



Recent OECD work on

# Climate Change



OECD, November 2010.



# OECD Work on Climate Change

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# OECD Work on Climate Change

**G**lobal climate change threatens to disrupt the well-being of society, deter economic development and alter the natural environment, making it a key policy concern of the 21st century. Governments around the world have reached consensus on the need to achieve large cuts in greenhouse gas (GHG) emissions over the coming decades, to adapt to the impacts of climate change, and to ensure the necessary financial and technical support for developing countries to take action. They are working towards an international agreement to achieve these goals under the United Nations Framework Convention on Climate Change (UNFCCC).

The Organisation for Economic Co-operation and Development (OECD) is a multi-disciplinary inter governmental organisation, tracing its roots back to the post-World War II Marshall Plan. Today, it comprises 33 member countries and the European Commission that are committed to democratic government and the market

economy, with the major emerging economies increasingly engaged directly in the work. The OECD provides a unique forum and the analytical capacity to assist governments to compare and exchange policy experiences, and to identify and promote good practices through policy decisions and recommendations.

The OECD has been working on climate change economics and policy since the late 1980s. The OECD works closely with governments to assist them to identify and implement least-cost policies to reduce GHG emissions in order to limit climate change, as well as to integrate adaptation to climate change into all relevant sectors and policy areas. As OECD countries are the major international donors, OECD has a critical role in tracking climate finance, and in examining how public finance can be scaled-up and best targeted to help leverage private financial flows. In the wake of the economic crisis, the OECD is also looking at how measures that governments are taking to spur economic



growth can best be formulated so that they support – and do not work against – the objectives of moving towards a green, low-carbon economy. Given the global nature of the climate change challenge, and its widespread economic, social and environmental impacts, the OECD is in a unique position to assist countries put climate policy on a solid economic footing consistent with frameworks for development.

Work on climate change is underway across the OECD, engaging government representatives from a range of Ministries. This brochure provides an overview of the recent OECD work on climate change.



# Economic and Policy Analysis on Climate Change

# 1

## 1.1 Climate Change Mitigation

### Economic and Environmental Modelling

Economic models and quantitative assessments of climate change mitigation scenarios, and how these impact on the economy, play a key role in informing policy makers of costs, benefits and potential tradeoffs.



OECD modelling work assesses how policies can be applied to cost-effectively reduce GHG emissions in a post-2012 framework. A broad analysis of the economics of mitigation, focusing on how to gradually build up a global carbon market, is published in the book *The Economics of Climate Change Mitigation* (2009).

This built on the modelling-based analysis undertaken for the *OECD Environmental Outlook to 2030* in 2008.

More specific recent analyses assess the environmental effectiveness and the associated regional and global costs of more fragmented carbon markets. Specific topics studies include an examination of the environmental effectiveness, economic costs and potential fiscal revenues of mitigation scenarios for 2020, based on the pledges made in the Copenhagen Accord. It highlights the potential fiscal revenues when carbon taxes or emission trading schemes with auctioning are used to implement these pledges. The analysis also shows how global mitigation costs can be limited through the use of international offsets and linking carbon markets. A working paper on “Costs, Revenues and Effectiveness of the Copenhagen Accord Emission Pledges for 2020” was released in 2010.

The cost-reducing role of direct and indirect linking of carbon markets from a longer-term perspective is

investigated more thoroughly in a working paper entitled “Towards Global Carbon Pricing: Direct and Indirect Linking of Carbon Markets” (2010). A detailed numerical analysis of the effects of border tax adjustments when only a limited group of countries implement a stringent climate policy is provided in the working paper “Is There a Case for Carbon-Based Border Tax Adjustment? An Applied General Equilibrium Analysis” (2010). Finally, OECD modelling work also contributed to “Analysis of the Scope of Energy Subsidies and Suggestions for the G-20 Initiative” (2010), a joint report to the G20 by the IEA, OPEC, OECD and World Bank on phasing out fossil fuel subsidies.

**Key links:**

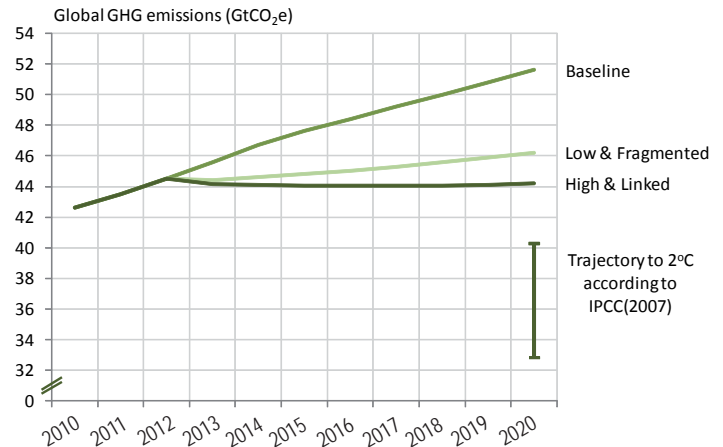
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[www.oecd.org/env/outlook](http://www.oecd.org/env/outlook)

[www.oecd.org/g20/fossilfuelsubsidies](http://www.oecd.org/g20/fossilfuelsubsidies)

**Pledged GHG Emissions Targets and Actions for 2020**

Gap between pledges and IPCC trajectory to 2° C



Source: OECD ENV-Linkages model.

**Political Economy Issues:  
Competitiveness and Carbon Leakage**

Concerns about the potential competitiveness impacts of climate policies are perhaps the most significant barrier to ambitious policies in OECD countries. The 2009 book on *The Economics of Climate Change Mitigation* includes analysis of competitiveness and carbon leakage impacts

**DID YOU KNOW** ...that removing fossil fuel energy subsidies could cut world greenhouse gas emissions by 10% in 2050 compared to business-as-usual, and contribute to improved economic efficiency in the countries undertaking the reforms?

of climate change mitigation policies, as well as some of the policy approaches that might be used to address these, such as border tax adjustments or sectoral approaches. This topic is further explored in a working paper entitled “Is There a Case for Carbon-Based Border Tax Adjustment? An Applied General Equilibrium Analysis” (2010).

Another working paper on “Environmentally Related Taxes and Tradable Permits in Practice” (2008) examined practical differences between taxes and tradable permits, using climate-based policies in the United Kingdom as the basis for the comparison.

In recent years, the International Energy Agency (IEA) work on climate policy has also addressed issues related to the competitiveness implications of unilateral emission caps, the interaction between electricity markets and CO<sub>2</sub> markets. An information paper on “Issues Behind Competitiveness and Carbon Leakage – Focus on Heavy Industry” (2008) provides a comprehensive review of studies on carbon leakage, statistical analyses of leakage in the European Union for main industries, and a survey of possible response measures.

Finally, the OECD Round Table on Sustainable

Development held a High Level Meeting in July 2009 to discuss carbon leakage and border tax adjustments (see Section 4.6).

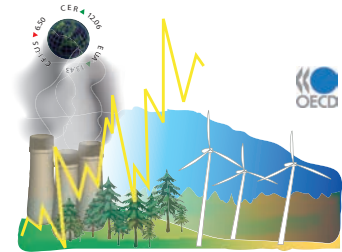
#### Key links:

[www.oecd.org/env/cc/econ](http://www.oecd.org/env/cc/econ)  
[www.oecd.org/env/taxes](http://www.oecd.org/env/taxes)

## Carbon Markets

Putting a price on carbon is essential to drive the technological and behavioural innovation necessary to limit climate change. The use of market-based instruments, such as cap-and-trade emission trading schemes, is crucial to price carbon emissions and to keep the costs of climate action low. The OECD works with governments to analyse and advise on the design, development and implementation of GHG market instruments such as cap-and-trade. Our analysis also extends to voluntary markets, offsets and project-based mechanisms.

Three recent papers explore issues in linking emissions





trading systems and voluntary markets: “Towards Global Carbon Pricing: Direct and Indirect Linking of Carbon Markets” (2010); “Voluntary Carbon Markets: How Can They Serve Climate Policies?” (2010); and “Buying and Cancelling Allowances as an Alternative to Offsets for the Voluntary Market: A Preliminary Review of Issues and Options” (2010). In addition, a forthcoming working paper entitled “Cities and Carbon Market Finance: Taking Stock of Cities’ Experience with CDM and JI” analyses experience to date with urban projects in compliance carbon markets.

**Key links:**

[www.oecd.org/env/cc/carbonmarkets](http://www.oecd.org/env/cc/carbonmarkets)

## 1.2 Adaptation to Climate Change

Efforts to reduce GHG emissions need to move hand-in-hand with policies and incentives to adapt to the impacts of climate change. How much adaptation might cost, and how large its benefits might be, are issues that are increasingly relevant both for on-the-ground projects and in international contexts. On-going OECD work on adaptation focuses on four main streams of work: (i) economic aspects

of adaptation; (ii) integrated assessment modelling of adaptation costs and benefits; (iii) integrating adaptation in development co-operation; and (iv) adaptation in domestic OECD contexts.

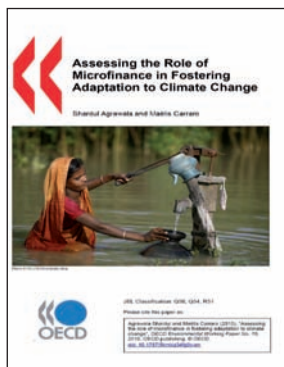
### Economic Aspects of Adaptation

This work examines the potential for economic and policy instruments to incentivise and motivate adaptation actions. Outputs of this work include the book *Economic Aspects of Adaptation to Climate Change - Costs, Benefits and Policy Instruments* (2008). It provides a critical assessment of adaptation



costs and benefits in key climate sensitive sectors, as well as at national and global levels. The report calls for a raft of policy instruments to establish the right incentives to influence such decisions. Further work examines adaptation costs/benefits and interactions between adaptation and mitigation using Integrated Assessment Models (IAMs). Results show that adaptation is important to offset the

adverse impacts of climate change and that the total costs of climate change are the lowest when both mitigation and adaptation are undertaken in conjunction. On-going work is also examining the role of the private sector in promoting adaptation in both developed and developing country contexts. In particular, a working paper entitled “Assessing the Role of Microfinance in Fostering Adaptation to Climate Change” (2010) focuses on the role of microfinance in fostering adaptation to climate change.



