Recent OECD work on

Adaptation to Climate Change




OECD, November 2010.

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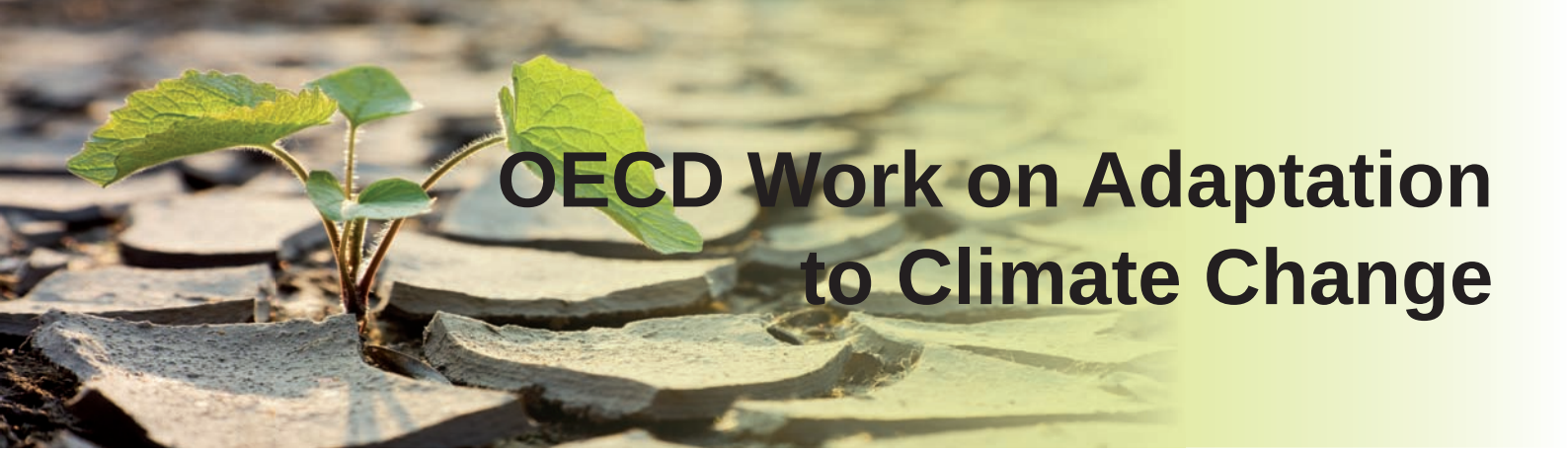


OECD Work on Adaptation to Climate Change

Climate change poses a serious challenge to social and economic development in all countries, although developing countries are particularly vulnerable. Efforts to reduce greenhouse gas (GHG) emissions need to move hand in hand with policies and incentives to adapt to the impacts of climate change. Nonetheless, there is less political awareness for adaptation than for mitigation and enabling environments for adaptation are generally less developed.

Societies have a long record of adapting to the impacts of weather and climate through changes in behaviour, choices of technology and infrastructure, use of market instruments, and public policies. Nonetheless, progress on adaptation to climate change remains limited in both developing and developed countries. Many regions and sections of the society remain poorly adapted even to current climate. Further, climate change poses novel risks often outside the range of historical experience. These include increases in mean temperatures and sea levels, changes in precipitation patterns, melting of glaciers and permafrost, and changes in the intensity and/or frequency of weather extremes such as droughts, heat waves, floods and hurricanes.

The Organisation for Economic Co-operation and Development (OECD) supports governments by providing the analytical foundation required to develop efficient and effective policies that promote adaptation to climate change. As a coordinating forum for bilateral donors, the OECD

also has an important role in facilitating the integration of adaptation into development cooperation activities. Work on adaptation has been underway since 2002 within the Environment Policy Committee (EPOC) and the Development Assistance Committee (DAC) of the OECD. New work on adaptation is also being undertaken by other committees of the OECD. OECD's work on adaptation has contributed to key international assessments of climate change including the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) and the Stern Review on the Economics of Climate Change.

This brochure provides an overview of recent and ongoing OECD work on adaptation to climate change, which is organized around three pillars: i) Mainstreaming Adaptation in Development Co-operation; ii) Economic Aspects of Adaptation; and iii) Adaptation in Developed Countries.

