)
- Environmental Lending in the EU Eastern Partnership Countries (2016)
- Water Policy Reforms in Eastern Europe, Caucasus and Central Asia. Achievements of the European Union Water Initiative, 2006-16 (2016)
- Reforming Economic Instruments for Water Management in EECCA Countries—Policy Perspectives (2016)
- Greening SMEs in the EU Eastern Partnership Countries—Policy Highlights (2016)
- The evolving landscape of climate finance for EECCA countries—Policy Perspectives (2016)
- Measuring the transformation of the economy: green growth indicators—Policy Perspectives (2016)

[www.oecd.org/environment/outreach/eap-tf.htm](http://www.oecd.org/environment/outreach/eap-tf.htm)



# Green Growth

## Aligning economic and environmental goals

- ▶ The OECD launched its Green Growth Strategy at the Ministerial Council Meeting in May 2011. It responded to a mandate given by 39 countries, when they signed the “OECD Green Growth Declaration” in 2009, committing to “strengthen their efforts to pursue green growth strategies as part of their responses to the crisis and beyond, acknowledging that green and growth can go hand in hand”.



- ▶ The key message of the Green Growth Strategy is that the environment and the economy can no longer be considered in isolation, but that environmental considerations need to be an inherent part of future economic policymaking and development planning. Importantly, the Strategy argued that green growth

cannot be a mere add-on to the mainstream reform agenda, but requires a reassessment of growth policies and priorities to ensure that their design and implementation better take into account environmental impacts.

- ▶ If implemented in structural reforms, green growth policies can unlock new growth opportunities by various channels. Well-designed green growth policies will ensure that market participants feel the social costs of using environmental assets and hence lead to a more efficient use of resources and natural assets. Better price signals for environmental externalities would also strengthen innovation and foster demand for new, environmentally more efficient goods and services, creating new markets and hence the potential for new job opportunities.
- ▶ Stable green growth policies will enhance investor confidence through greater predictability in how governments deal with major environmental issues, and green fiscal reform can support fiscal consolidation and growth, as revenues from pricing externalities rise and harmful subsidies are phased out.

### Monitoring progress

- ▶ Green growth policies need to be founded on a good knowledge of environmental developments, the factors that affect growth and their linkages with well-being.

- ▶ To monitor progress and evaluate results, the OECD developed a measurement framework and a set of indicators that capture the main features of green growth: the environmental and resource productivity of the economy, the natural asset base, the environmental dimension of quality of life, and the economic opportunities provided by a greener growth. To facilitate communication with the public and policy makers, a few headline indicators were selected. The work is part of the OECD's broader agenda on measuring progress and well-being. A selection of new and updated indicators, illustrating the progress made by OECD and G20 countries since the 1990s, is available in the report *Green Growth Indicators 2017*. Green growth indicators are routinely used in *Economic Surveys* and *Environmental Performance Reviews*.
- ▶ Work continues to improve the indicators and the statistical basis and implement environmental accounting (see page 4). The focus is on natural resources and sub-soil assets, environmentally adjusted productivity growth, carbon and material productivity, land cover, and inequalities in population exposure to air pollution.
- ▶ Countries like the Slovak Republic, Slovenia, the Czech Republic, Korea, Mexico, Germany and the Netherlands, have applied the OECD measurement framework to assess their economy in terms of green growth. In a joint project with UNIDO, Colombia, Costa Rica, Ecuador, Guatemala, Paraguay and Peru have applied the indicators to identify key challenges and improve the choice and design of policy instruments.
- ▶ The OECD also facilitates the exchange of experience and good practice on developing and applying a green growth measurement framework in the countries of Eastern Europe, the Caucasus and Central Asia (EECCA). This includes activities under the OECD GREEN Action Programme Task Force in EECCA, and the EaP GREEN project funded by the European Union, and implemented jointly with UNEP, UNECE and UNIDO. Ongoing projects in the region raise awareness about the benefits of using the OECD set of green growth indicators, and support their introduction and practical application in individual countries. The project also promotes public and political debate on progress towards green growth by disseminating reports monitoring green growth. Pilot projects to establish green growth measurement have been launched in Moldova, Ukraine, Armenia and Azerbaijan. Similar work is also been implemented in Kyrgyzstan and Kazakhstan.  
[www.oecd.org/environment/outreach/eap-tf.htm](http://www.oecd.org/environment/outreach/eap-tf.htm)

