EUROPEAN COMMISSION
Community research

FP7 Research on Adaptation to Climate Change

Wolfram Schrimpf
Deputy Head of Unit
Climate Change & Environmental Risks Unit
Research Directorate General
European Commission
wolfram.schrimpf@ec.europa.eu

Science-policy interactions in national adaptation policy
14 - 15 September 2009, Utrecht, The Netherlands

COOPERATION

EUROPEAN COMMISSION

Community research

Key global impacts as a function of global average warming

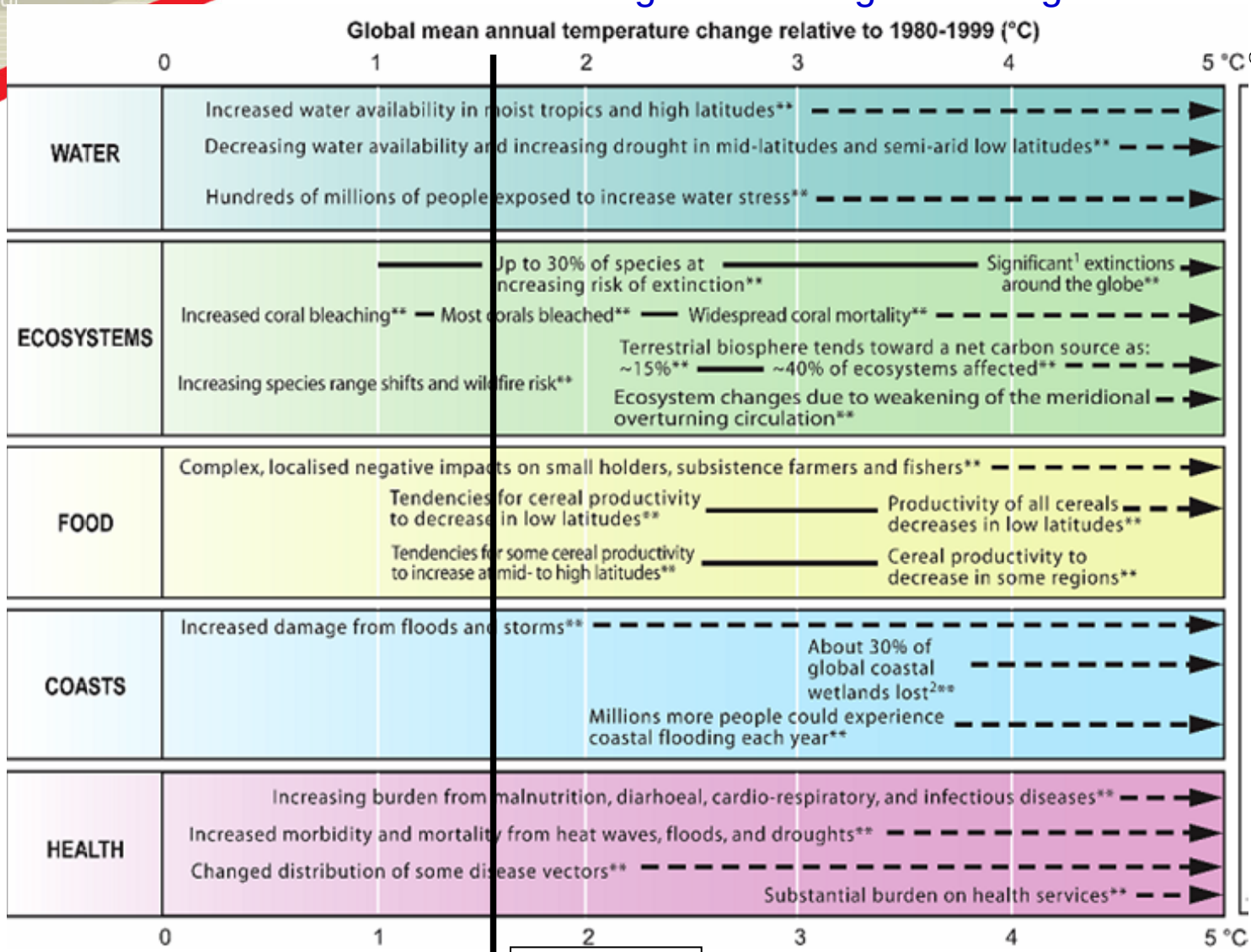


Figure 3: Key impacts as a function of increasing global average temperature change[1]