Mainstreaming Adaptation in Development Co-operation

1

The issue of climate change can seem remote, compared with such immediate concerns as poverty, disease, and economic stagnation for planners in developing countries and in development co-operation agencies. Development planners are often unsure on how climate change will affect their work, and how to integrate or "mainstream" climate change consideration within their activities. Yet, climate change can directly affect the efficiency of resource investments and the eventual achievement of many development objectives. How development occurs also has implications for the vulnerability of societies to its impacts.

Considerable analytical work has already been conducted on how development can be made climate-friendly in terms of reducing GHG emissions. Much less attention has been paid to how development can be made more resilient to the impacts of climate change. Bridging the gap between climate change and development communities, however, can be a challenge. This is because they have different priorities, often operate on different time and space scales, and do not necessarily speak the same language.

OECD member countries and donors have already initiated a number of activities to integrate adaptation within development activities. To further advance this agenda, the Development and Environment Ministers of OECD member countries adopted a Declaration on Integrating Climate Change Adaptation into Development Co-operation in 2006. Among other suggestions this Ministerial Declaration calls for "meaningful co-ordination and sharing of good practices on integrating climate change adaptation in development co-operation".

OECD work has examined the two way relationship between climate change and development and

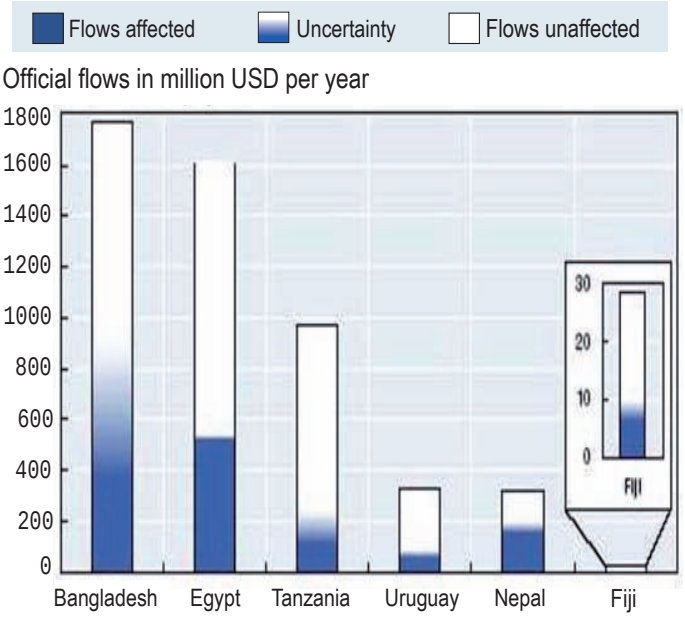
provided policy guidance on integrating adaptation considerations within development processes. It is also currently tracking development assistance targeted towards adaptation objectives.

1.1 Linking Climate Change and Development

OECD work has examined possible opportunities and trade-offs faced in "mainstreaming" responses to climate change. Specifically, the work has i) analysed the relationship between development and climate change; ii) assessed exposure of development assistance portfolios to climate risk; iii) examined the degree of attention in climate change and adaptation in national and sectoral strategies, development plans and donor projects; and iv) conducted in-depth analysis of synergies and trade-offs between climate change and development in key systems, including coastal zones, mangroves, high mountain systems, water resource management and forests.

Climate change has a discernible impact on development. Even where impacts of climate change are not yet visible, scenarios of future impacts may justify the

Annual Official Flows and Share of Activities Potentially Affected by Climate Change



Source: **OECD, 2005.**

incorporation of adaptation responses into planning. In some cases, doing so is more cost-effective, especially for long-lived infrastructure projects. Similarly, current development activities may also irreversibly constrain future adaptation to the impacts of climate change.

Possible barriers to mainstreaming responses to climate change include the segmentation within governments and donor agencies. Climate change expertise is typically housed in environment departments which have limited leverage over sectoral guidelines and projects. Sectoral managers, on the other hand, often face "mainstreaming overload", with completing agendas such as gender, governance and environment all vying for integration within core development activities. At the same time, available climate information is often not directly relevant for development-related decisions. Finally, there can be trade-offs between climate and development objectives in terms of allocation of scarce resources.