## Tailoring green growth strategies to individual countries and regions

- ▶ The OECD is supporting countries in their efforts to design and implement strategies for greener and more inclusive growth, including through its core advice in country-specific and multilateral surveillance, including Economic Surveys, Environmental Performance Reviews, Investment Policy Reviews, Reviews of Innovation Policy, the Green Cities Programme and Going for Growth. Through these, the OECD is providing guidance tailored to the needs of individual countries, regions and cities.
- ▶ The report *Towards Green Growth in Southeast Asia* (2014) highlights that the region's booming economy offers tremendous growth potential, but also large and interlinked economic, social and environmental challenges. The region's current growth model is based in large part on natural resource exploitation, exacerbating these challenges. The

report provides evidence that, with the right policies and institutions, Southeast Asia can pursue green growth and thus sustain the natural capital and environmental services, including a stable climate, on which prosperity depends. A green growth country review of Indonesia is planned for 2017–2018. The OECD also provides tailored green growth advice to cities, based on case studies on several Southeast Asian cities as summarised in the Synthesis report on the project “Urban Green Growth in Dynamic Asia” (2016).

[www.oecd.org/greengrowth](http://www.oecd.org/greengrowth)



- ▶ The “Greening Economies in the European Union’s Eastern Neighbourhood” (EaP GREEN) programme is being implemented by the OECD in co-operation with UNECE, UNEP, and UNIDO to assist the European Union’s Eastern Partnership (EaP) countries (Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine) to move towards a green economy by decoupling economic growth from environmental degradation and resource depletion.

[www.green-economies-eap.org](http://www.green-economies-eap.org)

- ▶ Green growth is also being integrated in OECD sector- and issue-specific work to cover key areas such as energy (jointly with the IEA), food and agriculture, innovation, green investment, green business models, green jobs, biodiversity, water, rural development and others.

## The Green Growth and Sustainable Development Forum at the OECD (GGSD Forum)

- ▶ The GGSD Forum is an initiative established by the OECD as a vehicle for facilitating dialogue among its committee experts on cross-cutting green growth and sustainable development issues, to build on and complement the extensive work already underway in individual committees and to maximise synergies across them. The GGSD Forums operate as a series of annual conferences or workshops, focusing each year on a different issue of relevance to more than one OECD committee.



- ▶ The 6th Green Growth and Sustainable Development Forum focuses on the theme “Ocean Economy and Green Growth” and will take place on 21-22 November 2017.
- ▶ The theme of the 2018 Green Growth and Sustainable Development Forum will address the Political Economy of Green Growth.

[www.oecd.org/greengrowth/ggsd-forum.htm](http://www.oecd.org/greengrowth/ggsd-forum.htm)

### The Green Growth Knowledge Platform (GGKP)

- ▶ The OECD has joined forces with the Global Green Growth Institute, UNEP and the World Bank to establish the GGKP. Launched in January 2012, the GGKP is an international knowledge-sharing platform that identifies and addresses major knowledge gaps in green growth/green economy theory and practice. It aims to provide practitioners and policy makers with better tools to

foster economic growth and implement sustainable development. The GGKP held its 4th Annual Conference in Jeju, Korea in September 2016 on the theme “Transforming Development through Inclusive Green Growth”. The 5th GGKP Annual Conference in Washington, DC in November 2017 will focus on resilient & sustainable infrastructure.

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

### Key Publications

- Green Growth Indicators 2017 (2017)
- Towards Green Growth? Tracking Progress (2015)
- Tools for Delivering Green Growth (2011)
- Towards Green Growth: A Summary for Policy Makers (2011)
- Towards Green Growth (2011)
- Towards Green Growth – Monitoring Progress: OECD Indicators (2011)



### Green growth studies and papers:

The OECD Green Growth Studies series aims to provide in-depth reviews of the green growth issues faced by different sectors. The OECD Green Growth Papers complement the OECD Green Growth Studies series, and aim to stimulate discussion and analysis on specific topics and obtain feedback from interested audiences.