**Key links:**

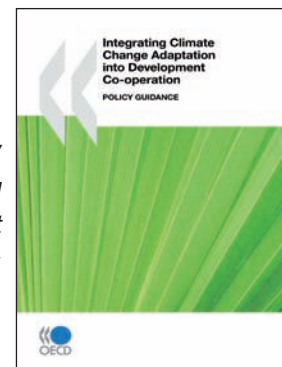
- [www.oecd.org/env/cc/adaptation](http://www.oecd.org/env/cc/adaptation)
- [www.oecd.org/env/cc/ecoadaptation](http://www.oecd.org/env/cc/ecoadaptation)

## Integrating Adaptation in Development Co-operation

In 2006, Development and Environment Ministers from OECD Countries endorsed a Declaration on Integrating Climate Change Adaptation into Development Co operation, in which they called for “meaningful co-ordination and sharing of good practices on integrating climate change

adaptation in development co-operation”.

Follow-up work to this Ministerial Declaration includes a report entitled “Stocktaking of Progress on Integrating Adaptation to Climate Change into Development Co operation Activities” (2007) and a *Policy Guidance on Integrating Adaptation into Development Co-operation* (2009). This policy guidance was endorsed at the Joint High Level Meeting of the OECD Development Assistance Committee and the Environment Policy Committee in May 2009, when participants adopted a Policy Statement on this issue (see Sections 3.1 and 4.5).



**Key links:**

- [www.oecd.org/env/cc/adaptation/guidance](http://www.oecd.org/env/cc/adaptation/guidance)
- [www.oecd.org/dac/environment/climatechange](http://www.oecd.org/dac/environment/climatechange)

## Adaptation in the Domestic OECD Context

This line of work has focussed on two main areas: (i) an assessment of broad trends in progress on assessment and

implementation of adaptation to climate change in developed countries; and (ii) an analysis of adaptation to climate change in the winter tourism sector and with respect to natural hazards in the European Alps, resulting in the publication of the book *Climate Change in the European Alps: Adapting Winter Tourism and Natural Hazards Management* (2007).

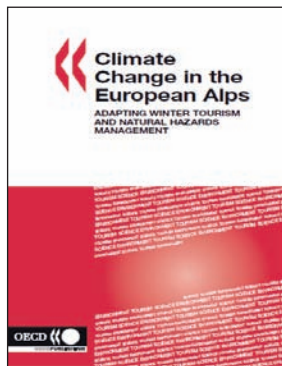
A 2010 report examined the role of “Incorporating Climate Change Impacts and Adaptation in Environmental Impact Assessments Opportunities and Challenges”.

**Key links:**

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

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

[www.oecd.org/env/cc/ccxg](http://www.oecd.org/env/cc/ccxg)



## 1.3 Post-2012 Framework

Much of the OECD work on assessing options for a post-2012 climate change framework is undertaken via the Climate Change Expert Group (CCXG), run jointly by the OECD and the IEA (see Section 4.3).

Analytical work from this Group has played an important role in building understanding and support for the use of market instruments (e.g. emissions trading and Clean Development Mechanism (CDM) in the Kyoto Protocol) and for harmonised monitoring, reporting and compliance assessment in international climate policy responses.

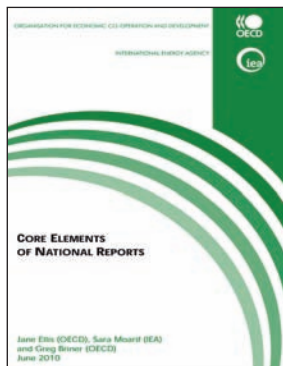
Recent work focuses on the post-2012 climate change framework and the key issues of measurement, reporting and verification (MRV) of mitigation actions and support (including via National Communications); finance and matching of finance to action; Low Emission Development Strategies (LEDS); and market mechanisms including sectoral approaches for mitigation and “market readiness”.

**Key links:**

[www.oecd.org/env/cc/ccxg](http://www.oecd.org/env/cc/ccxg)

## Measurement, Reporting and Verification

The Bali Action Plan (BAP) introduces the phrase “measurable, reportable and verifiable” in the context of countries’ post-2012 GHG mitigation actions and commitments, and in the context of support of such actions. Subsequent texts have indicated the need for more frequent and comprehensive reports. However, there remain many open questions, including what M, R and V are, what they should apply to, who should undertake them, and how. A number of CCXG papers examine possible interpretations of the UNFCCC and subsequent negotiation language



on this issue, the implications of such interpretations for the post-2012 framework, and options to implement MRV. Recent work has also analysed what is currently reported (in terms of climate commitments, actions and support), identifies gaps in the current MRV framework, and outlines options to fill these gaps.

### Key links:

[www.oecd.org/env/cc/mrv](http://www.oecd.org/env/cc/mrv)

## Finance and Matching of Finance to Action

A key issue in a post-2012 agreement is how to scale up and better match financial support with mitigation actions in developing countries as well as how to improve accountability or monitoring of financial support. The 2009 report “Financing Climate Change Mitigation: Towards a Framework for Monitoring, Reporting and Verification” traces aggregate



financial flows, the origins and sector endpoints of existing mitigation support that is flowing from developed to developing countries; it also proposes a structure and approach for a strengthened system for MRV. Another paper, “Linking Mitigation Actions in Developing Countries with Mitigation Support: A Conceptual Framework” (2009), explores a number of principles for a conceptual framework to link or match mitigation actions with mitigation support. A follow-up paper, “Matching Mitigation Actions with Support: Key Issues for Channelling International Public

Finance” (2009), documents experience with, and possible designs for, a mechanism to match support with nationally appropriate mitigation actions in developing countries.

The OECD/DAC Creditor Reporting System tracks aid flows targeted at climate change mitigation and (from 2010 onwards) climate change adaptation. Data are publicly available from the DAC’s online databases. Summaries are published in the form of factsheets.

**Key links:**

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

[www.oecd.org/dac/stats/rioconventions](http://www.oecd.org/dac/stats/rioconventions)

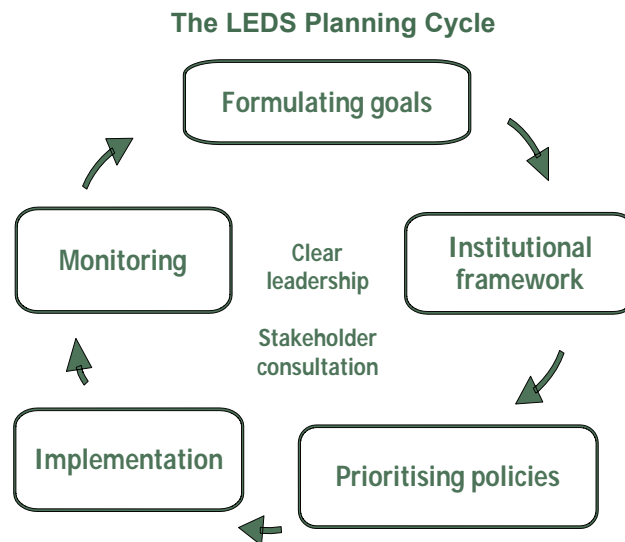
## Low Emission Development Strategies

Low Emission Development Strategies (LEDS) are national plans to advance climate change and economic development policy in a co-ordinated and strategic manner. While there is no formal definition, LEDS have been mentioned in UNFCCC negotiating texts and the Copenhagen Accord. A paper entitled “Low-Emission Development Strategies (LEDS): Technical, Institutional and Policy Lessons” (2010) explores the range of domestic and international purposes a LEDS could fulfil, and how these purposes drive the contents. The paper also examines how

LEDS could effectively be prepared, based on case studies in seven countries.

**Key links:**

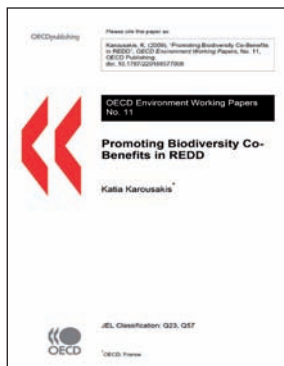
[www.oecd.org/env/cc/ccxg](http://www.oecd.org/env/cc/ccxg)



*Source:* Clapp, C., G. Briner and K. Karousakis (forthcoming), “Low-Emission Development Strategies (LEDS): Technical, Institutional and Policy Lessons”, OECD Publishing/IEA, Paris.

## Reducing Emissions from Deforestation and Forest Degradation in Developing Countries

Emissions from deforestation and forest degradation are estimated to account for up to 17% of global GHG emissions and analysis suggests it is a low-cost mitigation option. CCXG work on REDD has examined issues including the drivers and causes of deforestation; what lessons can be learned from existing environmental policies such as the Payments for Ecosystem Services (PES) programmes in Costa Rica and Mexico for a REDD mechanism; and how to design and implement REDD financing mechanisms (whether fund or market based) to ensure environmentally and cost-effective emission reductions. Other recent OECD REDD-related work includes a paper on “Promoting Biodiversity Co-Benefits in REDD” (2009).



### Key Links:

[www.oecd.org/env/cc/redd](http://www.oecd.org/env/cc/redd)



## Scaling Up Mitigation: Sectoral Market Mechanisms

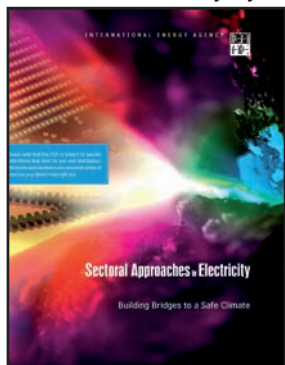
Sectoral market mechanisms offer the potential to scale up GHG mitigation by granting broader access to carbon markets to developing countries.

OECD and IEA have been working on sectoral market mechanisms for GHG mitigation since 2005, under the aegis of the AIXG/CCXG. Several different papers have explored various aspects of different potential sectoral market mechanisms in detail, for example different ways of designing “sectoral crediting mechanisms”, how to transmit the carbon price signal at the sector level to individual investors, and exploring how different sectoral approaches could be integrated into a post-2012 climate regime.