The OECD has identified a number of priorities for better incorporating adaptation considerations within development policies, plans and projects. These include: i) making climate information more relevant and usable for the development community as a basis for decisions on mainstreaming; ii) developing and applying screening tools to help screen development activities for climate risk and prioritise responses; iii) identifying and using appropriate entry points for climate information, such as humanitarian aid, poverty reduction, economic development, and natural resource management; iv) shifting emphasis to implementation, as opposed to developing new plans; and v) meaningful co-ordination and sharing of good practices. Here, a key priority is to forge successful links between mainstreaming initiated under the United Nations Framework Convention on Climate Change (UNFCCC) and the more bottom-up risk management initiatives by national and sectoral planners.

1.2 Policy Guidance on Integrating Adaptation into Development Co-operation

The OECD published in 2009 a Policy Guidance that takes an integrated "whole of government" approach to integrating adaptation within development planning.

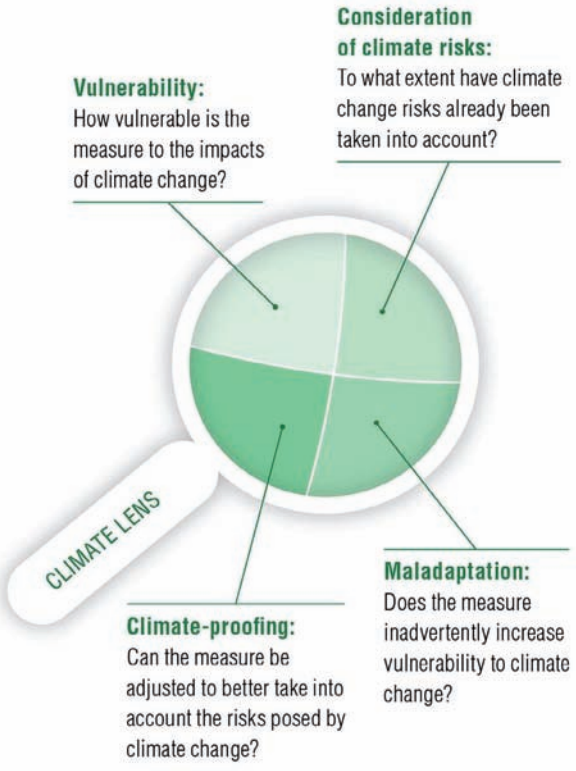
To help decision makers analyse the needs and options for adaptation to climate change, this Policy Guidance has

developed a practical tool known as the “climate lens”. The climate lens prompts questions about the proposed or existing measure on vulnerability, climate risk, climate-proofing, and maladaptation. Application of the climate lens enables policy makers to decide whether a policy, plan or programme is at risk from climate change. For an intervention not at risk, no further action is needed. However, for an intervention at risk, measures are required to identify the extent of the risk, assess climate change impacts and adaptation responses, and identify possible recommendations and “downstream” actions.

The Policy Guidance recommends moving the co-ordination of adaptation activities into central bodies, and incorporating long-term climate risks in national planning processes and budgets. It also highlights the need to enhance the capacity of ministries, local governments, project planners and donor agencies to better assess climate change implications within centralised national government processes, as well as in urban and rural contexts. For each of these decision levels, the Policy Guidance outlines their relevance for adaptation purposes.

The Policy Guidance was endorsed at the Joint High Level Meeting of the OECD DAC and EPOC in

Climate Lens



Source: **OECD, 2009.**

May 2009. It is now being applied by international donors to develop programmes for development practitioners. Based on the Guidance, a topical guidance on integrating adaptation into the water sector is being developed.

