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The purpose of this paper is to report back on progress achieved in recent OECD work in the area of economics of climate change mitigation and adaptation, as background information to the OECD Ministerial Council Meeting. It summarises findings presented to the joint meetings of the Environmental Policy Committee's Working Party on Global and Structural Policies (WPGSP) and the Working Party No. 1 of the Economic Policy Committee in Autumn 2008 and in May 2009. The focus of OECD work has been on providing background analysis to inform policy makers in the international negotiations on a new global architecture to tackle climate change, with the aim of ensuring that post-2012 climate action is built on a solid economic footing. To this end, OECD analysis has sought to identify various policies and global approaches that are environmentally and economically cost effective and politically feasible.

1. Main messages of OECD work on the economics of climate change mitigation

The key messages emerging from the work of the Economic and Environment Policy Committees are the following.

Policy action is economically rational

- **Cost of inaction is high.** In the absence of new policy action, the OECD projects that world greenhouse gas (GHG) emissions would increase by about 70% by 2050 and continue to rise thereafter. This would lead to a rise in world temperatures by 4°C, and possibly by 6°C, by 2100. Considering the costs and -- perhaps even more importantly -- the risks of such an inaction scenario, ambitious action to reduce emissions is needed.
- **An ambitious mitigation policy will not be cheap and it will not be easy.** To build support for action and keep costs manageable, it is essential that least cost policy instruments are put in place to achieve significant emission cuts. OECD work on the economics of climate change mitigation is helping OECD countries to design and implement effective and cost-efficient policies to address climate change.
- **Policies to tackle climate change need to be put in place urgently.** If GHG emissions continue to build-up in the atmosphere at current rates, the cost of bringing atmospheric concentrations back down to an acceptable level later will be prohibitively high. Furthermore, developing carbon-free technologies will take time and investors need a clear and credible long-term price signal now to make the appropriate investment decisions. The current financial crisis should not be used as an excuse for inaction. At most, it is expected to reduce global emissions marginally and temporarily, after which an upward trend will resume. Furthermore, analysis suggests that initial actions to implement a cost-effective post-2012 international climate agreement can be relatively low cost, with the costs increasing over time once the economy is on the mend.
- The **benefits of mitigation policies** are difficult to quantify and fully monetise. Nevertheless, OECD analysis finds that when non-market impacts and risks of inaction are factored in, **ambitious mitigation action is economically rational** -- *i.e.* it results in net benefits at the global level. This is the case even though the analysis does not factor in the co-benefits from mitigation action (*e.g.* in terms of human health, energy security or biodiversity). OECD analysis has examined some of the co-benefits of climate policies in terms of reduced air pollution and improved energy security. These can be large but they vary significantly by location. They tend to be higher in the transport sector than for stationary pollution sources, such as energy plants, where most action in developing countries might be expected initially.
- In an economic perspective, **ensuring incentives for all emitting regions to participate in action will be challenging, because most of them are found to gain less individually from participating in mitigation action than from staying outside** and benefiting from the abatement efforts of others (so-called "free-riding"). One powerful way to broaden country

participation is through international financial transfers. A fundamental element of a successful post-2012 climate agreement will be the provision of support for mitigation action in many developing countries, including through access to international carbon markets for private financing, international public financing and co-operation on access to clean technologies..