[1]Above 1980-1999 levels. To express the change relative to the period 1850-1899, IPCC WG II adds 0.5 degrees C

COOPERATION

EUROPEAN COMMISSION
Community research

Importance of adaptation to Climate Change

- Even under the most optimistic emission scenarios we are already facing a certain level of climate change and related impacts
  > *Adaptation to climate change is not an option*
- Mitigation and adaptation are to be seen as a 'co-exercise'

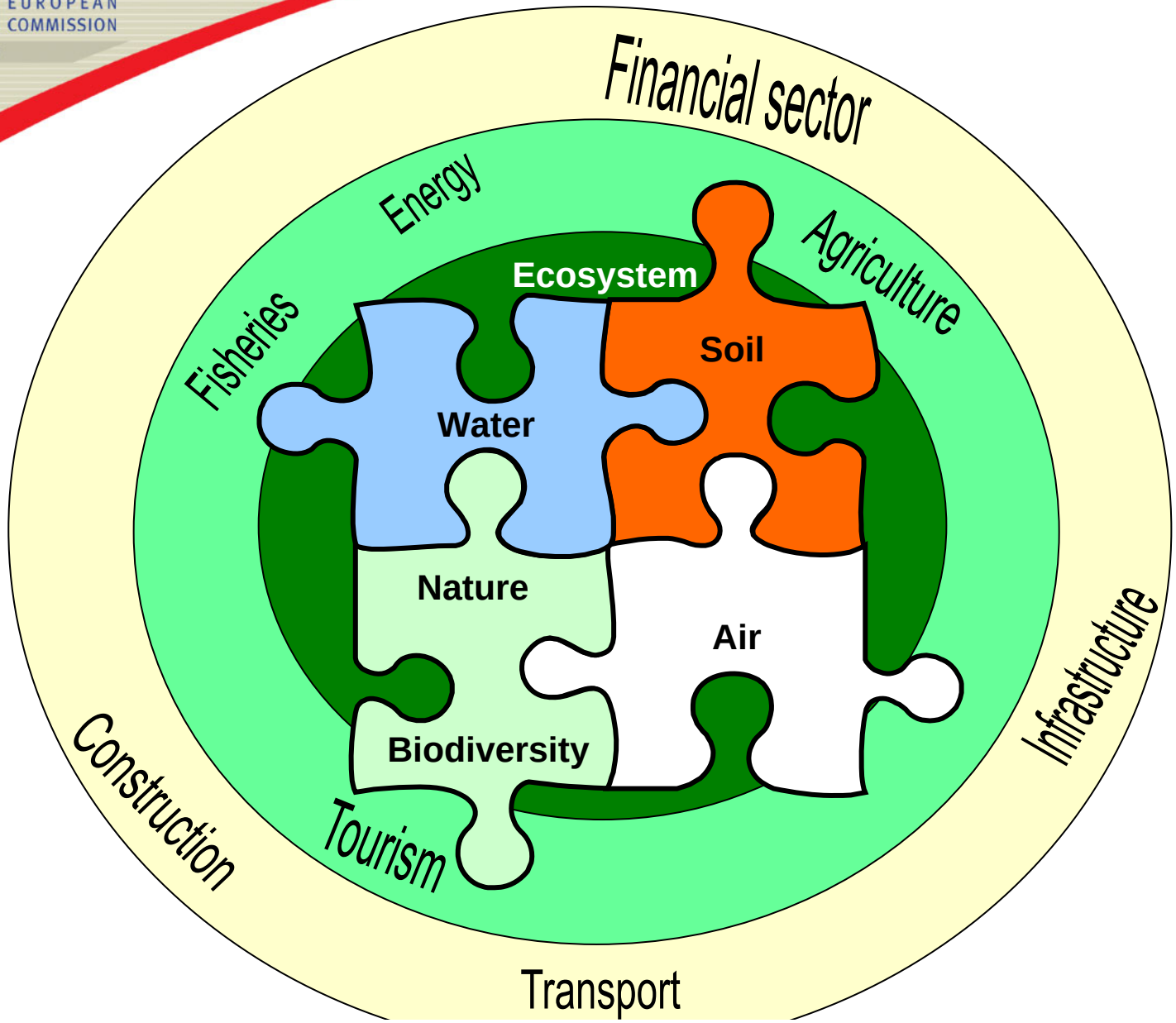
Important European and international milestones:

- European Commission *White Paper* 'Adapting to climate change: Towards a European framework for action'
- Fourth Assessment Report of the Intergovernmental Panel on Climate Change

COOPERATION

EUROPEAN COMMISSION
Community research

An integrated approach



Impacts transpire gradually from the environment into the economies and society

EUROPEAN COMMISSION
Community research

Importance of research for adaptation

Adaptation to climate change:

*‘ To be able to take decisions on how best to adapt, it is essential to have access to **reliable data** on the likely **impact of climate change**, the associated **socio-economic aspects** and **the costs and benefits** of different adaptation options. **More knowledge** is needed on **climate impact** and **vulnerability** so that appropriate policy responses can be developed’* (Adaptation White Paper)

*‘Initiatives and measures to **reduce the vulnerability of natural and human systems** against **actual or expected climate change effects**. **Various types of adaptation exist**, e.g. anticipatory and reactive, private and public, and autonomous and planned ….’* (IPCC Glossary)

COOPERATION

EUROPEAN COMMISSION
Community research

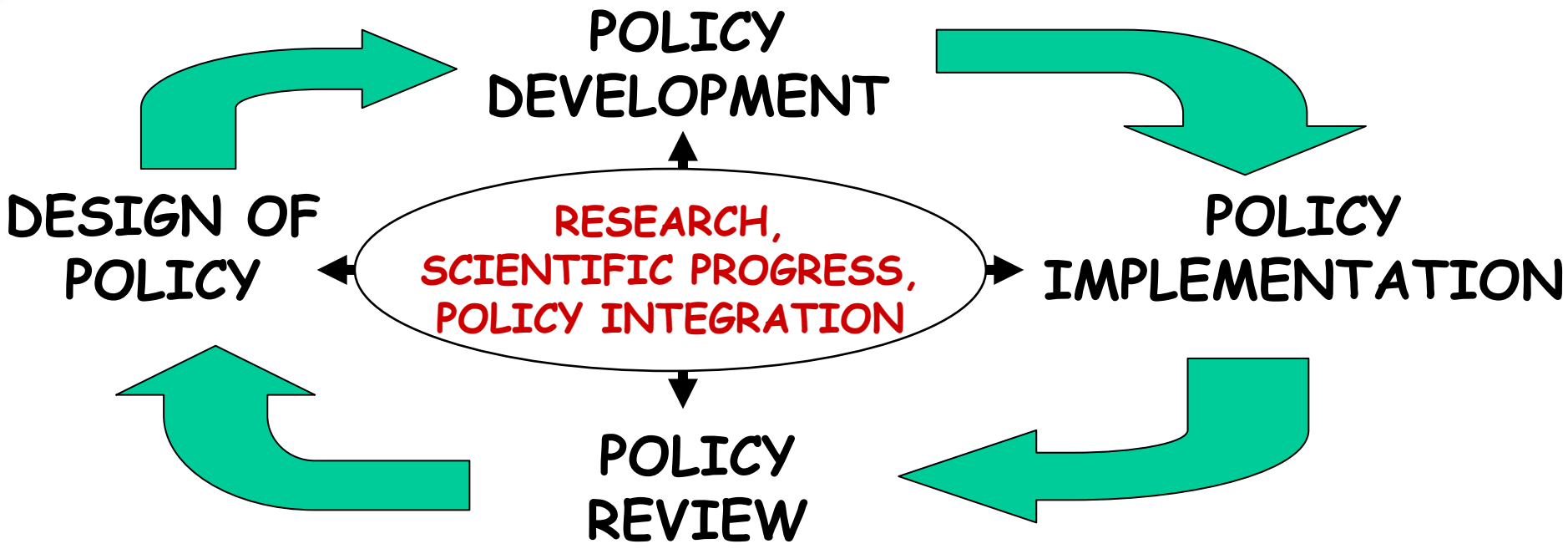
European Research

- Contribution to understand Earth system functioning, the origin and impacts of climate change and to predict its future evolution
- Guidance and support to EU's international commitments and EU policies
- Basis for effective mitigation and adaptation measures