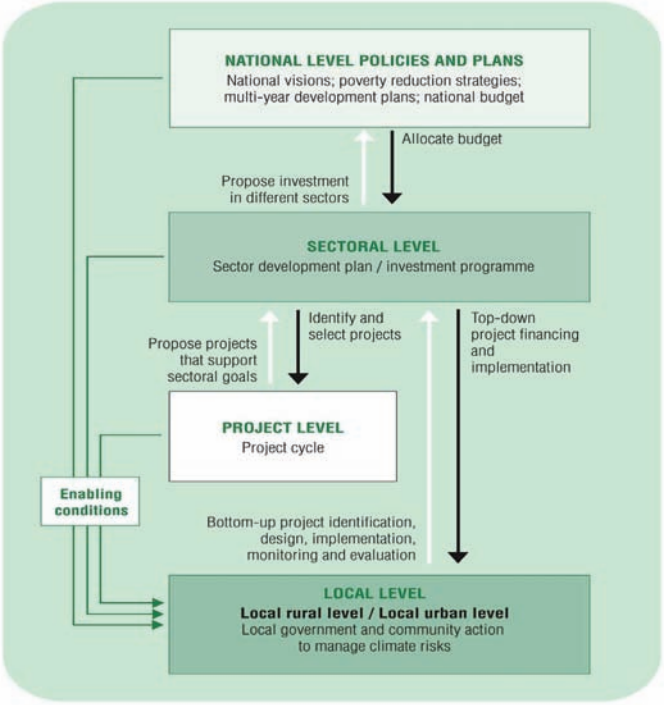
1.3 Adaptation Marker

The OECD DAC has developed a policy marker to track official development assistance (ODA) in support of climate change adaptation. This will allow for a comprehensive presentation of aid that supports developing countries' efforts to address climate change. DAC members will assess their new aid activities approved since 1 January 2010 against the adaptation marker.

Key Links

www.oecd.org/env/cc/adaptation
www.oecd.org/env/cc/adaptation/guidance
www.oecd.org/dac/environment/climatechange

Decision Levels Examined in Policy Guidance



Source: **OECD, 2009.**


Integrating Climate Change Adaptation into Development Co-operation
POLICY GUIDANCE
OECD
Bridge Over Troubled Waters
LINKING CLIMATE CHANGE AND DEVELOPMENT
OECD
adaptation
STOCKTAKING OF PROGRESS ON INTEGRATING ADAPTATION TO CLIMATE CHANGE INTO DEVELOPMENT CO-OPERATION ACTIVITIES
OECD
Statement of Progress on Integrating Climate Change Adaptation into Development Co-operation
DOMESTIC POLICY FRAMEWORKS
Declaration on Integrating Climate Change Adaptation into Development Co-operation
4 April 2006
MEETING OF THE OECD DEVELOPMENT ASSISTANCE COMMITTEE AND THE ENVIRONMENT POLICY COMMITTEE AT MINISTERIAL LEVEL
OECD OCDE

Economic Aspects of Adaptation 2

The costs of adaptation, and how large the resulting benefits may be, are issues that are increasingly relevant for on-the-ground projects, as well as in national and global contexts where trade-offs might need to be considered between the costs of climate policies and the residual damages resulting from climate change.

There are significant analytical and policy challenges associated with the economic assessment of adaptation. It is hard to define what falls within the purview of adaptation. For example, adaptation costs might increase if in addition to measures that directly reduce climate change damages, actions to increase adaptive capacity, such as investments in nutrition or education, are also included. The comparison of costs and benefits also raises several methodological issues, including valuation, discounting and distributional consequences. Further, unlike mitigation, which has to be coordinated internationally, adaptation decisions are largely decentralised. Adaptation actions will be undertaken not only by governments but also, by private agents, such as individuals and firms. The way different actors will consider costs and benefits of adaptation in their decision making process is not easy to foresee, and may vary from sophisticated studies to simple behavioural changes.

The OECD has undertaken analytical work concerning the economics of adaptation with particular reference to policy and measures that facilitate the implementation of adaptation. Recent work has focused on the costs and benefits of adaptation and on the interactions between adaptation and mitigation. Ongoing work also analyses ways in which the private sector can be engaged in developing adaptation measures and the role of public policies in incentivising this.

2.1 Costs, Benefits and Policy Instruments for Adaptation

Significantly scaled up financing for adaptation is a core element of the ongoing international negotiations on climate change. Central to this policy imperative has been the need to gain a better understanding of the costs and benefits of adaptation as well as the role of actions taken by households, firms, governments, and civil society.

Recent work at the OECD has analysed adaptation costs and benefits in key climate sensitive sectors, at national and global levels and examined the potential for economic and policy instruments to incentivise and motivate adaptation actions. The book *Economic Aspects of Adaptation to Climate Change: Costs, Benefits, and Policy Instruments* is an output of this work.