Market-based instruments have a key role to play in the policy mix

- **A mix of policy instruments will be needed.** No single instrument will be sufficient to tackle the wide range of sources and sectors emitting GHGs. **The use of market-based instruments in the policy mix will be crucial, however, to keep the costs of action low.** Market-based instruments, such as **carbon taxes or cap-and-trade schemes, put a price on GHG emissions and discourage the behaviour that generates them.** They encourage emitters to look for abatement options where they are cheapest.
- **Removing environmentally-harmful subsidies to energy consumption and production is an important initial step in pricing carbon worldwide** because these subsidies amount to a *de facto* negative carbon price. Removing environmentally-harmful energy subsidies would lower the overall cost of meeting a given mitigation target. Energy subsidies are currently high in Russia, other non-EU Eastern European countries, and a number of large developing countries including in particular India. Joint OECD-IEA analysis suggests that their removal could cut GHG emissions drastically in these countries, by over 30% relative to business as usual levels in 2050 in some cases. These cuts will be even larger if binding emission caps are adopted in developed countries, in order to contain the “leakage” that otherwise would come from lower demand for, and thereby lower world prices of, fossil fuels. Finally, subsidy removal would free-up budgetary resources that could be used, in turn, to more directly target the social objectives that might have been supported via the subsidies.
- In addition to environmentally-harmful energy subsidies removal, OECD analysis examined a **range of climate policy scenarios** using a global economic modelling framework. The costs of action were found to vary according to the stringency of the target, the countries and sectors participating, and the time profile of the resulting emissions. For instance, stabilising overall GHG concentration below an illustrative target of 550 ppm CO₂eq¹ implies a 3.4% world GDP loss relative to baseline in 2050.² A removal of world energy subsidies would lower these global mitigation costs to 3.2% in 2050.

Complementary instruments are also needed

- A strong emphasis will be needed on market-based instruments, but given market failures as well as information barriers, **there is a case for complementing price instruments with other approaches**, such as standards (*e.g.* building codes, household electric appliance standards), specific measures required to boost further the development and adoption of cleaner technologies, and information-based instruments to support behavioural changes.

¹ The analysis presented here aims to shed light on the implications of different approaches to reach a given stabilisation target. An illustrative scenario of 550 ppm CO₂eq for all gases (equivalent to 450 ppm CO₂ only) has been used in the analysis, but it is not intended as an endorsement of such a target. The 550 ppm CO₂eq level is broadly viewed as the minimum required to limit the costs from climate change, but many countries are discussing more stringent emission reduction targets such as 450 ppm or even 350 ppm.

2. Compared with previous work presented at the joint WP1/WPGSP meeting in Autumn 2008, the specification of the OECD ENV-Linkages model has been improved by disaggregating the electricity sector, which results in an increase in flexibility and hence a lower cost to meet a given mitigation target.

- **Climate-friendly innovation should be supported through specific R&D policies, including concerted policies at the global level, as a complement to carbon pricing.** Pricing carbon will lead to additional financing for clean technologies -- *e.g.* according to OECD model-based calculations, a carbon price path consistent with stabilising CO₂eq concentrations at 550 ppm could provide incentives for a four-fold increase in world energy R&D spending by 2050. But in practice, pricing carbon is unlikely to be enough because barriers to innovation are particularly large in the area of low-carbon technologies. The most obvious barrier is political uncertainty about future climate policy, and thereby future returns to (and private incentives to undertake) R&D. Specific R&D policies are therefore needed to complement carbon pricing.
- **But R&D alone is not an option.** R&D policies would be unable to stabilise long-run GHG concentrations in the absence of carbon pricing, even under very large spending increases and optimistic assumptions about future technologies. This is because cheap abatement opportunities that already exist (*e.g.* energy efficiency improvements) would be missed over the coming decades, and in the long run emissions would at best stabilise at levels that still exceed the absorptive capacity of our planet. While R&D funding could help in the development of new technologies (*e.g.* carbon capture and storage), it is unlikely that they will be aggressively deployed without further policy action, such as through a carbon price.
- **Subsidies to emission reductions are not economically efficient.** Recent OECD analysis puts the cost of current support policies to first generation biofuels in the EU, the US and Canada at around US\$ 1000 per ton of CO₂ saved. While there may be other policy objectives associated with these support policies, this would seem to be a very expensive policy to reduce GHG emissions, considering for instance that recent prices of CO₂ in the EU-ETS are in the US\$ 15-30 range.
- **Costly overlap of policy instruments should be avoided.** For example, while setting quantitative targets on renewables in the energy mix can help to create a framework for private investments and innovation in renewable energies, these regulated targets may overlap with cap-and-trade systems that cover electricity generation. Once a total emission reduction objective is set through a national cap-and-trade scheme, additional targets for renewables, energy efficiency or biofuels will not necessarily contribute to additional emissions reductions beyond the cap-and-trade target. Thus, the use of potentially over-lapping policy instruments should be limited to situations where they can be justified on other grounds such as, for instance, as a means to boost innovation and technology deployment, or to improve energy security.