[www.oecd.org/greengrowth](http://www.oecd.org/greengrowth)



# The Committee Structures

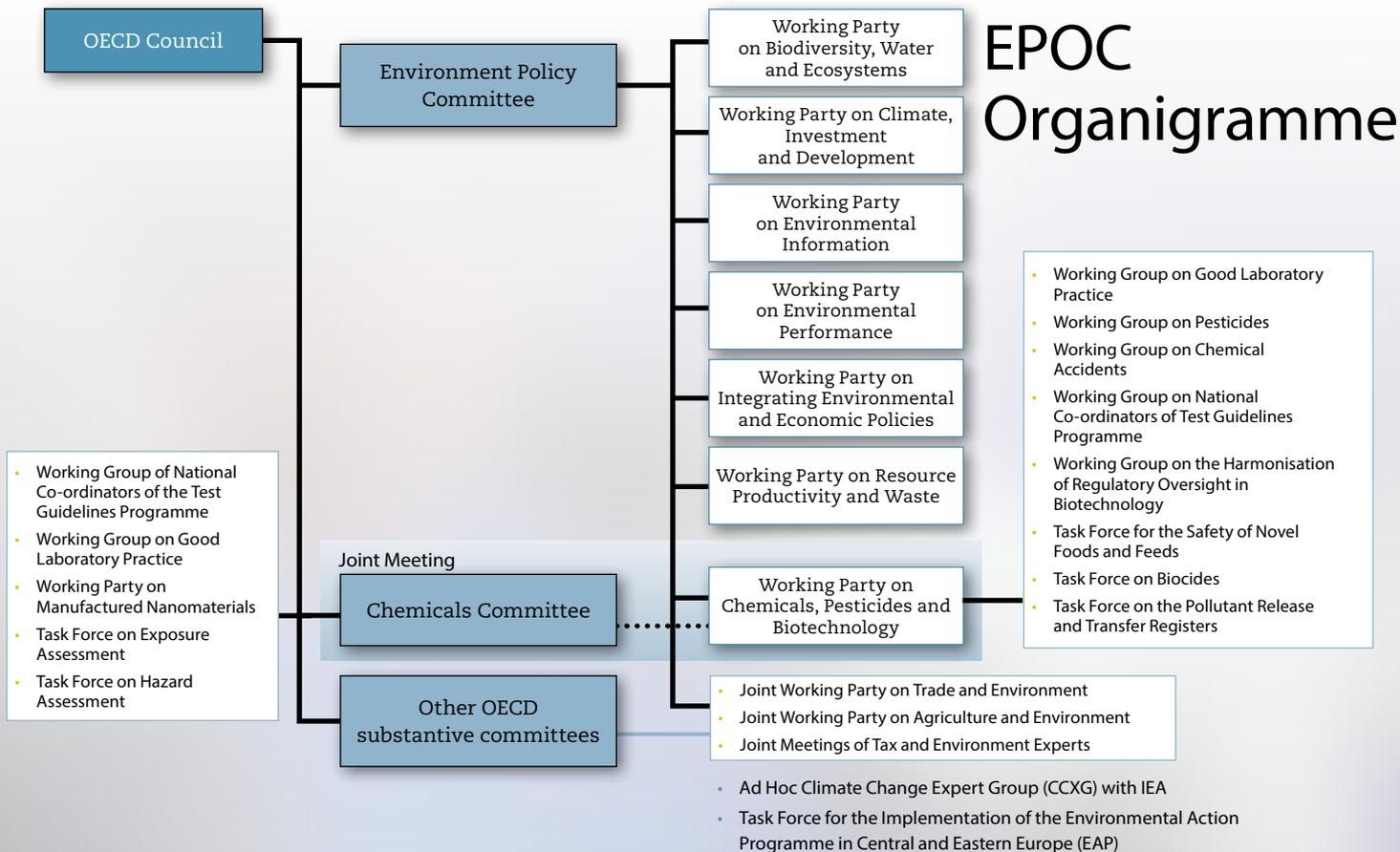
The Environment Policy Committee (EPOC) implements the OECD's Environment Programme. Established in 1971, EPOC consists of delegates from capitals and meets one or two times per year. The Committee holds meetings at the Ministerial level approximately every four years. The last meeting took place in September 2016; Ministers discussed climate change and the key challenges in moving forward, resource efficiency and the transition towards the circular economy, air pollution from transport, biodiversity, nitrogen and water.

EPOC oversees work on: country reviews, indicators and outlooks, climate change, natural resource management, policy tools and evaluation, environment and development, and resource efficiency and waste, supported by EPOC's seven Working Parties. EPOC also formally co-operates with other OECD Committees, including through Joint Working Parties on Trade and Environment and on Agriculture and Environment, as well as Joint Meetings of Experts on Tax and Environment and Joint Task Teams on environment and development issues. The committee also works with other OECD committees to ensure consistency of the messages as they pertain to environment as well as ensuring horizontal links with other work in the OECD. The Chemicals Committee, like EPOC, reports directly to the OECD Council. EPOC's Working Party on Chemicals, Pesticides and Biotechnology and the Chemicals Committee together form the Joint Meeting which oversees the Environment, Health and Safety (EHS) Programme. EPOC is a major partner in two horizontal programmes at the OECD, one on Green Growth and the other on Water.