A 2009 CCXG paper on “Sectoral Market Mechanisms – Issues for Negotiation and Domestic Implementation” provides an overview of the design options on the negotiation table and looks at possible principles and technical requirements for elaboration of new sectoral market mechanisms. The paper also considers possible transition issues between current and future market mechanisms.

Sectoral approaches are featured in the climate policy

scenarios of the IEA's *World Energy Outlook 2010*. The book *Sectoral Approaches in Electricity — Building Bridges to a Safe Climate* (2009) asks how the international climate policy framework can effectively support a transition towards low-CO<sub>2</sub> electricity systems in developing countries. For the



most part, developed countries are turning to CO<sub>2</sub> pricing, via emissions trading systems, to steer generation away from carbon-intensive production modes. Following the same logic, sector-level crediting of emission reductions is proposed for that purpose in developing countries. This book explores the pros and cons of such an approach in a few

key emerging economies and asks how international climate policy could support and enhance on-going efforts on end-use energy efficiency and on lowering the CO<sub>2</sub> content of supply.

#### Key Links:

[www.oecd.org/env/cc/sectoral](http://www.oecd.org/env/cc/sectoral)  
[www.worldenergyoutlook.org](http://www.worldenergyoutlook.org)

## 1.4 Cost of Policy Inaction and Benefits of Action

The costs of not responding to climate change can be considerable. A working paper entitled “Assessing the Impacts of Climate Change: A Literature Review” (2009) highlights that there are large uncertainties, which are not fully reflected in existing estimates of global impacts of climate change in monetary units. Nevertheless, two features of the impacts of climate change tilt the balance in favour of action: their irreversibility, and the risk that they are extreme.

This builds on a book entitled *Costs of Inaction on Key Environmental Challenges* (2008) which offers a framework that interprets recent damage cost estimates. These include characterising uncertainty; thresholds and irreversibilities; the long-run nature of environmental problems; the degree of substitutability between environmental resources and other

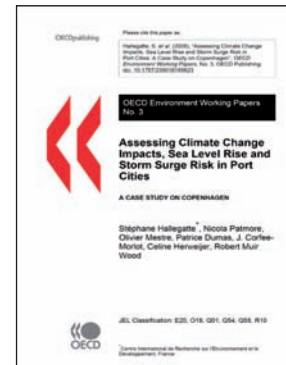
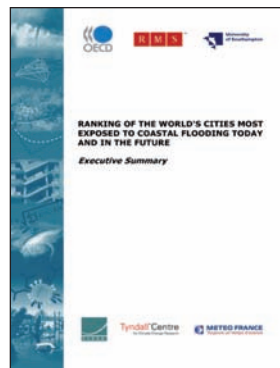


inputs into the economy; the distribution of environmental impacts, and their links to social concerns about equity; and the endogeneity of responses to changing environmental conditions (e.g. adaptation). Further work is focusing on the distributional impacts of inaction, with climate change being one focus area.

Other work on the benefits of climate change policies covers both the direct, indirect and co-benefits of action. One strand focuses on methods and metrics to assess the climate change impacts under scenarios of inaction and the change in impacts by sector (*i.e.* in agriculture and coastal zones) and across different scales (from global to local scale). This also includes a conceptual framework for the economic assessment of impacts and policy benefits at an urban scale.

Focusing on the importance of local understanding, a series of working papers assesses the economic impacts of and vulnerability to climate change at a local scale. For example, “Ranking Port Cities with High Exposure and Vulnerability to Climate Extremes” (2007) shows that the impact of climate change could more than triple the number of people in port cities globally that are exposed to coastal flooding by 2070. Two other papers develop in-

depth case studies on the port cities of Copenhagen (2008) and Mumbai (2010), estimating the economic benefits of both global mitigation and adaptation at local scales. This complements other work done on the management and economic valuation of changes in environmental quality in port cities.



Finally, mitigation policies may also yield significant co-benefits on a national scale, which can offset the costs of action. These include health benefits from improved air quality, and quality of life improvements from less congested and more liveable urban environments. A working paper entitled “Co-benefits of Climate Change Mitigation Policies:



Literature Review and New Results” (2009) provides an update of understanding of these corollary benefits and looks at how they may strengthen the incentives for developing countries to participate in a global climate change mitigation agreement.

**Key Links:**

[www.oecd.org/env/cc/cities](http://www.oecd.org/env/cc/cities)

[www.oecd.org/env/cc/benefits](http://www.oecd.org/env/cc/benefits)

[www.oecd.org/env/policies](http://www.oecd.org/env/policies)

# Sector-Specific Analysis

# 2

## 2.1 Agriculture and Fisheries

A stocktaking publication on *Climate Change and Agriculture: Impacts, Adaptation and Mitigation* (2010) examines the economic and policy issues. A joint OECD-FAO workshop in 2010 focused on the challenges facing agriculture in adapting to climate change. A 2008 book on the *Environmental Performance of Agriculture in OECD Countries Since 1990* includes comparative data on agriculture's GHG emissions. A book entitled *Biofuel Support Policies: An Economic Assessment* (2008) examines, *inter alia*, the effects on GHG emissions of policies to promote biofuels.



The OECD Joint Working Party on Agriculture and the Environment focused in 2009-10 on the role of policy in agriculture's adaptation to climate change. The aim is to analyse the role of OECD agricultural policies in facilitating or hindering adaptation of the sector, and will include an examination of appropriate modelling efforts to analyse different policy scenarios of shifts in land use and production patterns due to climate change and alternative agricultural support measures. The work on climate change and agriculture will also identify synergies between GHG mitigation and adaptation, and the links with other environmental objectives, such as water and air quality and biodiversity. This will help to analyse agricultural policy and market approaches that have the potential to be cost-effective in delivering those multiple environmental benefits.

The meeting of the Committee of Agriculture at Ministerial level in February 2010 stressed the need to ensure food security while reducing agriculture's carbon

and other environmental footprints. Links between climate change and water are also being examined.

The Committee for Fisheries, on the invitation of the Korean Government, hosted a Workshop on the Economics of Adapting Fisheries to Climate Change in June 2010. The Workshop focussed on adaptation of fisheries to climate change in particular with a view to identify the fisheries and aquaculture management and governance models that are suited to address climate change. A key question for the Workshop was to identify when policy makers need to contemplate to address climate change in fisheries and aquaculture. An important message to policy makers is to downscale current knowledge and data to local situations while applying an ecosystem approach to fisheries management.

#### Key Links:

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

## 2.2 Energy

The IEA has been providing analytical work on the energy dimension of climate change since the early 1990s, originally with a focus on the implications of the UNFCCC and its Kyoto Protocol for the energy sector. The IEA also studies options for the future evolution of the international

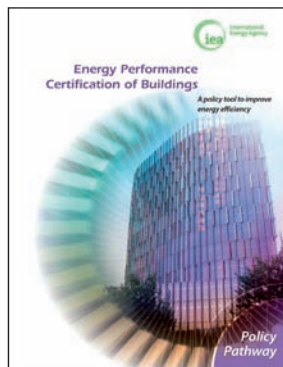
climate change mitigation regime, including for the OECD and IEA Climate Change Expert Group on the UNFCCC (see Section 4.3). The current IEA work covers areas such as emissions trading and other flexibility mechanisms, international sectoral approaches (see Section 1.3), policies and measures, and international technology collaboration.

### Energy Efficiency and Security

The Agency has extensive work on energy efficiency, a major possible contribution to GHG mitigation and to energy security objectives. At their meeting in Gleneagles in 2005, the G8 leaders mandated the IEA to provide advice on a range of energy policy issues linked to climate change. In 2008, the IEA published a book on *Energy Efficiency Policy Recommendations* which made energy efficiency recommendations in over 25 areas. An IEA book on *Implementing Energy Efficiency Policies – Are IEA Member Countries on Track?* (2009) evaluated the progress made in implementing the 25 IEA energy efficiency recommendations up to March 2009. An update on progress in the transport sector has been provided in a 2010 paper “Transport Energy Efficiency- Implementation of IEA Recommendations Since 2009 and Next Steps”.

The IEA has launched a new series of publications called *Policy Pathways* to assist countries implement energy efficiency policies. Based on direct experience, published research, expert workshops and best-practice country case studies, the series aims to provide guidance to all countries on the essential steps and milestones in implementing specific energy efficiency policies. The first in the series, *Monitoring, Verification and Enforcement – Improving Compliance Within Equipment Energy Efficiency Programmes* (2010), focuses on assisting policymakers with improving compliance in end-use appliance and equipment standards and labelling programmes. The second, *Energy Performance Certification of Buildings – A Policy Tool to Improve Energy Efficiency* (2010), proposes the necessary steps to put in place an energy performance certification of buildings programme.

Analysis of sectoral energy efficiency is continued in the IEA book *Gadgets and Gigawatts: Policies for Energy Efficient Electronics* (2009) that includes



a global assessment of the changing pattern in residential electricity consumption over the past decade and an in-depth analysis of the role played by electronic equipment. It reviews the influence that government policies have had on creating markets for more energy efficient appliances and identifies new opportunities for creating smarter, more energy efficient homes. A 2010 paper "Phase Out of Incandescent Lamps - Implications for International Supply and Demand for Regulatory Compliant Lamps" considers the implications of policies aimed at phasing-out incandescent lighting in terms of demand for regulatory compliant lamps and the capacity and motivation of the lamp industry to produce efficient lighting products in sufficient volume to meet future demand. To assess these issues, it reviews the historic international screw-based lamp market, describes the status of international phase-out policies and presents projections of anticipated market responses to regulatory requirements to determine future demand for Compact Fluorescent Lamps (CFLs).

An effective system of energy efficiency governance is necessary to achieve successful policy outcomes. From the legal frameworks and institutions that develop and implement policy, to the stakeholders who participate in

the implementation in the market place, energy efficiency governance is a critical part of the energy efficiency delivery system. There are many instances where energy efficiency policies have failed to deliver their full potential because of, in part, limited attention to energy efficiency governance arrangements. The IEA has published *Guidelines for Good Energy Efficiency Governance – A Handbook* (2010) to assist governments and stakeholders to establish effective energy efficiency governance arrangements.