A global carbon market may build up gradually

- In the near future, with emission trading schemes (ETSs) spreading internationally and discussions around the reform of the Clean Development Mechanism (CDM) gaining prominence, **a global carbon market may *de facto* start to gradually build up through direct linking across domestic/regional ETSs, and/or indirect linking *via* a scaled up CDM or other crediting or trading mechanisms.** Compared with a fragmented approach under which a number of regions would meet their emission reduction objectives unilaterally, such a gradual path towards global carbon pricing has potential beneficial impacts on mitigation costs, and possibly on dealing with carbon leakage, though will need to take account of specific national circumstances with respect to ETSs.
- **As carbon pricing gradually develops among the main emitters, the potential size of the carbon market could become significant, providing prospective fiscal revenues to governments.** For instance, in an illustrative scenario in which by 2050 Annex I countries reduce their emissions by 50% relative to 1990 level and link their carbon markets together, the size of

the global carbon market -- and hence of potential fiscal revenues if a carbon tax or auctioned permits are used -- would reach 2.5% of Annex I GDP in 2020. These revenues could be used, for example, to help with fiscal consolidation following the current economic crisis or to offset reductions in taxes that have negative side-effects on the economy, such as labour taxes.

- **If ETSs are linked, agreement on key issues would be needed prior to linking**, including on levels and/or procedures for setting emission caps, the adoption of safety valves, the use of international offsets (e.g. CDM) and rules regarding future linking to avoid that the design features of one particular scheme would spread to all others within a linked system. Hence, a fairly consistent approach will be required to ensure that the environmental integrity of the linked ETSs is maintained. The harmonisation of the tax treatment of tradable emission permits across ETSs would also help building up a global carbon price.
- **The development of well-governed derivative markets would help firms to insure against future carbon price uncertainty.** Liquid spot markets and credible commitments on future emission levels or mitigation policies can foster the development of derivative markets, and lower the cost of insurance against carbon price uncertainty. The liquidity of spot markets can be enhanced by regular spot sales of permits that could be banked between compliance periods. With a large proportion of transactions taking place in over-the-counter markets, measures will be needed to contain counterparty risk. Furthermore, adequate market regulations will be needed to ensure that carbon derivative markets do not become a source of financial instability. Clear identification of those financial market institutions in charge of monitoring and regulation of these markets would therefore be needed.

Incomplete coverage would increase the cost of action, lead to leakages and competitiveness concerns

- **Incomplete country coverage of GHG policies could jeopardize or significantly increase the costs of climate change mitigation.** Large emitters from developing countries will need to participate in GHG mitigation action for at least two reasons: first, given the projected business-as-usual growth in the emissions of a number of developing regions, achieving even a moderately ambitious GHG concentration target will require significant action in all developed countries, as well as major emitters such as China and India by 2050; second, because the global costs of action against climate change can be kept manageable only if the relatively cheap emission abatement opportunities that can be found in developing countries are fully exploited.
- **The costs of incomplete industry or gas coverage of GHG policies would also be high.** For instance, exempting energy-intensive industries from carbon pricing would raise the cost of achieving an illustrative 550 ppm CO₂eq stabilisation scenario by over 50% in 2050.
- **While the environmental and economic consequences of incomplete country coverage are serious, fears of carbon leakage are exaggerated.** Unless only a very few countries take action against climate change, leakage rates are found to be small, and they rapidly decrease as the group of participating countries expands. An illustrative simulation of a very small coalition of countries taking action, in this case just the EU, found that about 20% of the emission reductions in the EU would be offset by emission increases in other countries for a simulation of a 50% reduction in emissions by 2050. However, once the group of participating countries expanded to include all Annex I countries, this leakage rate was reduced to 9% of emissions. Although caution should be exercised in generalising these results, they suggest that the extent of carbon leakage should not be overstated. However, the risk remains that potential carbon leakage may be used as an argument to justify inaction, and thus it is important to analyse possible policy responses to the carbon leakage issue.