COOPERATION

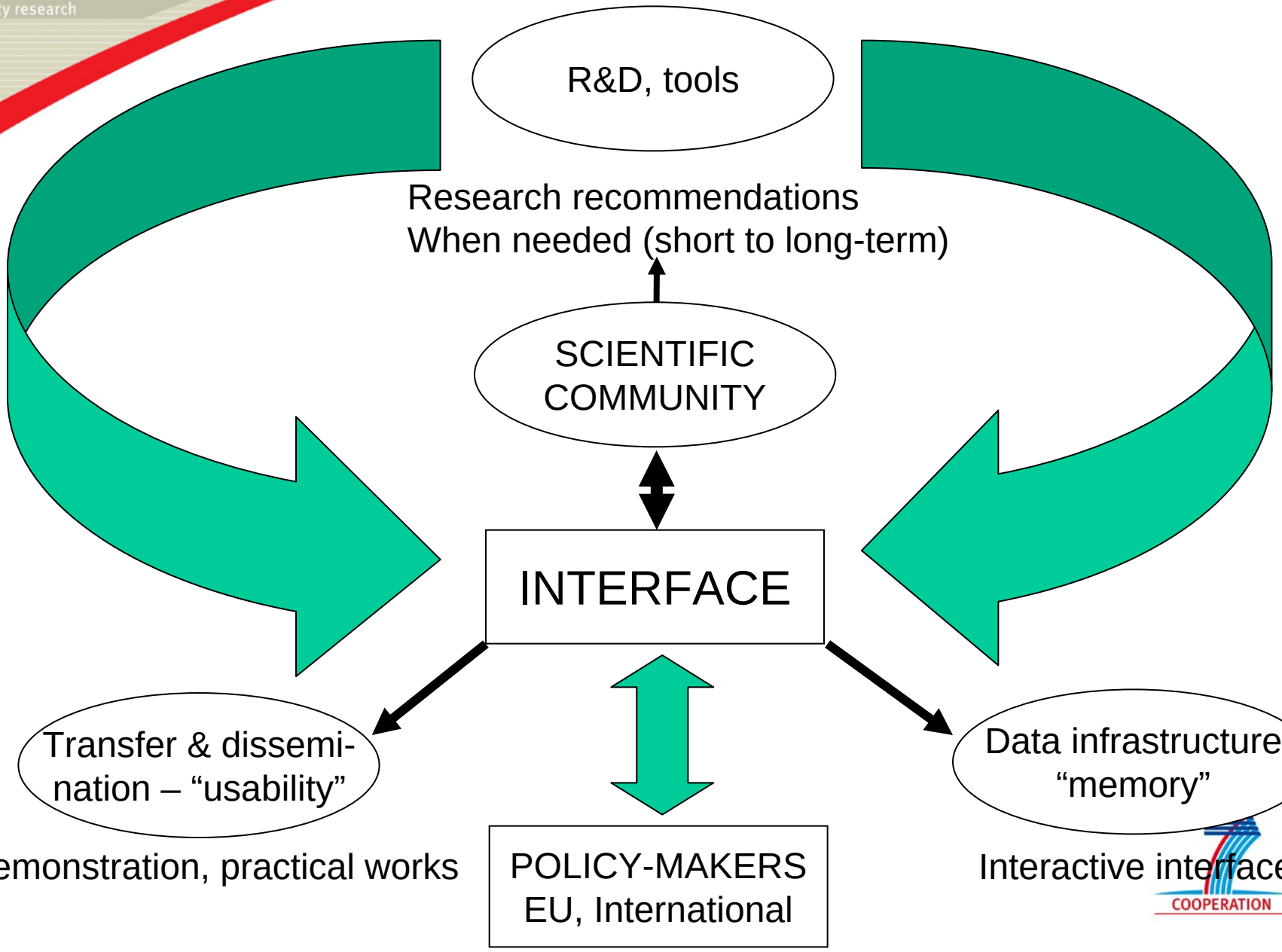
EUROPEAN COMMISSION
Community research

Establishing links with 'science-users'



COOPERATION

Need for science-policy interfacing



EUROPEAN COMMISSION
Community research

Research on adaptation in Framework Programs

FP7 - Research on adaptation will play a bigger role:

- Many disciplines and sectors are affected/involved;

- Encompasses inside the Commission DG Research and other Services dealing with adaptation to climate change;

- Requires integration and cooperation to reduce risks of fragmentation and more effective use of resources;

- Adaptation should be considered within the 'triangle' mitigation, socio-economic development and adaptation.