The book contributes to assessing the magnitude of adaptation costs with a critical analysis of the existing literature in the field. Studies show that in certain sectors some adaptation actions, such as behavioural adaptations, can be implemented at low cost while others, such as infrastructural measures, will require significant investment. Aggregate multi-sectoral global estimates, however, face significant limitations. Therefore, a consensus, even in terms of the magnitude of global adaptation "price tags" may be premature.

The OECD has also focused on the role of public policy in ensuring that private actors make timely, well-informed, and efficient adaptation decisions. This is particularly critical given that a majority of actions are undertaken by private actors and because the scope of the adaptation challenge will far exceed the public budgets available to address it. A raft of policy instruments, such as insurance and environmental markets and pricing, are needed to establish the right incentives to influence such decisions. However, setting up the right incentive and partnership structures to promote adaptation will be a daunting task. Public Private Partnerships in particular would be key, not only for infrastructure but also for technology and innovation to facilitate adaptation.

Ongoing work at the OECD is examining the possible role of the private sector in promoting adaptation in developed and developing countries and the role that public policy may play in furthering private sector engagement in adaptation.

2.2 Integrated Assessment Modelling of Adaptation

Increasing attention on financing for adaptation in the ongoing international negotiations on climate change has motivated a number of recent global and regional estimates of adaptation costs. While important from an agenda setting perspective, many of these estimates are static, do not assess the benefits from investments in adaptation, and are delinked from policies and investments in GHG mitigation.

To address these issues, the OECD has initiated work that examines adaptation and mitigation within an integrated framework. Global and regional costs of adaptation are assessed dynamically and the resulting benefits are also quantified. This is accomplished by developing a framework to incorporate adaptation as a policy choice variable within three Integrated Assessment Models (IAMs): the global Dynamic Integrated model of Climate and the Economy (DICE), the Regional Integrated model of Climate and the Economy (RICE) and the World Induced Technical Change Hybrid (WITCH) model.

The results from this analysis show that all types of adaptation options, including reactive forms of adaptation as well as investments in adaptation actions and adaptive capacity, are important in off-setting some of the adverse impacts of climate change. The timing and composition of these interventions is also critical as investments in adaptation stock become effective with a time delay. The costs and policy mix of the investments vary considerably across regions, over time, and depend upon the level of adaptation and mitigation, in addition to assumptions about climate damages and discount rates.

The policy simulations also show that the costs of climate change are lowest when mitigation and adaptation strategies are undertaken in conjunction. These results illustrate that different climate policy options act as complements and substitutes. On the one hand, they are complementary in that any adaptation policy response will need to involve corresponding mitigation efforts. On the other hand, they are substitutes in that they compete for limited resources, and investing in one option will reduce the budget available for the other.

2.3 The Role of Microfinance in Adaptation

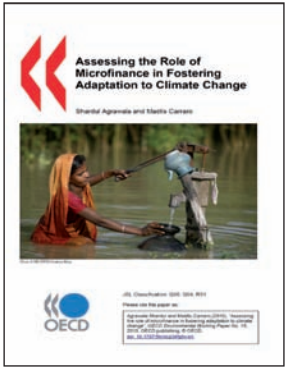
The current debate on economic aspects of adaptation to climate change has focused on the estimation of adaptation costs, ways to scale-up funding, and the design of the international institutional architecture for adaptation financing. However, little emphasis has been placed on mechanisms to channel these resources at the sub-national level, in particular to the poor who are often most vulnerable to the impacts of climate change.

OECD work offers a first empirical assessment of the linkages between microfinance supported activities and adaptation to climate change. Examination of lending portfolios of microfinance institutions in two climate vulnerable countries – Bangladesh and Nepal – identifies strong linkages between traditional microfinance activities and adaptation needs. Income and livelihood diversification can reduce vulnerability to weather and climate risks, while projects focussing on disaster preparedness, irrigation and sanitation facilities, crop diversification, insurance schemes, and construction of housing can increase the resilience to the impacts of current and future climate.

Key Links

www.oecd.org/env/cc/adaptation

www.oecd.org/env/cc/ecoadaptation



Adaptation in Developed Countries 3

While adaptation to climate change has established itself as an important and complementary response to GHG mitigation, it is often still regarded as a priority primarily for developing countries. This is on account of two reasons. First, developing countries have a relatively larger proportion of their population dependent on climate sensitive natural resources. Second, they typically have significantly lower adaptive capacity, thereby making them much more vulnerable to the potential impacts of climate change.