- OECD simulations indicate that the effect of imposing **border tax adjustments (BTAs) or grandfathering domestic emission permits** may be costly. These measures can reduce somewhat carbon leakage, but at an overall cost to the economy of the country implementing these measures. Furthermore, BTAs may also impose a cost on partner countries, could be challenging to design and administer, and risk triggering trade retaliation.

Crediting mechanisms and sectoral agreements have the potential to enlarge participation

- By lowering the carbon price differential between participating and non-participating countries, a **well-functioning sectoral approach can increase participation in mitigation action, reduce carbon leakage and mitigate competitiveness concerns**. Use of sectoral crediting mechanisms, for example, can furthermore **lower the mitigation costs** for developed countries, reflecting the vast low-cost abatement potential available in a number of developing countries. For example, in a benchmark scenario in which Annex I countries lower their emissions by 50% by 2050 relative to 1990, allowing 20% of Annex I emission reduction commitments to be met through offsets in non-Annex I countries is estimated to nearly halve total mitigation costs.
- CDM has been used to lower the overall costs of mitigation, and to enhance technology transfer. **However, the current CDM raises environmental integrity concerns** regarding the reality (“additionality”) of emission cuts. Existing proposals to scale up the CDM, such as, “sectoral” or even possibly “programmatic” or “policy” CDMs, can reduce transaction costs and bottlenecks, but may not *per se* address these deeper problems. If credits are granted to governments for emission reductions at the sectoral level for instance, ways would also need to be found to ensure that the price signal is effectively transferred to firms. One step towards well-functioning crediting mechanisms might be to negotiate today emission baselines covering the largest possible number of sectors for a sufficiently long period, and to set these baselines significantly below the emission levels that would prevail under no further mitigation action.
- **Crediting mechanisms like the CDM may also reduce the incentives for non-Annex I countries to take on binding targets in the future**. This is because some developing countries -- not least China -- would obtain a larger income gain under a scaled-up CDM than under most rules for allocating emission rights in a world ETS. Measures that could address these incentives include: agreement on CDM reform that incorporates a built-in phasing-out mechanisms under which developing countries would commit to taking on increasingly stringent commitments as their income levels converge to the higher levels of developed countries; and/or progressively tightening emissions baselines during the transition period during which crediting mechanisms operate.
- **Binding sectoral caps** for energy intensive industries and the power sector in developing countries **have the potential to lower the cost of achieving a given global emissions target, to broaden participation in mitigation action, and to curb leakage and competitiveness concerns**. They can also enlarge the potential for emission reductions, even though they would need to be ambitious in order to be environmentally effective. For instance, an illustrative scenario in which the emissions of energy-intensive industries and the power sector -- which account for almost half of current world GHG emissions from fossil fuel combustion -- are cut in *all* non-Annex I countries by a little less than 10% by 2020 and 20% by 2050 (relative to 2005 levels), combined with economy-wide cuts of 20% and 50% in Annex I countries (relative to 1990 levels), is estimated to reduce emissions compared with a scenario of Annex I countries alone, but would only just stabilise world emissions at these two time periods relative to 2005. Other sectoral initiatives, such as voluntary, technology-oriented approaches can help diffuse

cleaner process and technologies, but are unlikely to provide sufficient emission reduction incentives to individual firms as they put no explicit opportunity cost on carbon.

- **The overall cost of achieving a given global emissions target through economy-wide ETSs in Annex I countries and sectoral caps in non Annex I countries could be reduced through international permit trading between ETSs.** International permit trading between any developing countries that adopt sectoral caps would lower the cost for these countries of meeting the target. Linking a non-Annex I sectoral scheme to an Annex I economy-wide ETS would also bring an economic gain to participating countries as a whole, but could generate winners and losers (permit buyers in Annex I and permit sellers in non-Annex I prior to linking, and *vice versa*). In order to ensure that the overall gain from linking is shared widely across participants, permit allocation rules might be adjusted upon linking.