COOPERATION

EUROPEAN COMMISSION
Community research

Budget for FP7-Environment

- Total FP7 budget: 50.521 bn € (current prices)
- Total Cooperation programme budget: 32.413 bn €
- Total budget Environment incl. Climate change 1.886 bn €

Indicative breakdown:

2006	2007	2008	2009	2010	2011	2012	2013
225	**224**	**229**	**233**	**246**	**281**	**318**	**356**

➔ In 2013 expenditure 60% higher than in 2006

COOPERATION

EUROPEAN COMMISSION
Community research

FP-funded research supports the following climate change-related priorities:

- Understanding, monitoring and predicting climate change and its impacts
- Providing tools to analyse the effectiveness, costs and benefits of different policy options for mitigation and adaptation
- Improving, demonstrating and deploying existing climate-friendly technologies and developing the technologies of the future
- Focused on four main thematic areas:
  - Environment (total budget € 1.89 billion)
  - Energy (total budget € 2.35 billion)
  - Transport (total budget € 4.16 billion)
  - Space and GMES (total budget € 1.43 billion)

COOPERATION

EUROPEAN COMMISSION
Community research

Framework Programmes and climate change research

✓ Since 2003, more than 139 projects representing an overall budget of 570 M€ of EC financial support contributed to the **understanding of the climate system and adapting to change** in climate processes and their modelling, to the assessment of climate change impacts and the costs of response measures.

✓These research activities are complemented by other projects funded by the Framework Programme, notably in the areas of energy and transport, which contribute to the **identification and development of mitigation options**.

✓ *A publication providing an overview of climate change research projects funded under the FP*
http://ec.europa.eu/research/environment/pdf/cop-15.pdf

COOPERATION

EUROPEAN COMMISSION
Community research

Areas of FP Research Projects
of relevance for climate change impacts, vulnerability and adaptation

- Climate Processes, Observations and Projections
- Global Carbon and Nitrogen Cycles – Greenhouse Gas Emissions
- Climate Interactions with atmospheric composition change
- **Climate Change Impacts**
- **Climate Relevant Projects on Natural Hazards and Extreme Events**
- **Climate Change Adaptation, Mitigation and Policies**

COOPERATION

EUROPEAN COMMISSION
Community research

Climate Change Impacts

FP6:

- CECILIA *(Central and Eastern European Climate Change Impact and Vulnerability)* – STREP (until 31/05/2009)
  Co-ordinator: Charles University, Czech Republic
  web-site: **http://www.cecilia-eu.org**

- CIRCE *(Climate Change and Impact Research: the Mediterranean Environment* – IP (until 31/03/2011)
  Co-ordinator: Istituto Nazionale di Geofisica e Vulcanologia, Italy
  web-site: **http://www.bo.ingv.it/circeip**

- CLAVIER *(Climate Change and Variability: Impact on Central and Eastern Europe)* – STREP (until 31/08/2009)
  Co-ordinator: Max-Planck, Germany
  web-site: **http://www.clavier-eu.org/**

- EDEN *(Emerging diseases in a changing European environment* – IP (until 31/10/2009)
  Co-ordinator: Centre de Coopèration International de Recherche Agronomique pour le Developpement, France
  web-site: **http://www.eden-fp6project.net**

COOPERATION

EUROPEAN COMMISSION
Community research

Example 1

AQCWA *(Assessing Climate Change Impacts on the Quality and Quantity of Water)*

- EC funding: EUR 6.5 million, IP, 29 partners
- Duration: 60 months (started 01/10/2008)
- Co-ordinator: University of Geneva, Switzerland
- Major activities of ACQWA are:

  - Assess the vulnerability of water resources in mountain regions.
  - Use, refine and develop numerical models;
  - Predict the evolution of these systems over the next 50 years;
  - Assess the potential impacts on economic sectors such as energy, agriculture, tourism;
  - Propose adaptation options for risk minimization .
- International partners from Chile, Argentina, Kyrgyzstan
- Web-site: **http://www.acqwa.ch**

ACQWA

COOPERATION

EUROPEAN COMMISSION

Example 2

GENESIS groundwater and dependent ecosystems

GENESIS *(Groundwater and Dependent Ecosystems: New Scientific Basis on Climate Change and Land-Use Impacts for the Update of the EU Groundwater Directive)*

- EC funding: EUR 3.9 million, CP, 26 partners
- Duration: 54 months (started 01/04/2009)
- Co-ordinator:Norwegian Institute for Agricultural and Environmental Research (Bioforsk) ,Norway
- Major activities of GENESIS include:

  - Impacts of landuse changes and climate changes on groundwaters (GW) and groundwater dependent ecosystems (GDE);
  - Case studies on impacts and threats to GWs and GDEs;
  - Groundwater dynamics, re-charge and water balance
  - Groundwater dependent ecosystems: groundwater-surface water interaction;
  - Modelling processes in groundwater systems;
  - Concepts, scenarios and risk assessment.