#### Key Links:

[www.iea.org/efficiency](http://www.iea.org/efficiency)

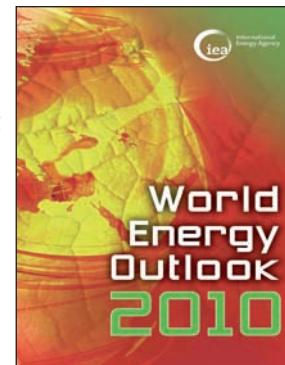
**DID YOU KNOW** ...that if implemented without delay, the 25 actions proposed by the IEA in its 2008 book *Energy Efficiency Policy Recommendations* could save approximately 8.2 Gt CO<sub>2</sub>/year by 2030?

## World Energy Outlook

The 2010 edition of the *World Energy Outlook* provides updated projections that take into account the implications of the Copenhagen Accord, the faster-than-expected global economic recovery, and the continuing low gas prices. Climate change policy is at the heart of the analysis outlined

in this edition of the *Outlook*, which presents three climate policy based scenarios. The first of these assumes weak implementation of the Copenhagen Accord and limited additional climate policy after 2020; the second is based on no change to current policies; and the third, the main focus of the climate analysis, assumes the implementation of an ambitious interpretation of the Copenhagen Accord and strong action after 2020 to address climate change.

This publication sets out the latest energy trends and their impact on GHG emissions, updated in light of policy developments and the current economic context, as well as detailing a pathway for the energy sector to achieve a transition to a low-carbon world and avoid the worst impacts of climate change – including details on the spending and investment needed to achieve this scenario and the impact that the outcome of Copenhagen has had on these costs. The report, released in November 2010, contains substantial climate change data and analysis, as well as information on renewable



energy market prospects.

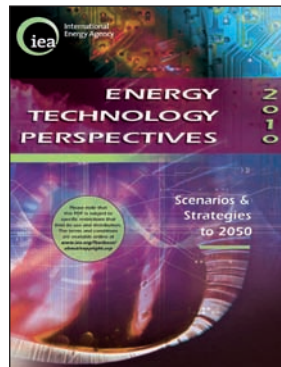
In addition to the scenario analysis and updated projections, the *World Energy Outlook 2010* includes a chapter on Energy Poverty which was released as an excerpt in September 2020 to coincide with the UN summit on the Millennium Development Goals. It also presents in-depth analysis of four other special topics: prospects for unconventional oil; prospects for global renewable energy markets; removal of fossil fuel subsidies; and energy trends in the Caspian countries.

**Key Links:**

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

## Energy Technology Perspectives

The IEA recently published *Energy Technology Perspectives 2010* which provides decision makers with detailed practical information and tools to help kick-start the transition to a more secure, sustainable and affordable energy future. This book presents



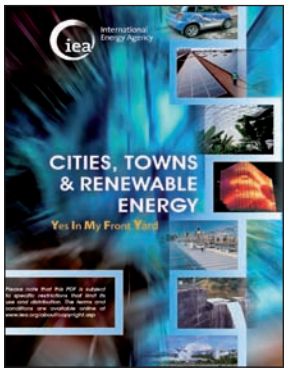
updated scenarios from the present to 2050 that show which new technologies will be most important in key sectors and in different regions of the world. It highlights the importance of finance to achieve change, examines the implications of the scenarios for energy security and looks at how to accelerate the deployment of low-carbon technologies in major developing countries. It also contains roadmaps and transition pathways for spurring deployment of the most important clean technologies and for overcoming existing barriers.

**Key Links:**

[www.iea.org/techno/etp](http://www.iea.org/techno/etp)

## Renewables

The IEA has considerably increased the attention it pays to the deployment of renewable energy technologies. It has published technology roadmaps for wind power, solar photovoltaics and concentrating solar power, and information papers on sustainable biofuels. Roadmaps for other renewables (notably geothermal energy, biofuels and bioenergy for power and heat) will follow soon. Work on policy instruments and governance is also underway. The publication *Cities, Towns and Renewable Energy – Yes*



*In My Front Yard*, which shows the important role of regional governments in the deployment of renewables, was launched at COP 15 in Copenhagen in 2009. A new edition of the publication *Deploying Renewables* will be published at the beginning of 2011, as well as an in-depth study of the grid-integration of variable renewables.

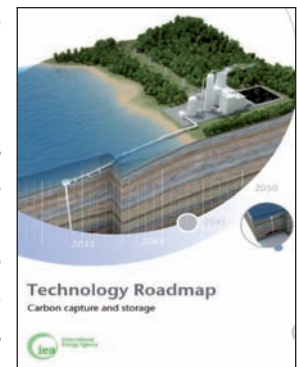
## Carbon Capture and Storage

The IEA explores a range of technology options, including CO<sub>2</sub> capture and storage (CCS) from energy-using installations such as power plants. The book *CO<sub>2</sub> Capture and Storage: A Key Carbon Abatement Option* (2008) evaluates a range of issues related to this promising, yet-to-be-deployed technology. These include cost projections, transport and storage, appropriate demonstration efforts, as well as support measures, regulatory frameworks and public awareness for broader adoption of carbon capture and storage as part of an effective climate change mitigation strategy.

OECD and IEA have also assessed issues relevant to the inclusion of carbon capture and storage in the CDM through the work of the CCXG.

The 2009 *Carbon Capture and Storage Technology Roadmap* charts a pathway for CCS technologies to deliver significant CO<sub>2</sub> emission reductions until 2050. The Roadmap outlines an ambitious deployment challenge, with some 100 large-scale projects needed until 2020, and over 3,000 by 2050 across the world. While OECD countries must take the lead in demonstrating the technology and building the first plants, after 2025 the majority of large-scale CCS plants should be deployed outside the OECD.

The 2010 report “Carbon Capture and Storage: Progress and Next Steps”, presented to G8 Leaders by the IEA, the Carbon Sequestration Leadership Forum and the Global CCS Institute, outlines the progress towards the G8 goal of launching 20 large-scale demonstration projects before end-2010, with a view to starting wider deployment after 2020. While

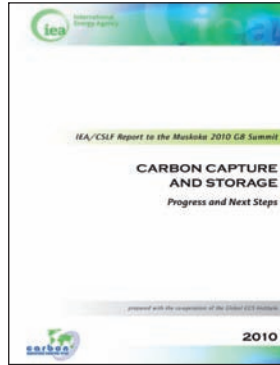


progress is being made on some 80 large-scale demonstration projects across the globe, the 2010 goal of 20 demo projects will not be met. However, many projects are close to fruition with the right regulatory framework and public-private risk sharing.

**Key Links:**  
[www.iea.org/ccs/](http://www.iea.org/ccs/)

## Nuclear Energy

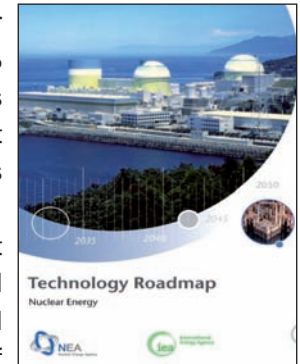
Many governments are now giving further consideration to the use of nuclear energy, particularly because of its very low full life-cycle carbon emissions and for reasons of security of energy supply. The Nuclear Energy Agency provides factual studies to assist in these evaluations. The 2008 *Nuclear Energy Outlook* is a major study examining all the issues affecting the future of this energy source, including its potential role in reducing GHG emissions. The book contains a wide range of data and information of use to those countries that may choose to use nuclear energy to address climate change concerns. In particular



it addresses the key questions of the build rate for reactors and the availability of uranium to fuel an expanded world fleet; neither presents a limitation to a very considerable expansion.

In addition, the NEA issued a brochure in 2009 on "Nuclear Energy and Addressing Climate Change" which addresses the way nuclear can contribute to shared goals of greenhouse gas reductions. In 2010, the NEA and the IEA published the *Nuclear Energy Technology Roadmap*, which aims at examining the role nuclear power can play in reaching a 50% cut in energy-related CO<sub>2</sub> emissions by 2050. This roadmap looks at the challenges and milestones for nuclear capacity to reach 1 200 GW by 2050, at which point it would provide around 24% of global electricity (up from the present level of 370 GW, which provides 14% of electricity globally).

**Key Links:**  
[www.nea.fr/neo](http://www.nea.fr/neo)



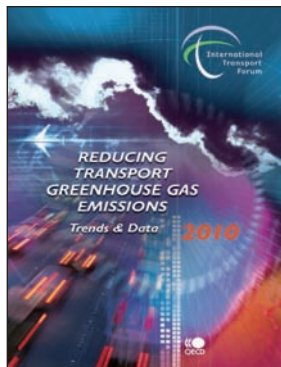


**DID YOU KNOW** ...that nuclear energy saves up to 3 billion tonnes of CO<sub>2</sub> emissions every year, compared with generating the same amount of energy using fossil fuels.

## 2.3 Transport

The International Transport Forum (ITF) recent work focused on policies and measures to reduce CO<sub>2</sub> emissions from the transport sector. Recent publications from the ITF include *Reducing Transport Greenhouse Emissions: Trends and Data 2010*, *Reducing Transport GHG Emissions: Opportunities and Costs - Preliminary Findings* (2009) and “Cutting Transport CO<sub>2</sub> Emissions: What Progress?” (2007).

The ITF held its first two Ministerial meetings in 2008 and 2009 on the themes of “Transport & Energy: The Challenge of Climate Change” and “Transport and the Global Economy”.



Both Forums included extensive discussions of transport GHG reduction trends and policies both nationally and internationally. The 2008 Forum released a set of agreed key messages from Ministers and the 2009 Forum included in-depth discussions of aviation and maritime emission reduction policies. Key messages, papers, presentations and broadcasts from both Forums can be viewed on the ITF website. The 2010 Forum on Transport and Innovation in Leipzig also included several sessions pertaining to low-carbon innovation in the transport sector.

An OECD and ITF Global Forum in 2008 examined transport and environment integration, in the context of the global economy. Much of this meeting focused on policies and instruments for dealing with transport-based GHG emissions. Drawing on papers prepared for this Forum, a book on *Globalisation, Transport and the Environment* was published in 2010.