Finding an appropriate way to reduce emissions from forestry is important, but challenging

- Just as incomplete coverage of gases or countries raise the cost of meeting GHG targets, excluding certain sectors will also increase the costs of action. **GHG emissions from deforestation amount to almost 20% of global GHG emissions** and existing studies suggest that **these emissions could be avoided at a relatively low cost**. Some preliminary estimates suggest that incorporating these emissions into a global carbon mitigation programme could reduce carbon prices by up to 40% in 2020. However, such an estimate is rather uncertain at this stage and needs to be confirmed by further studies.
- **Incorporating a mechanism to Reduce Emissions from Deforestation and Forest Degradation (REDD) in a global climate change mitigation framework also raises a number of implementation issues.** Ensuring additionality may prove more difficult for emissions from deforestation than for other sources. There is also a risk of leakage, as deforestation may shift to areas not subject to control, and of non-permanence, as emissions may simply be delayed. Emissions leakage can also have an impact on broader sustainability goals, for example if old growth forests are replaced with plantations. These risks can be better addressed if a REDD mechanism is implemented at the national rather than at the project level. The potential for international leakage also gives a strong rationale for ensuring any REDD mechanism is as broad as possible across forest nations.
- While low cost forest mitigation efforts could help deliver GHG targets at least cost, these difficulties have raised concerns that, if the challenges of certifying additionality and permanence are not addressed, a **well-functioning international carbon market might be flooded with low-quality REDD credits** that would undermine its environmental integrity and, ultimately, its credibility. To avoid this, linking a REDD mechanism to the international carbon market will require the development of clear and robust eligibility criteria to ensure environmental integrity, and eventual access to the carbon market might be limited to only those countries that meet these well-designed eligibility criteria. In a first stage, funding from developed countries could help some developing countries in building the capacities needed to meet such eligibility criteria.
- **Several approaches could be envisaged during the transition towards integration of a REDD market in the international carbon market, all of which have pros and cons.** Under a segmented-market approach, a REDD market could be established that is separate from other carbon markets. Alternatively, a fund-based approach would rely on voluntary or institutionalised contributions to a Fund from developed country governments and other sources. This approach is unlikely to provide adequate incentives to mobilise sufficient and sustainable levels of REDD financing to have a significant impact on rates of deforestation.