The OECD Environment Directorate and the International Energy Agency (IEA) jointly serve as the Secretariat for the Climate Change Expert Group and undertakes studies on issues related to the negotiation and implementation of international agreements on climate change.

The OECD Environment Directorate also functions as the Secretariat for the Task Force for the Implementation of the GREEN Action Programme in Central and Eastern Europe (formerly the Environmental Action Programme [EAP] Task Force). The Task Force provides a forum for dialogue and co-operation for countries in Eastern Europe, Caucasus and Central Asia (EECCA).

The Environment Programme is carried out in co-operation with international and regional organisations, e.g. the World Bank, UNEP, WTO, UNECE and Secretariats for UNFCCC, CBD and the Basel Convention. Key research institutes are also important partners, as is civil society represented through business, labour and environmental NGOs. EPOC is actively engaging with key emerging economies through the Global Forum on Environment and the Global Forum on Biotechnology.



# The Environment Directorate

The Environment Directorate is a multicultural team, encompassing some 159 international civil servants: economists, policy analysts, statisticians and administrative staff.

We are an extension to national governments' analytical capacity, providing policy-relevant analysis and policy recommendations based on reliable environmental data, outlooks and cross-country experiences. We help countries to design environmental policies that are both economically efficient and effective at achieving their environmental objectives.

We also provide a forum for governments and representatives from business and civil society for constructive dialogue on how best to develop and implement environmental policies across OECD and other countries.

The management team members are:

## ▶ Director's Office



Simon Upton  
Director

[simon.upton@oecd.org](mailto:simon.upton@oecd.org)  
Tel.: +33 1 45 24 14 56



Anthony Cox  
Deputy Director

[anthony.cox@oecd.org](mailto:anthony.cox@oecd.org)  
Tel.: +33 1 45 24 98 70

## ▶ Climate, Biodiversity and Water Division



Simon Buckle  
Head of Division

[simon.buckle@oecd.org](mailto:simon.buckle@oecd.org)  
Tel.: +33 1 45 24 64 33

## ▶ Environment and Economy Integration Division



Shardul Agrawala  
Head of Division

[shardul.agrawala@oecd.org](mailto:shardul.agrawala@oecd.org)  
Tel.: +33 1 45 24 16 65

## ▶ Environment, Health and Safety Division



Bob Diderich  
Head of Division

[bob.diderich@oecd.org](mailto:bob.diderich@oecd.org)  
Tel.: +33 1 45 24 14 85

## ▶ Environmental Performance and Information Division



Nathalie Girouard  
Head of Division

[nathalie.girouard@oecd.org](mailto:nathalie.girouard@oecd.org)  
Tel.: +33 1 45 24 84 82

## ▶ Green Growth and Global Relations Division



Kumi Kitamori  
Head of Division

[kumi.kitamori@oecd.org](mailto:kumi.kitamori@oecd.org)  
Tel.: +33 1 45 24 92 02