Along with its partners, the United Nations Environment Programme, the IEA and the FIA Foundation, the ITF launched a Global Fuel Economy Initiative in 2009 that seeks to accelerate developments leading to a 50% improvement in global light-duty vehicle economy by 2050. This ambitious fleet-wide goal could be reached largely through cost-effective improvements

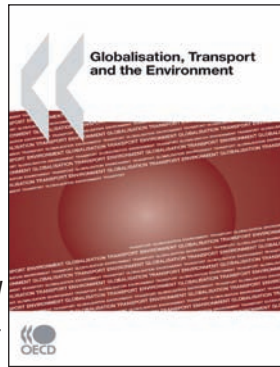
in current vehicle technologies.

A number of case studies have been made on the environmental impacts of seaports (including CO<sub>2</sub> emissions linked to ports' operation), and of policy instruments applied to limit such impacts. A synthesis report on *The Environmental Impact of International Shipping – the Role of Seaports* is expected to be issued early in 2011.

Finally, an increasing number of countries apply CO<sub>2</sub>-related tax rate differentiation in their motor vehicle taxes. The OECD report "Incentives for CO<sub>2</sub> Emission Reductions in Current Motor Vehicle Taxes" (2009) gives an overview over current usage, and the paper "The Scope for CO<sub>2</sub>-Based Differentiation in Motor Vehicle Taxes - In Equilibrium and in the Context of the Current Global Recession" (2009) discusses the rationale behind such differentiation.

**Key Links:**

[www.oecd.org/env/transport](http://www.oecd.org/env/transport)  
[www.internationaltransportforum.org](http://www.internationaltransportforum.org)  
[www.50by50campaign.org](http://www.50by50campaign.org)



## 2.4 Waste

The OECD Working Group on Waste Prevention and Recycling is carrying out work in 2009-10 that examines the potential for GHG mitigation from an integrated, life-cycle approach to materials and waste management. This is showing that about 60% of GHG emissions are linked to materials management. It also shows that significant carbon mitigation can be achieved at low cost by better managing waste.

Work is also being undertaken to analyse life-cycle approaches to information and communication technologies design, production, use and disposal under the auspices of the OECD Working Party on the Information Economy.

**Key Links:**

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

## 2.5 Tourism

The OECD Tourism Committee, in partnership with UNEP, is completing a study reviewing the integration of sustainability in national tourism policies. This assessment focuses on the development of climate change policy, with particular attention being given to water consumption and its availability. The report is the first cross-country

analysis of existing mitigation and adaptation strategies and policies, with regard to emissions from transport and infrastructure, extreme weather events, water scarcity, and, more generally, changing environmental attributes. The report also discusses the consequences of existing policy; for instance, with regard to tourism mobility, its efficiency and capacity to meet mitigation objectives and adaptation challenges. Options for policy innovation, as well as data and information needs are outlined. Through this study, the OECD Tourism Committee aims to develop a more long-term agenda for its work in this area.

**Key Links:**

[www.oecd.org/cfe/tourism](http://www.oecd.org/cfe/tourism)

## 2.6 Water

As the impacts of climate change on water increase, so will the need for appropriate adaptation measures. In the water sector, a number of adaptation measures will generate investment or rely on economic instruments.

Building on previous work developed by the IEA and the OECD, the Environment Directorate is developing a methodology to factor climate change adaptation in water management. The methodology focuses on the financial

dimension: what are the costs and revenues associated with adapting water management to climate change? How can potential financial gaps be bridged, by revising water management plans and/or using innovative financing instruments (such as payment for ecosystem services)? The methodology is being developed in the context of the EU Water Initiative and the Task Force for the Implementation of the Environmental Action Programme (EAP Task Force).

Also, in collaboration with the Development Assistance Committee, the Environment Directorate is in the process of developing a policy guidance on how to incorporate considerations of climate change impacts and adaptation in decision-making in the water sector.

**Key Links:**

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



# Cross-Cutting Issues

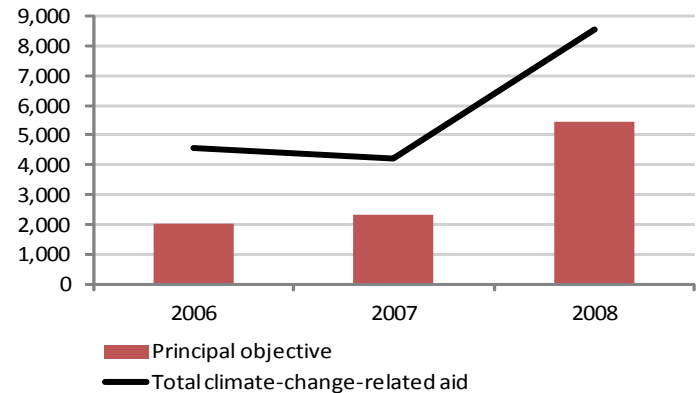
# 3

## 3.1 Development Co-operation

The Development Assistance Committee has joined forces with the Environment Policy Committee to work on mainstreaming climate change considerations within development processes. A particular focus has been on integrating adaptation to climate change into development co-operation (see Section 1.2). In this regard a *Policy Guidance on Integrating Climate Change Adaptation into Development Co-operation* (2009) has been developed. The OECD will develop additional analysis and policy guidance for implementing climate change responses. This will include work on capacity to adapt to climate change, as well as sector-specific guidance, for example in the agriculture, water or energy sectors. In addition, the OECD Development Assistance Committee is undertaking work on applying the lessons learned from decades of development co-operation to climate change financing, as well as on climate change mitigation (see Section 4.5).

### Total Aid Flows Targeted at Climate Change Mitigation

Bilateral aid commitments, USD million, constant 2008 prices



Source: OECD-DAC.

The OECD collects data on levels of official development assistance (ODA) targeting the objectives of the UNFCCC through the so-called “Rio markers”. Data on mitigation-related aid have been collected since 1998. A new marker to track aid in support of climate change adaptation was

agreed at the end of 2009. The first reports on climate change covering both support to mitigation and adaptation actions will become available in 2011.

**Key Links:**

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

[www.oecd.org/dac/stats/crs](http://www.oecd.org/dac/stats/crs)

[www.oecd.org.dac/stats/rioconventions](http://www.oecd.org.dac/stats/rioconventions)

**DID YOU KNOW** ...that bilateral aid flows that target climate change mitigation approached the level of USD 9 billion in 2008?

## 3.2 Clean Innovation

### Innovation in Energy Technology

The OECD Innovation Strategy presented to Ministers in May 2010 focuses on innovation for global challenges, including climate change, as part of its whole-of-government approach to innovation. This work is summarised in *Measuring Innovation: A New Perspective* (2010) as well as the *OECD Innovation Strategy: Getting a Head Start on Tomorrow* (2010).

A number of OECD governments and firms are now placing a strong emphasis on eco-innovation to address

priority environmental issues, including climate change, while addressing concerns about the competitive impacts of environmental policies. In conjunction with the European Commission's *Environmental Technology Action Plan*, the OECD is reviewing the policies and programmes that OECD countries have put in place to promote eco-innovation, including developing country profiles. This is complemented by case studies on selected climate-related innovations (e.g. combined heat and power (CHP) generation, micro CHP, carbon capture and storage and electric cars).

Work so far has involved the development of indicators of innovation with respect to climate change mitigation (e.g. renewable energy, energy efficiency and “clean” coal). The data has been used to assess the effect of different policy measures on innovation in electricity generation, including renewable energy sources. Other work is focusing on issues such as energy storage and alternative-fuelled vehicles. In addition, analysis on the role of different factors in encouraging the



transfer of climate change mitigation technologies between countries is presented in the 2010 paper “Climate Policy and Technological Innovation and Transfer: An Overview of Trends and Recent Empirical Results”. Work for 2011-2012 will focus on knowledge and technology transfers between Annex I and non-Annex I countries, and the development of innovation capacity in climate mitigation technologies.

**Key Links:**

- [www.oecd.org/environment/innovation](http://www.oecd.org/environment/innovation)
- [www.oecd.org/environment/innovation/globalforum](http://www.oecd.org/environment/innovation/globalforum)
- [www.oecd.org/sti/ipr-statistics](http://www.oecd.org/sti/ipr-statistics)

## Eco-Innovation: Green Growth and Systemic Improvements

Under the auspices of the Committee on Industry, Innovation and Entrepreneurship, a project on Green Growth and Eco-innovation was launched in 2008. A key objective is to promote the concept of eco-innovation as a new vision that will enable the creation of wealth and business opportunities through stimulating new technological and systemic solutions to climate change. The project has established an analytical framework of eco-innovation and reviewed eco-innovation examples, relevant policy initiatives, sustainable manufacturing indicators and eco-innovation measurement.

Best business and policy practices for eco-innovations that could lead to systemic solutions to climate change



and other global challenges will be collected and analysed to draw lessons for policy makers and businesses. Furthermore, the expected structure change of existing industries and opportunities for new businesses by pursuing the green growth path will also be investigated. The initial first-year outcomes have

been published as *Eco-Innovation in Industry: Enabling Green Growth* in 2010.

Currently, a “sustainable manufacturing toolkit” is also being developed to help businesses improve their environmental performance by providing a means for them to benchmark their products and production processes. The toolkit will be available from December 2010.

**Key Links:**

- [www.oecd.org/sti/innovation/green](http://www.oecd.org/sti/innovation/green)

## Economics of Eco-Innovation

On-going analytical work assesses how different policy instruments affect the incentives for firms and households to develop and adopt environment-friendly technologies. Analyses of the effects of framework policy conditions on innovation have been undertaken, with a focus on the need for stringent, predictable and flexible policies.

A second project examines the effects of environmental policy design on the adoption of innovative behaviour at the level of households. A survey of 10,000 households was undertaken in 2008 and the results were published in the book *Household Behaviour and the Environment: Reviewing the Evidence*. A new survey is to be implemented in 2011. Thematic areas to be addressed include waste generation, personal transport and residential energy use; all of which have implications for climate change. Innovation is a key feature of the 2011 survey.