Building political support for action across countries

- **Addressing cross-country differences in incentives to participate in a stringent international climate policy agreement will be key to setting up a credible post-2012 framework.** In the absence of international financial transfers, participation incentives are likely to be lower where the mitigation costs from a world carbon price are relatively high and/or the expected damages from climate change are relatively low. On this basis, Russia and other carbon-intensive, fossil-fuel producing Eastern-European economies, Middle-East countries and China are found to gain less from a global agreement than Western European countries or, to a somewhat lesser extent, the United States, Japan and India, *ceteris paribus*.
- **Well-designed mechanisms for sharing the costs of action are thus needed to secure participation by all major emitters,** given existing cross-country differences in participation incentives and the large environmental and economic costs from incomplete country coverage. Some decoupling is needed between where abatement takes place and who bears the cost, to reflect common but differentiated responsibilities and respective capabilities. The negotiation of emission targets across countries is a powerful tool through which the participation incentives of large developing countries could be enhanced. For instance, OECD analysis suggests that, compared with a world carbon tax (or equivalently full permit auctioning) scenario, developing countries are projected to gain significantly by 2050 from allocation rules under which their emission rights cover their business-as-usual emissions or are inversely related to their contribution to past cumulative emissions. Developing countries would also usually benefit from rules based on population size or GDP per capita, albeit to a somewhat lesser extent. All four rules -- in particular the former two -- generally impose significant costs on developed countries and (especially) Russia, although these vary widely across specific countries and rules.
- **National or even sectoral intensity targets (expressed as emissions levels per unit of output) are another way to promote enhanced GHG mitigation action by fast-growing emerging economies** as they catch up with developed countries, without constraining their growth prospects. They would indeed insure countries against the risk of unexpected increases in mitigations costs in the event of growth shocks. Within a linked system, intensity targets –which would require frequent government intervention to be met –would stabilise the carbon price at the cost of greater uncertainty about overall emission abatement. Over the longer run, an alternative way to reflect economic development concerns would be to allocate absolute targets across countries conditional on expected economic growth rates and to adjust them over time, in the context of a world ETS.
- **A wide range of devices to broaden country participation might also be mobilised,** over and above the negotiated distribution of emission reduction commitments or actions across countries or their sectors, including:
 - Direct public funding of mitigation actions in developing countries have gained prominence recently with a proliferation of Multilateral Funds and a number of bilateral initiatives; to enhance their effectiveness, they should be rationalised and targeted primarily to those emission sources and/or market imperfections not covered by other (market-based) financing mechanisms, to situations that maximise emission reductions, and that help to leverage private sector investments.
 - Approaches to facilitate international transfer and uptake of clean technologies. A cost-effective way to boost international transfers and deployment of climate-related technologies would be for recipient countries to remove current policy distortions (*e.g.* barriers to trade

and foreign direct investment in climate-related technologies, weak intellectual property rights) and for the international community to help address relevant market barriers.

- R&D in developed countries focused on long-term breakthrough technologies, which has received only limited attention in an international context thus far, could be better incorporated in the portfolio of activities of existing Multilateral Funds.
- Adaptation financing could be increased through a mix of domestic policy reforms (*e.g.* adequate pricing of water and ecosystems) and higher public spending on relevant local public goods (*e.g.* sea walls, flood defences, disaster relief). For least developed countries, the latter might partly be financed by the Adaptation Fund.

2. Main messages of OECD work on economics of adaptation

Effective and efficient climate policies will require investments in both GHG mitigation and in adaptation to the impacts of climate change. While initial levels of both mitigation and adaptation can be achieved at low cost relative to the avoided climate damages, both sets of responses will face progressively rising marginal costs. Therefore, an optimal climate policy will require a mix of both mitigation and adaptation measures.

- **Adaptation efforts need to rest on a sound economic basis.** From an economic perspective adaptation can be evaluated in terms of whether, and by how much, the benefits of such actions exceed the costs. Such information is relevant both for actors directly exposed to climate change risks who need to make decisions about whether, how much, and when to invest in adaptation. Aggregate cost estimates, meanwhile, can be used to establish adaptation “price tags” that could then be met through international, domestic, and private funding sources.
- **Some adaptations can be implemented at low cost but others, such as infrastructural measures, will require significant investment.** Sectoral studies have shown that in some sectors some adaptation actions can lead to high benefit-cost ratios and/or be implemented at low cost. Farm level adjustments, which are assumed to cost very little, can lead to significant benefits in terms of offsetting damages. This is also the case for other behavioural adaptations, such as enhanced water use efficiency. On the other hand, many adaptations inevitably involve “hard” or infrastructural measures, such as water storage facilities or coastal protection infrastructure, which constitute the bulk of the adaptation costs.
- **Incentivising adaptation is as important as costing and financing.** While the policy debate has focused on the cost of adaptation, ways to raise public adaptation funding, and allocation of adaptation costs, much less attention has been given to the role of market and regulatory mechanisms in facilitating adaptation. This is, however, critical given that a majority of actions are undertaken by private actors and also because the scope of the adaptation challenge will far exceed the public budgets available to address it. Like the activities of markets, these actions do not have to be directed centrally by a public authority. However, as in the case of markets, governments can provide the enabling environment that allows private agents to make timely, well informed and efficient adaptation decisions. Where private actions fail because of external effects of other failures, governments may also have to provide adaptation as a public good.
- **The scale and/or efficiency of many adaptations typically undertaken by governments could be enhanced through engagement with the private sector.** Mechanisms need to be put in place to catalyse such engagement and to ensure that it leads to the desired outcomes. A range of policy instruments are relevant to adaptation in many sectors, including insurance schemes, price