Less attention has been paid thus far to the experiences of developed countries in planning and implementing adaptation measures. This is a significant research gap as many of the observed and projected climatic changes are greater in temperate latitudes where many developed countries are located. In addition, developed countries have access to greater technical and financial resources and often have a stronger institutional base, both of which provide an enabling environment for adaptation planning. Examining developed country experiences highlights examples of good practices and know-how, and identifies constraints and limits to adaptation.

Recent OECD work on adaptation within the context of developed countries has assessed the progress made on adaptation at the domestic level across OECD member countries, provided in-depth analysis of adaptation strategies in vulnerable regions or sectors, and examined how adaptation could be incorporated in domestic policy frameworks.

3.1 Progress on Adaptation in Developed Countries

The OECD has examined broad trends in progress on assessment and implementation of adaptation to climate change in developed countries. Primary inputs to the OECD assessment are the National Communications (NCs) by these countries to

the UNFCCC, but other activities have also been examined.

OECD analysis shows progress across all developed countries in terms of understanding climate projections and its impacts, and in identifying adaptation options. Less progress has been made on establishing institutional mechanisms and explicitly incorporating climate change risks in projects and policies. The analysis identified several positive examples at the project level, and progress in coordination at the national level. An example for the latter is the incorporation of climate change impacts and adaptation within existing modalities for project design, approval, and implementation, such as Environmental Impact Assessments (EIA).

3.2 Adaptation in Vulnerable Regions or Sectors

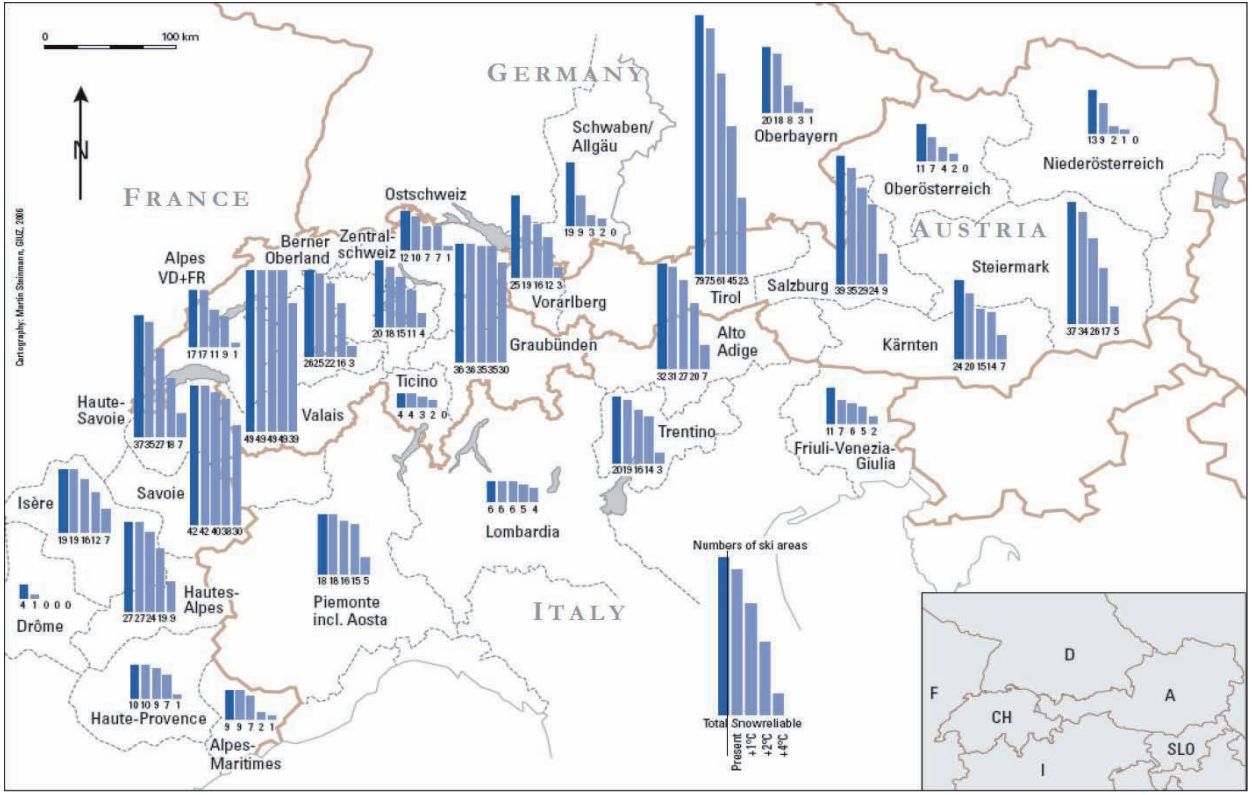
One strand of OECD research examines the implications of climate change for economies in particularly vulnerable regions and sectors. For example, OECD work has examined measures to address two key vulnerabilities in the European Alps related with losses in winter tourism and exposure of settlements and infrastructure to natural hazards. Impacts of climate change in the Alps will include a reduction in snow cover at lower altitudes, receding glaciers, melting permafrost, changing temperatures and precipitation extremes. Adaptation to these observed and projected impacts is therefore becoming increasingly important – both to limit near and medium term damages and to avoid decisions that might exacerbate vulnerability to climate change over the longer term. The implications of this work extend beyond the European Alps to other mountain systems which may face similar climate and contextual challenges, and provide examples of good practice.