Eco-innovation is also at the heart of a 2010 book on *Taxation, Innovation and the Environment*, which includes several climate-related case studies.

### Key Links:

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

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

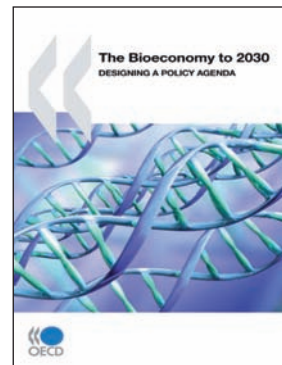
[www.oecd.org/env/taxes/innovation](http://www.oecd.org/env/taxes/innovation)

## Biotechnology

Current projects focus on: the use of industrial and environmental biotechnology, and its effects on climate change; delivering innovation; assessing socio-economic impacts; and availability of human resources for the globalising bio-economy. Other work examines the potential of biotechnology to facilitate adaptation to climate change. Further work looks at the role and impacts of nanotechnology in the area of water, which has links to bio-energy issues, and the role of nanotechnology in helping address energy and climate challenges. This work will continue in 2011-2012.

## Bioeconomy

The OECD International Futures Programme published *The Bioeconomy to 2030: Designing a Policy Agenda* in 2009. With a prospective view, the report examines in the context of climate change the range of products and services being impacted by the biological sciences and their potential to further socio-economic



goals in OECD and non-OECD countries over the next 20 years. It identifies agricultural and industrial biotechnologies as areas where large contributions can be made to addressing climate change by reducing the environmental impact of intensive agriculture and industrial production, and presents policy options for nurturing the full potential of these technologies.

**Key Links:**

[www.oecd.org/futures/bioeconomy](http://www.oecd.org/futures/bioeconomy)

**Information and Communication Technologies (ICTs)**

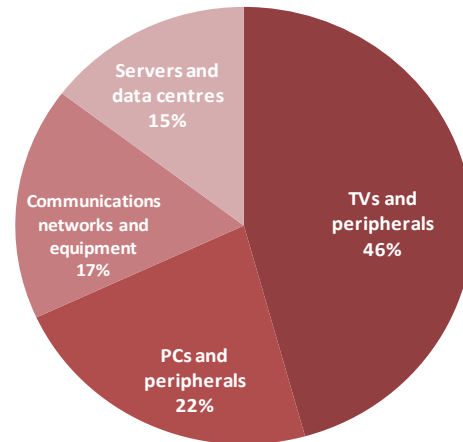
OECD governments recognise that “smart” ICT applications are a cornerstone of Green Growth agendas for sectors such as utilities, transport and buildings. Further environmental benefits of ICT applications are evident in water management, biodiversity protection and pollution reduction. At the same time, direct and systemic impacts related to the production, use and end-of-



life of ICTs require study to comprehensively assess net environmental impacts.

**Global Greenhouse Gas Emissions by ICT Product Categories**

As share of ICT overall, 2007



Source: OECD (2010), OECD Information Technology Outlook 2010.

The OECD Committee for Information, Computer and Communications Policy (ICCP) explores the role of ICTs and the Internet in addressing key environmental



challenges. It has published various reports on “Green ICT” government policies and business initiatives, statistics and data availability and sensor-based networks to improve environmental performance across economic sectors, as well as an analytical report that discusses empirical findings on ICTs and the environment.

OECD analytical work provides policy-makers with options for encouraging clean innovation. The OECD Green Growth Declaration adopted by Ministers of Finance, Economy and Trade in 2009 explicitly invites the OECD and relevant stakeholders to explore the role of ICTs and the Internet in addressing environmental challenges. In a 2010 Council Recommendation, the OECD lays out ten basic principles on how governments can employ ICTs to enhance national environmental performance.

The OECD has held events where key stakeholders advance strategies and policies to use ICTs for greener economic growth, including a High-Level Conference in 2009 hosted by the Danish government, side events in the run-up to and at COP 15, workshops at the UN Internet Governance Forum, and a Technology Foresight Forum on “Smart ICTs and Green Growth” in September 2010. Video records and presentations are available online.

### Key Links:

[www.oecd.org/sti/ict/green-ict](http://www.oecd.org/sti/ict/green-ict)

[www.oecd.org/ict/TechnologyForesightForum](http://www.oecd.org/ict/TechnologyForesightForum)

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

**DID YOU KNOW** ...that smart grid technologies such as sensor-based monitoring can help identify leaks and losses of electricity which, on average, amount to 8% of generated capacity in a country?

## Space Technologies

A 2009 OECD International Futures Programme report entitled *Space Technologies and Climate Change: Implications for Water Management, Marine Resources and Maritime Transport* provides lessons learned on scientific, technical and economic outputs derived from using space applications in monitoring and managing climate change. Examples focus on water management, marine resources and maritime transport. The report also provides a review



of methodologies when considering investments in Earth observation. Based on its foresight mission, the OECD International Future Programme is examining the role and impacts of the space infrastructure in OECD and non-OECD countries (e.g. meteorology and Earth observation satellites). Further work is underway concerning the role of space applications in the management of global food supplies (e.g. crop monitoring from space), with a report planned for late 2010.

**Key Links:**

[www.oecd.org/futures/space](http://www.oecd.org/futures/space)

## 3.3 Taxation

### Tax Treatment of Tradable Permits

Emission trading can be a powerful tool to reduce emissions. Indeed, cap-and-trade and similar schemes based on tradable emission permits are under active consideration in a number of countries – and already well developed in Europe. Such schemes provide a market incentive to reduce emissions where it can be done at least cost.

However, businesses will make their choices based on the cost of abatement and permits net of corporate

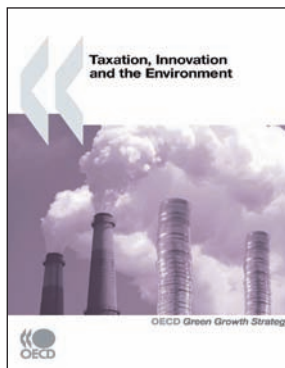
income tax, VAT, etc. Therefore it is vital to avoid uneven tax treatment of tradable permits that could imply widely different abatement incentives for different emitters. The risk is particularly important in an international context and when linking carbon markets in the future.

The OECD Committee on Fiscal Affairs has now initiated an inter-disciplinary policy process to ensure that tax and environment objectives go hand in hand and that tradable permits work well in practice. A first meeting held in September 2009 brought together 80 tax and environment experts, including representatives from business and other stakeholders, to identify the key issues. The experts concluded that this was indeed an important issue where international cooperation and consistency is desirable. The OECD wants to engage in a discussion with all interested countries to build viable global solutions.

Sorting out potential problems early on is vital for easing the administrative complexities and compliance costs for businesses – thereby building a wider social support for effective action against climate change. And by taking this initiative, OECD countries can take a constructive lead in establishing international practices to the advantage of all countries.

## Taxation, Innovation and Climate Change

Tradable permits, taxes and other policy instruments that put a price on carbon emissions give incentives to innovate in ways that help reduce emissions and in ways that are less burdensome for industry. A major study on *Taxation, Innovation and the Environment* (2010) developed



under the OECD Joint Meeting of Tax and Environment Experts has cast fresh light on what conditions bring about climate and other environmental innovation. The study concluded that brand new technologies are important, but so are innovations within companies adapting organisational forms and practices. The study built upon a number of case studies in OECD

countries, including two on the United Kingdom Climate Change Levy.

### Key Links:

[www.oecd.org/env/taxes/innovation](http://www.oecd.org/env/taxes/innovation)

## 3.4 Cities and Multilevel Governance

The OECD is actively working with government to highlight the role of cities in delivering cost-effective policy responses to climate change. Cities are central to the climate policy challenge as their economies account for the majority of global greenhouse gas (GHG) emissions and are also highly vulnerable to inevitable climate changes. Urban policies can help respond to climate change, with the potential to stimulate innovation and advance clean energy systems, sustainable transportation, spatial development and waste management strategies to reduce greenhouse gases. With access to up-to-date climate science, impacts and vulnerability assessment, local authorities can also work with local stakeholders to design and implement effective local adaptation strategies. "Climate-conscious" urban planning and management can help achieve national climate goals and minimise tradeoffs between environmental and economic priorities at local levels.

A forthcoming OECD book, *Cities and Climate Change*, shows how city and metropolitan regional governments can work in tandem with national governments to change the

way we respond to climate change. The chapters analyse: (i) trends in urbanisation, economic growth, energy use and climate change; (ii) the economic benefits of climate action; (iii) the role of urban policies in reducing energy demand, improving resilience to climate change and complementing global climate policies; (iv) frameworks for multilevel governance of climate change including engagement with relevant stakeholders and institutions and tools for governance (*i.e.* urban GHG inventories and creation of science-policy networks); and (v) the contribution of cities to “green growth”, including the “greening” of fiscal policies, innovation and jobs. The book also explores policy tools and best practices from both OECD and some non-member countries.



on CO<sub>2</sub> emissions and economic growth. Other work will focus on better understanding the potential for sub-national governments to contribute to cost-effective climate change solutions within the framework of multilevel governance.

#### Key Links:

[www.oecd.org/gov/cities/climatechange](http://www.oecd.org/gov/cities/climatechange)

[www.oecd.org/env/cc/cities](http://www.oecd.org/env/cc/cities)

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

#### DID YOU KNOW *...that the urban form matters?*

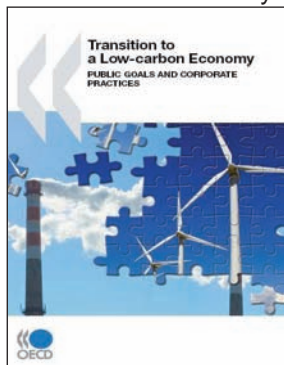
*The lower the urban density, the more energy is consumed for electricity and transportation. CO<sub>2</sub> emissions per capita drop significantly as urban areas become more densely populated.*

## 3.5 Trade and Investment

### Private Investment and Climate Change

*Transition to a Low-Carbon Economy: Public Goals and Corporate Practices* (2010) is a new OECD report which explores business practices in disclosing climate change information, reducing greenhouse gas emissions

and engaging suppliers and consumers in building a low-carbon economy. The report summarises policy frameworks, regulations and other drivers of corporate action and documents how companies are responding to, and anticipating, growing expectations in these three areas, building on principles of responsible business conduct as identified in the Guidelines for Multinational Enterprises.