- Web-site: **http: / / www.thegenesisproject.eu**

COOPERATION

EUROPEAN COMMISSION
Community research

Climate Relevant Projects on Natural Hazards and Extreme Events

FP6:

- MICRODIS *(Integrated health, social and economic impacts of extreme events: evidence, methods & tools)* – IP (until 31/01/2010)

  Co-ordinator: Universitè Catholique de Louvain, Belgium

  web-site: **http://www.microdis-eu.be/**

COOPERATION

EUROPEAN COMMISSION
Community research

Example 1

IMPRINTS (*Improving preparedness and risk management for flash floods and debris flow events)*

- EC funding: EUR 3.3 million, CP, 18 partners
- Duration: 42 months (started 15/01/2009)
- Co-ordinator: Universitat Politècnica di Catalunya, Spain
- Major activities of IMPRINTS include:

  - Contribution to reduce loss of life and economic damage through the improvement of the preparedness and operational risk management for Flash Flood and Debris Flow [FF/DF] generating events
  - Development of methods and tools to be used by emergency agencies and utility companies responsible for the management of FF/DF risks and associated effects.
  - Analyses of impacts of future changes, including climatic, land use and socioeconomic to provide guidelines for mitigation and adaptation measures.

- International partners from South Africa
- Web-site: **http://www.imprints-fp7.eu**