signals/markets, financing schemes via Public Private Partnerships (PPPs) or private finance, regulatory incentives, and research and development incentives. Policy reforms may also be required to reduce incentives for mal-adaptation, for example reforming policies for disaster insurance schemes to ensure that these do not provide perverse incentives for development in areas at high risk of climate impacts.

3. Main areas of current OECD work on climate change

Work on climate change is underway across the OECD, engaging government representatives from a range of Ministries through a number of Committees. The OECD is in a unique position as a multi-disciplinary economics-based organisation to assist countries in identifying coherent and effective policy mixes to tackle climate change, and to help them to put international climate policy on a solid economic footing. The main areas of current work are:

- ***Economics of climate change mitigation:*** joint work by the OECD Economic and Environment Policy Committees is examining the costs and distribution of costs of a range of possible post-2012 scenarios. The focus is on identifying least-cost policy mixes, analysing the incentives for major emitting countries to participate in action, carbon leakage and competitiveness impacts, and financing possibilities. The work provides assessments of the impacts of different post-2012 frameworks to support discussions amongst countries (see a summary of the main messages of this work above). A publication of the main results of this work will be released for an OECD Conference on the Economics of Climate Change on 18 September 2009.
- ***Adaptation to climate change:*** a major issue in climate discussions is how adaptation to climate change can be supported in developing countries. As the culmination of 2 years of joint work, the OECD Development Assistance and Environment Policy Committees have finalised detailed “Policy Guidance on Integrating Adaptation into Development Co-operation”, which was endorsed at a joint High Level Meeting on 28-29 May 2009. This Guidance will help OECD development co-operation agencies assess and address climate risks and integrate adaptation responses within development activities at all levels, helping to “climate-proof” development. Work is also underway examining the economic aspects of adaptation: the costs and benefits of different adaptation actions in different sectors (*e.g.* agriculture, coastal zones, winter tourism and skiing, water) and the economic and policy instruments that can best incentivise private adaptation actions.
- ***Support to Annex I Negotiators:*** OECD and IEA provide the secretariat for the Annex I Expert Group (AIXG) on the UNFCCC, a forum that meets twice a year to discuss analysis of key issues on the climate negotiating agenda. This provides an opportunity off-line from the negotiations for Annex I country negotiators to build common understanding and identify differences in approaches on these issues. Key issues on the AIXG agenda include: understanding what “measurable, reportable, and verifiable” from the Bali Action Plan means for actions, commitments and support; integrating sectoral approaches into a post-2012 framework; differentiation of country actions and support; incentives to reduce emissions from deforestation and forest degradation (REDD); and other elements of a potential post-2012 framework (*e.g.* mitigation, adaptation, technology, financing).
- ***Creating the right framework conditions to support climate change policies:*** OECD is continuing to work on ensuring coherence across policy areas in addressing the climate challenge, and has further work planned in 2009-2010 to support this. This includes ongoing work in the Joint Working Party on Trade and Environment to examine the barriers to trade in climate-friendly technologies, and how these might be overcome; joint work by the Investment

Committee and the Environment Policy Committee to examine how policies can best encourage private investment in climate-friendly energy infrastructure; work on multi-level governance for effectively addressing climate change under the Public Governance and Environment Committees; analysis of tax policies and climate change under the Joint Meetings of Tax and Environment Experts in order to establish international standards or best practices that would avoid uneven tax treatment of tradable permits with possible detrimental effects on emitters' incentives; and work on the conditions that can foster the development and the diffusion within firms of climate and environmental innovation as a contribution to the broader OECD Innovation Strategy. Work is also underway or proposed to examine the policies that can help to reduce GHG emissions in specific sectors, including in agriculture, waste, and transport.