Further work on investment and climate change aims to define and measure “green” Foreign Direct Investment (FDI) and to examine innovative government policies and financial mechanisms that can contribute to mobilizing private investment in support of green growth.

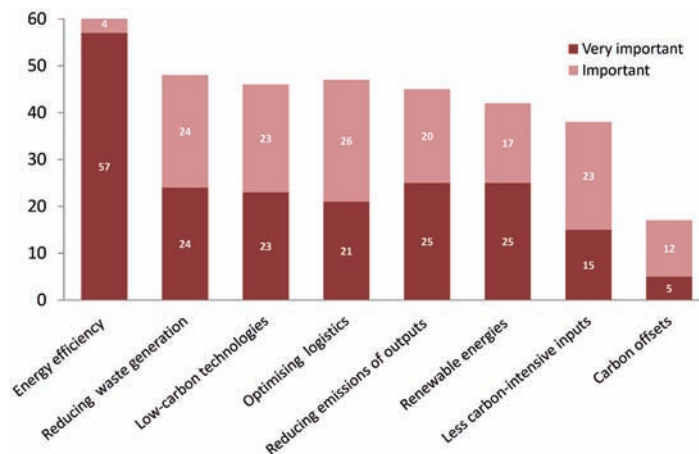
### Key Links:

[www.oecd.org/daf/investment/cc](http://www.oecd.org/daf/investment/cc)

**DID YOU KNOW** ...that four out of five of companies in the Global 500 measure and disclose their greenhouse gas emissions?

## Actions Taken by Companies to Reduce Emissions

Number of companies (sample size = 63)



Source: OECD Survey on Business Practices to Reduce GHG Emissions, 2010.

## Trade and the Environment

Within the OECD Joint Working Party on Trade and the Environment, several studies are currently being conducted on trade and climate change. One analyses the extent to which trade liberalisation and subsequent changes in global

transportation impact on climate change, and examines technological and policy options to reduce these impacts. A second project is examining the environmental and trade effects of various private and public “carbon footprint” initiatives to account for the life-cycle GHG emissions of specific products.

Both of these topics were explored in an OECD Global Forum on Trade and Climate Change in June 2009. The Forum, which attracted more than 120 experts from governments, industry, academia and civil society, also discussed issues related to leakage and competitiveness, trade in climate-related goods and services and subsidies to fossil fuels.

Other OECD work in this area also includes: an exploratory analysis of trade in services related to climate change; an analysis of the trade effects of reforming fossil-fuel consumption studies; a study on promoting energy efficiency through trade; and a report on “The Measurement of CO<sub>2</sub> Embodiments in International Trade: Evidence from the Harmonised Input-Output and Bilateral Trade Database” (2009), which examines the changes in national levels of carbon emissions that may occur as a result of globalisation.

#### Key Links:

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

[www.oecd.org/trade/globalforum/june09](http://www.oecd.org/trade/globalforum/june09)

## 3.6 Empowering Consumers

Well informed, empowered consumers are a powerful ally in the fight against climate change. They can contribute to the reduction of carbon emissions by using available energy more efficiently or moving to climate-safe technologies.

The Committee on Consumer Policy has carried out a number of projects in recent years that have implications for climate change work. In follow-up to analytic work on consumer education, the Committee issued a series of policy recommendations in 2009 which included specific points on how education could be used to further sustainable consumption. The Committee is currently finalising a report on environmental claims which will examine what stakeholders can do to enhance the value and effectiveness of such claims for consumers. A set of basic principles for strengthening claims will be elaborated. Finally, in 2010 the Committee completed work on a *Consumer Policy Toolkit*, which could be used, *inter alia*, to improve consumer policy responses to environmental challenges.

Further work is underway in the Environment Policy Committee looking at the demand side of environmental policy and ways to promote a low carbon economy. A first OECD household survey was implemented in 2008 to analyse how governments can induce greener behaviour of households when consuming energy at home and choosing transportation modes. The results were published in the 2008 book *Household Behaviour and the Environment: Reviewing the Evidence*. A new survey will focus on the adoption by households of innovations such as renewable energy and alternative fuel vehicles.

**Key Links:**

[www.oecd.org/sti/consumer-policy](http://www.oecd.org/sti/consumer-policy)

[www.oecd.org/env/cpe/consumption](http://www.oecd.org/env/cpe/consumption)



## 3.7 Employment and Local Development

An on-going study led by the Local Economic and Employment Development Directing Committee aims at providing the support and advice that national and local stakeholders need to maintain their employment levels while expanding into greener activities. The project assesses the adjustments required at the local level to ensure that labour markets comply with the demands of a greener economy, and examines the expansion of good quality greener jobs as an opportunity to develop low carbon activities. It includes the identification and assessment of new green economic niches, the identification of the barriers hindering green growth, and the implementation of programmes to educate, train and re-skill the labour force. The 2010 working paper “Greening Jobs and Skills: Labour Market Implications of Addressing Climate Change” was prepared as a conceptual framework. A report summarising the key findings of the study is due to be published in 2011.

**Key Links:**

[www.oecd.org/cfe/leed](http://www.oecd.org/cfe/leed)

# Fora for Climate Change Discussion

# 4

## 4.1 Advisory Unit to the Secretary General

The International Futures Programme - the OECD's strategic foresight group under the Secretary-General - has several relevant on-going projects. First, it published the book *The Bioeconomy to 2030: Designing a Policy Agenda* (2009), which provides a prospective analysis of the role agricultural and industrial biotechnologies could play in addressing climate change (see Section 3.2).

Second, in collaboration with numerous space agencies in the OECD, work is underway on the use of space-based tools (e.g. earth observation and navigation) in monitoring climate change and its long-term impacts, and a first report entitled *Space Technologies and Climate Change: Implications for Water Management, Marine Resources and Maritime Transport* (2008) has been published (see Section 3.2). Work is underway on the new role of space

applications for food security (e.g. crop monitoring from space).

Third, a two year project was launched to take stock of the longer-term opportunities and challenges facing gateway and corridor infrastructure (ports, airports, rail corridors, oil and gas pipelines). The project is exploring future needs to 2030 and 2050 in the context of expected CO<sub>2</sub> emissions reduction, low carbon intensity and green growth policies.

Finally, reviews of risk management policies are underway to help assess the capacity of a selected number of member countries to manage major floods, droughts and landslides, which are expected to increase as a result of climate change. After Japan in 2009, the latest countries reviewed include





Italy (*OECD Reviews of Risk Management Policies – Review of the Italian National Civil Protection System, Italy 2010*) and France’s risk management of major flooding in the Loire river basin (*Étude de l’OCDE sur la Gestion des Risques d’Inondation: Bassin de la Loire, France 2010*).

**Key Links:**

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

[www.oecd.org/sti/gsf](http://www.oecd.org/sti/gsf)

## 4.2 Africa Partnership Forum

The Africa Partnership Forum Support Unit worked with key African institutions including UN Economic Commission for Africa, the New Partnership for Africa’s Development Secretariat, the African Union and African Ministerial Conference on the Environment along with the UNFCCC and African Climate Change negotiators to support the first thematic Africa Partnership Forum Special Session on Climate Change, hosted by UN Economic Commission for Africa at its Headquarters in Addis Ababa, Ethiopia, in September 2009. The event focused on Africa’s concerns and expectations in the run up to the UNFCCC COP 15. The meeting was addressed by Prime Minister Meles Zenawi of Ethiopia, Ministers from African countries and Africa’s

development partners. A Joint Statement issued at the end of the meeting was transmitted to the UN High Level event on 22 September and the G20 Summit at Pittsburgh, and will also inform other regional and international processes on climate change.

The Support Unit coordinated the preparation of two background papers for the 2009 Special Session: “Enhanced Action on Technology Development” and “Transfer and Carbon Finance in Africa”. These accompanied three papers prepared by the African Union Commission and New Partnership for Africa’s Development Secretariat on: “Enhanced Action on Adaptation to Climate Change”, “Enhanced Action on Mitigation of Climate Change” and “Financial Resources and Investment for Climate Change”. The papers and the Joint Statement are available on the Africa Partnership Forum website.

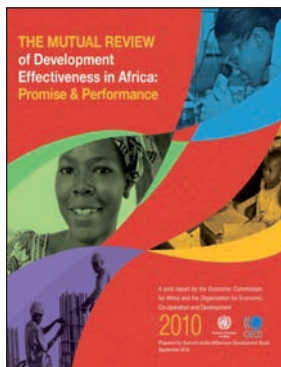
In September 2010, the APF Support Unit, in collaboration with UNECA, updated the analysis of climate change as it affects Africa and climate finance, identifying the main commitments that have been made by Africa and its development partners in these areas, what has been delivered, the results achieved and the key future policy options for Africa, its development partners and the

international community. This can be found in the *2010 Mutual Review of Development Effectiveness in Africa: Promise and Performance*.

**Key Links:**

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

[www.oecd.org/apf/mrde](http://www.oecd.org/apf/mrde)



## 4.3 Annual Meeting of Sustainable Development Experts

The OECD Annual Meeting of Sustainable Development Experts brings together delegates from across different policy areas to discuss issues of a cross cutting nature related to sustainable development. An on-going focus for its work is policies to encourage sustainable consumption and production, including with respect to reduced GHG emissions and improved energy efficiency. The Annual Meeting of Sustainable Development Experts produces an annual report on OECD work to support discussions at the UN Commission on Sustainable Development. A side-event on Globalisation, Transport and the Environment was held in connection with the UN Commission on Sustainable Development meeting in New York in May 2010.