Ongoing OECD work addresses resilience to climate change by identifying adaptation and mitigation synergies that could minimise socio-economic vulnerability in different sectors. The OECD Environment and Trade and Agriculture Directorates are also collaborating to analyse and design policies to help farmers adapt to the impacts of climate change on agriculture.

3.3 Incorporation of Adaptation at National, Regional and Local Levels

Recent work has analysed policy frameworks that are important for facilitating adaptation to climate change impacts in coastal zones and the water sector. The work on coastal zones has focused on climate change impacts in the Gulf of Mexico and the role of federal agencies to guide adaptation.

Percentage of Naturally Snow-reliable Ski Areas in the European Alps under Present and Future Climate Conditions



Source: **OECD, 2007.**

With respect to the water sector, the OECD has examined domestic policy frameworks to determine to what extent adaptation to climate change is being incorporated into existing water policy frameworks in selected developed and developing countries. Work is also underway to develop a framework for a programmatic approach to adaptation, which would provide an enabling architecture that can prioritise and implement mainstreaming as well as more adaptation specific outcomes, and more importantly, ensure their longer term sustainability.

The OECD is also working to highlight the role of cities in delivering cost-effective policy responses to climate change, including adaptation. Recent outputs include reports on the global ranking of port cities with high exposure to climate extremes, case studies of Copenhagen and Mumbai, a conceptual framework for the economic assessment of impacts and policy benefits at the urban scale, and a new volume, *Cities and Climate Change*, that analyses the role of urban policies, such as land use planning and building regulations, in enhancing resilience to climate change. Work is also underway on a comparative study of green growth in cities, including opportunities to incorporate adaptation measures into urban development policies.

Key Links
www.oecd.org/env/cc/adaptation

Recent Publications and Working Papers

Books

OECD (2010), *Climate Change and Agriculture: Impacts, Adaptation and Mitigation*, OECD Publishing. doi: 10.1787/9789264086876-en.

OECD (2010), *Cities and Climate Change*, OECD Publishing. doi: 10.1787/9789264091375-en.

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doi: 10.1787/5km975m3d5hb-en.

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Levina, E. and H. Adams (2006), “Domestic Policy Frameworks for Adaptation to Climate Change in the Water Sector: Part I - Annex I Countries”, COM/ENV/EPOC/IEA/SLT(2006)2, OECD and IEA.

Acronyms

DAC	Development Assistant Committee
EIA	Environmental Impact Assessment
EPOC	Environment Policy Committee
GHG	Greenhouse Gas
IAM	Integrated Assessment Model
IPCC	Intergovernmental Panel on Climate Change
NAPA	National Adaptation Programme of Action
NC	National Communication
OECD	Organisation for Economic Co-operation and Development
ODA	Official Development Assistance
UNFCCC	United Nations Framework Convention on Climate Change

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