## ▶ Management and Committee Branch



Amy Plantin  
Head of Unit and Executive Secretary to EPOC

[amy.plantin@oecd.org](mailto:amy.plantin@oecd.org)  
Tel.: +33 1 45 24 93 08

## Recent Flagship Publications



Investing in Climate,  
Investing in Growth



Marine Protected  
Areas: Economics,  
Management and  
Effective Policy Mixes



Mobilising Bond Markets  
for a Low-Carbon  
Transition



Tackling Environmental  
Problems with the Help  
of Behavioural Insights



Environmental  
Performance Reviews



Green Growth Indicators  
2017



The Political Economy  
of Biodiversity Policy  
Reform



The Land-Water-Energy  
Nexus: Biophysical  
and Economic  
Consequences

## Key publications 2017-18

- A New Perspective on Urban Sprawl (2018)
- Biodiversity and Development: Mainstreaming and Managing for Results (2017)
- Cost-Benefit Analyses and the Environment (2017)
- Diffuse Pollution, Degraded Waters: Emerging Policy Solutions (2017)
- Economic Impacts of the Circular Economy (2018)
- Environmental Performance Reviews: Estonia, Korea, New Zealand, Canada, Switzerland (2017); Hungary, Czech Republic (2018)
- Green Growth Indicators (2017)
- Groundwater Allocation: A Health Check to Guide Policy (2017)
- Investing in Climate, Investing in Growth (2017)
- Mobilising the Bond Markets for a Low-carbon Transition (2017)
- Managing the Human Impacts on the Nitrogen Cycle (2018)
- Marine Protected Areas: Economics, Management and Effective Policy Mixes (2017)
- The Land-Water-Energy Nexus: Biophysical and Economic Consequences (2017)

**Environment Policy Papers:** This series distils many of today's environment-related policy issues based on a wide range of OECD work.

<http://dx.doi.org/10.1787/23097841>

**Environment Working Papers:** This series is designed to make available to a wider readership selected studies on environmental issues prepared for use within the OECD.

[www.oecd.org/environment/workingpapers.htm](http://www.oecd.org/environment/workingpapers.htm)

# Selected Databases

## ▶ **OECD/EEA Instruments Database**

Information on environmentally-related taxes, fees and charges, tradable permits systems, deposit-refund systems, environmentally motivated subsidies and voluntary approaches. [www.oecd.org/env/policies/database](http://www.oecd.org/env/policies/database)

## ▶ **Value of Statistical Life (VSL)**

Data used in a meta-analysis of value of statistical life estimates from stated preferences surveys in environment, health and traffic risk contexts. [www.oecd.org/env/policies/vsl](http://www.oecd.org/env/policies/vsl)

## ▶ **Transboundary Movement of Wastes destined for Recovery Operations**

Country-specific requirements for the application of the “OECD Decision on Transboundary Movements of Waste Destined for Recovery Operations”. [www.oecd.org/env/waste/database](http://www.oecd.org/env/waste/database)

## ▶ **eChemPortal**

A Global Portal for information on properties of chemical substances. [www.oecd.org/ehs/eChemPortal](http://www.oecd.org/ehs/eChemPortal)

## ▶ **Biotech Products Database**

Information and unique identifiers on products derived from using modern biotechnology which have been approved for commercial application. [www.oecd.org/biotrack/productdatabase](http://www.oecd.org/biotrack/productdatabase)

## **Get free OECD Environment reports and statistics**

▶ Visit [www.oecd.org/environment](http://www.oecd.org/environment) for a selection of free reports and data.

## More information on OECD work on environment

The OECD Environment Directorate produces 20-30 titles a year in English and French, with summaries of selected titles translated into other languages (available for free on the OECD on-line bookshop).

### ▶ Write to us:

OECD Environment Directorate  
Communications Co-ordinator  
2, rue André Pascal  
75775 Paris Cedex 16  
FRANCE  
[env.contact@oecd.org](mailto:env.contact@oecd.org)

Be the first to know about the latest OECD publications on environment with our free e-mail alert service:

[www.oecd.org/OECDdirect](http://www.oecd.org/OECDdirect)

### ▶ Follow and engage with us on Twitter:

@OECD\_ENV

### ▶ Order our publications:

Browse titles on your screen before you buy:

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

OECD<sup>online</sup>bookshop

Subscribe to our OECDiLibrary and statistics services:

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

OECDiLibrary

### ▶ Visit our website:

[www.oecd.org/environment](http://www.oecd.org/environment)

- ▶ Find Job Vacancies on the OECD Human Resources website at [www.oecd.org/hrm](http://www.oecd.org/hrm).

#### Photo credits:

Front cover: © Kletr's – Shutterstock  
Page 6: © Vadim Petrako – Shutterstock  
Page 19: © Wk1003mike – Shutterstock  
Page 22: © Dabarti CGI – Shutterstock

Page 23: © Huguette Roe – Shutterstock tbc  
Page 27: © Haraldmuc – Shutterstock  
Page 29: © Kristo Robert – Shutterstock  
Page 30: © Stockbyte – Thinkstock tbc  
Page 49 : © Parshina Marina – Shutterstock

OECD PUBLICATIONS, 2 rue André-Pascal, 75775 PARIS CEDEX 16  
PRINTED IN FRANCE



# ENVIRONMENT DIRECTORATE

Website: [www.oecd.org/environment](http://www.oecd.org/environment)

Follow and engage with us on Twitter: @OECD\_ENV

September 2017