**Key Links:**

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

[www.oecd.org/env/transport/globalisation](http://www.oecd.org/env/transport/globalisation)

## 4.4 Climate Change Expert Group on the UNFCCC

The OECD and the IEA jointly provide the secretariat for the Climate Change Expert Group on the UNFCCC (CCXG). Established in 1994, the CCXG meets twice a year to discuss analytical reports on topical issues in the climate change negotiations and provides a forum for its members (OECD and/or Annex I countries) to share experiences with climate change policies and exchange views on how to address the climate change challenge. More recent work focuses on the post-2012 climate change framework and includes analyses and publications on measurement, reporting and verification (MRV) of mitigation actions and support (including via National Communications); finance and matching of finance to action; Low Emission Development Strategies; and market mechanisms including sectoral approaches for mitigation and “market readiness” (see Section 1.3). The CCXG also



organises an annual seminar bringing together a wide range of countries to exchange information on climate change policies and issues.

**Key Links:**  
[www.oecd.org/env/cc/ccxg](http://www.oecd.org/env/cc/ccxg)

## 4.5 DAC Network on Environment and Development Co-operation

The Network on Environment and Development Co-operation of the OECD Development Assistance Committee (DAC) has been working on climate change for over ten years. In 2006 the Network on Environment and Development Co-operation co-organised a Ministerial Meeting on environment and development co-operation with the Environment Policy Committee. The meeting resulted in the formation of a Joint Task Team on climate change which produced a *Policy Guidance on Integrating Climate Change Adaptation into Development Co-operation* in 2009 (see Section 1.2). This Policy Guidance and an accompanying Policy Statement were approved at a Joint High Level Meeting in May 2009. The Joint High Level

Meeting provided a clear mandate to work on climate change mitigation and low-carbon growth in addition to climate change adaptation (see Section 3.1). The Network collaborates with the DAC Working Party on Statistics on questions related to measuring climate change related aid (e.g. methodology, definitions and data quality assessment).

**Key Links:**

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

## 4.6 Round Table on Sustainable Development

The OECD regularly hosts a Round Table on Sustainable Development that brings together Ministers and other high-level stakeholders from OECD and non-OECD countries for informal discussion on various topics related to sustainable development.

From 2008-2010 the Round Table devoted its work programme to climate-related subjects. Meeting topics have included: mobilising investments in low-emission technologies; the role of public finance in international climate change mitigation; sectoral approaches in a post-2012 climate agreement; competitiveness, leakage, and

border tax adjustment; comparability of climate change commitments amongst Annex I countries; and livestock and climate policy.

The Round Table is a unique forum that enables Ministers, senior private sector executives and experts from the inter-governmental and NGO communities to conduct a detailed examination of complex issues to one side of the crowded negotiating process. It draws on the full policy capability of the OECD and the IEA, and provides an invaluable opportunity for “back channel” dialogue.

**Key Links:**

[www.oecd.org/sd-roundtable](http://www.oecd.org/sd-roundtable)

## 4.7 Round Table on Urban Development Strategy

The OECD Urban Round Table of Mayors and Ministers provides a global platform for high-level national and local government officials to discuss urban development issues in a global perspective. The 2010 Round Table, held in collaboration with the C40 Cities Climate Leadership Group and the Club of Madrid, focused on “Cities and Green Growth”. Representatives from 21 cities and 34 countries

endorsed green growth as a long-term strategy for economic progress that can reduce the urban environmental footprint and social inequality in cities. National and city leaders stressed the importance of working together to promote green growth in cities. The 2010 Roundtable built on an international workshop on “Green Cities: New Approaches to Confronting Climate Change” in Las Palmas in June 2009 and the 2008 Urban Round Table on “Cities and Climate Change” held in Milan.

#### Key Links:

[www.oecd.org/gov/urbandevelopment](http://www.oecd.org/gov/urbandevelopment)

[www.oecd.org/urban/2010roundtable](http://www.oecd.org/urban/2010roundtable)

## 4.8 Sahel and West Africa Club

Together with governments, regional institutions and civil society and private sector organisations, the Sahel and West Africa Club (SWAC) supports the development and implementation of action-oriented policies and investments that take into account the complementarities between local, national and regional levels. The Sahel region is an ecologically fragile zone. The Sahel and West Africa Club has produced a regional analysis on climate change and

its impacts on West Africa entitled “Security Implications of Climate Change in the Sahel” (2009) and a SWAC document entitled “Econometric Study on the Impact of Rainfall Variability on Security in the Sahel Region” (2009). The Club also helps national farmers’ organisations in the region to raise their awareness of climate change issues and develop their common positions on them.

#### Key Links:

[www.oecd.org/swac/climatechange](http://www.oecd.org/swac/climatechange)





# Recent and Forthcoming Publications

# 5

## Books

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IEA (forthcoming), *CO<sub>2</sub> Emissions from Fuel Combustion – 2010 Edition*, OECD Publishing/IEA, Paris.

IEA (2010), *Energy Performance Certification of Buildings – A Policy Tool to Improve Energy Efficiency*, OECD Publishing/IEA, Paris.

IEA (2010), *Energy Technology Perspectives 2010*, OECD Publishing/IEA, Paris.

IEA (2010), *Guidelines for Good Energy Efficiency Governance – A Handbook*, OECD Publishing/IEA, Paris.

IEA (2010), *Monitoring, Verification and Enforcement – Improving Compliance Within Equipment Energy Efficiency Programmes*, OECD Publishing/IEA, Paris.

IEA (2010), *World Energy Outlook 2010*, OECD Publishing/IEA, Paris.

IEA (2010), *Technology Roadmap: Concentrating Solar Power*, IEA Technology Roadmaps, OECD Publishing/IEA, Paris.

IEA (2010), *Technology Roadmap: Solar Photovoltaic Energy*, IEA Technology Roadmaps, OECD Publishing/IEA, Paris.

IEA (2009), *Cement Technology Roadmap: Carbon Emissions Reductions up to 2050*, IEA Technology Roadmaps, OECD Publishing/IEA, Paris.

IEA (2009), *Cities, Towns and Renewable Energy – Yes In My Front Yard*, OECD Publishing/IEA, Paris.

IEA (2009), *CO<sub>2</sub> Emissions from Fuel Combustion – 2009 Edition*, OECD Publishing/IEA, Paris.

IEA (2009), *Gadgets and Gigawatts: Policies for Energy Efficient Electronics*, OECD Publishing/IEA, Paris.

IEA (2009), *Implementing Energy Efficiency Policies – Are IEA Member Countries on Track?*, OECD Publishing/IEA, Paris.

IEA (2009), *Sectoral Approaches in Electricity – Building Bridges to a Safer Climate*, OECD Publishing/IEA, Paris.

IEA (2009), *Technology Roadmap: Carbon Capture and Storage*, IEA Technology Roadmaps, OECD Publishing/IEA, Paris.

IEA (2009), *Technology Roadmap: Electric and Plug-in Hybrid Electric Vehicles*, IEA Technology Roadmaps, OECD Publishing/IEA, Paris.

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IEA (2009), *Transport, Energy and CO<sub>2</sub> – Moving Towards Sustainability*, OECD Publishing/IEA, Paris.

IEA (2009), *World Energy Outlook 2009*, OECD Publishing/IEA, Paris.

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IEA (2008), *World Energy Outlook 2008*, OECD Publishing/IEA, Paris.

IEA (2007), *Climate Policy Uncertainty and Investment Risk*, OECD/IEA, Paris.

IEA (2007), *Energy Security and Climate Policy — Assessing Interactions*, OECD/IEA, Paris.

IEA (2007), *Mind the Gap – Quantifying Principal-Agent Problems in Energy Efficiency*, OECD/IEA, Paris.

IEA (2007), *Tracking Industrial Energy Efficiency and CO<sub>2</sub> Emissions*, OECD/IEA, Paris.

IEA/NEA (2010), *Projected Costs of Generating Electricity 2010*, IEA/NEA/OECD Publishing, Paris.

IEA/NEA (2010), *Technology Roadmap: Nuclear Energy*, IEA Technology Roadmaps, IEA/NEA/OECD Publishing, Paris.

ITF (2010), *Reducing Transport Greenhouse Emissions: Trends and Data 2010*, OECD Publishing/ITF, Paris.

ITF (2009), *Reducing Transport GHG Emissions: Opportunities and Costs - Preliminary Findings*, OECD Publishing/ITF, Paris.

ITF (2008), *Greenhouse Gas Reduction Strategies in the Transport Sector: Preliminary Report*, OECD Publishing/ITF, Paris.

NEA (forthcoming), *Carbon Pricing and Nuclear Power Development*, OECD Publishing, Paris.

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OECD (forthcoming), *Capacity Development for Environmental Management and Governance in the Energy Sector*, OECD Publishing, Paris.

OECD (forthcoming), *Cities and Climate Change*, OECD Publishing, Paris.

OECD (forthcoming), *Citizens in Focus: Public Engagement for Better Policies and Services*, OECD Publishing, Paris.

OECD (forthcoming), *Development Perspectives for a post-Copenhagen Climate Financing Architecture*, OECD Publishing, Paris.

OECD (forthcoming), *Energy and Climate Change Policy and Innovation*, OECD Publishing, Paris.

OECD (forthcoming), *OECD Sustainable Manufacturing Toolkit*, OECD Publishing, Paris.

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# Acronyms

AMSDE	Annual Meeting of Sustainable Development Experts	ITF	International Transport Forum
APF	Africa Partnership Forum	LEDS	Low Emission Development Strategy
BAP	Bali Action Plan	MRV	Measurement, Reporting, and Verification
CCS	Carbon Capture and Storage	NAMA	Nationally Appropriate Mitigation Action
CCXG	Climate Change Expert Group	NGO	Non-Governmental Organisation
CDM	Clean Development Mechanism	ODA	Official Development Assistance
CFL	Compact Fluorescent Lamp	OECD	Organisation for Economic Co-operation and Development
COP	Conference of the Parties (to the UNFCCC)	OPEC	Organisation of the Petroleum Exporting Countries
DAC	Development Assistance Committee	PES	Payments for Ecosystem Services
ECMT	European Conference of Ministers of Transport	REDD	Reducing Emissions from Deforestation and Forest Degradation
FDI	Foreign Direct Investment	SWAC	Sahel and West Africa Club
GHG	Greenhouse Gas	UNECA	United Nations Economic Commission for Africa
IAM	Integrated Assessment Model	UNFCCC	United Nations Framework Convention on Climate Change
ICT	Information and Communication Technology		
IEA	International Energy Agency		

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