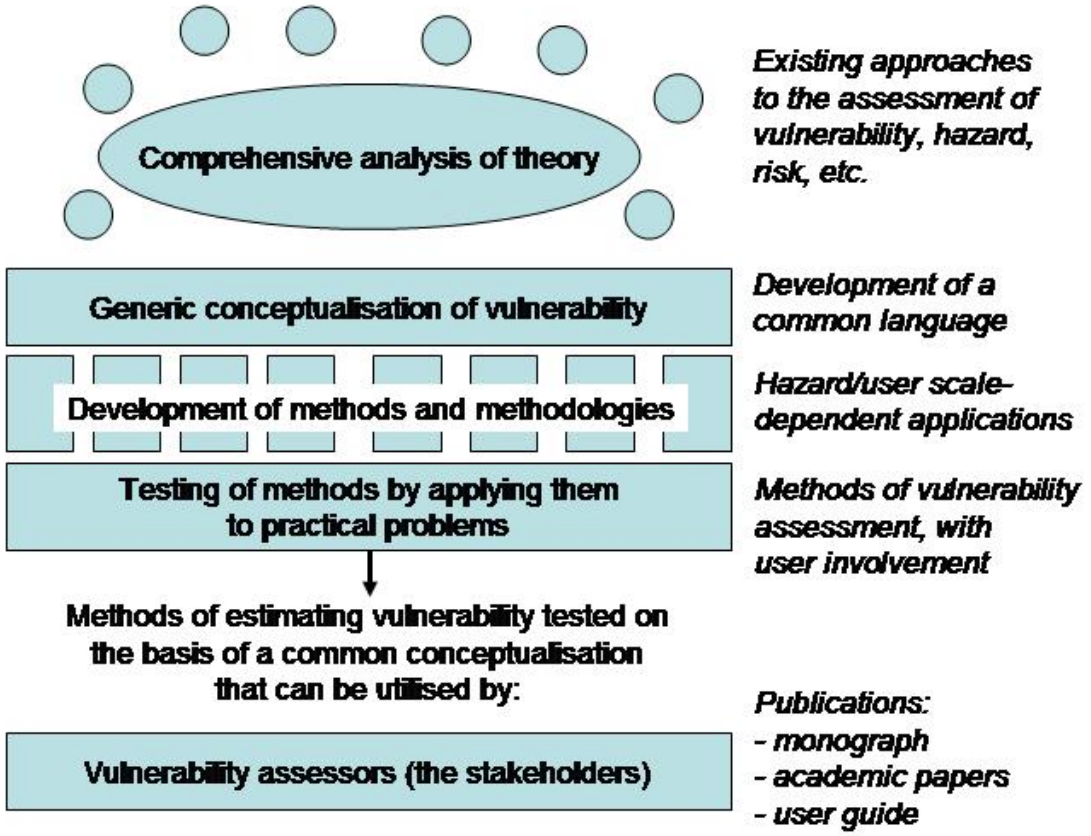
COOPERATION

EUROPEAN COMMISSION
Community research

Example 2

MOVE *(Methods for the improvement of vulnerability assessment in Europe)*

- EC funding: EUR 2.1 million, CP, 12 partners
- Duration: 36 months (started 01/010/2008)
- Co-ordinator: Università degli Studi di Firenze, Italy



COOPERATION

EUROPEAN COMMISSION
Community research

Climate Change Adaptation, Mitigation and Policies

FP6:

- ADAM *(Adaptation and Mitigation Strategies: Supporting European Climate Policy)* – IP (until 31/07/2009)

  Co-ordinator: University of East Anglia, United Kingdom

  web-site: **http://www.adamproject.eu/**
- ADAGIO Adaptation of agriculture in the European regions at environmental risk under climate change)

  Co-ordinator: University of Natural Resources and Applied Sciences, Austria

  web-site: **http://www.adagio-eu.org**

COOPERATION

EUROPEAN COMMISSION
Community research

ClimateCost

Example 1

ClimateCost *(Full Costs of Climate Change)*

- EC funding: EUR 3.5 million, CP, 21 partners
- Duration: 32 months (started 01/12/2008)
- Co-ordinator: Stockholm Environment Institute, Oxford Office, United Kingdom

- Major activities of ClimateCost are:

  - Quantify in physical terms, and economic costs, the 'costs of inaction' for selected climate change and socio-economic scenarios for market and non-market sectors
  - Analysis to quantify and value the costs and benefits of adaptation, and the residual costs of climate change
  - Assessment of physical effects and economic damages of a number of the most important major catastrophic events,
  - Analysis of policy scenarios.

- International partner from China
- Web-site: **http://www.climatecost.cc/ClimateCost/Welcome.html**

COOPERATION

EUROPEAN COMMISSION
Community research

Example 2
CCTAME *(Climate Change – Terrestrial Adaptation and Mitigation in Europe)*

- EC funding: EUR 3.4 million, CP, 14 partners
- Duration: 36 months (started 01/06/2008)
- Co-ordinator: International Institute for Applied Systems Analysis, Austria
- Major activities of CCTAME are:

  - assessment of the impacts of agricultural, climate, energy, forestry and other associated land-use policies, considering the resulting feed-backs on the climate system

  - coupling of economic land-use models will with regional climate models to assess and identify mitigation and adaptation strategies in European agriculture and forestry

  - provision of quantitative assessments in terms of cost-efficiency and environmental effectiveness of individual land-use practice

  - evaluation of policy options at a great level of detail for EU25(27) in a post-Kyoto regime, as well as offering perspectives on global longer-term policy strategies.

- Web-site: **http: / / www.cctame.eu**

COOPERATION

EUROPEAN COMMISSION
Community research

Related FP7 Projects under negotiation

- CIR²CLE *Climate Impact Research & Response Coordination for a Larger Europe) 2nd Generation ERA-NET: Science meets Policy*
- CLIMB *(Climate Induced Changes on the Hydrology of Mediterranean Basin: Reducing Uncertainty and Quantifying Risk through an Integrated Monitoring and Modelling System) –CP*
- WASSERMed *(Water Availability and Security in Southern Europe and the Mediterranean)– CP*
- CLIMSAVE *(Climate Change Integrated Assessment Methodology for Cross-Sectoral Adaptation and Vulnerability in Europe) – CP*
- MEDIATION *(Methodology for Effective Decision Making on Impacts and Adaptation)– CP*
- CORFU *(Collaborative Research on Flood Resilience in Urban Areas) - CP*

COOPERATION

EUROPEAN COMMISSION
Community research

WORK PROGRAMME 2010
COOPERATION
THEME 6
ENVIRONMENT (INCLUDING CLIMATE CHANGE)

ENV.2010.1.1.4-1 Underpinning work to enable provision of local scale climate information (annual to decadal timescales

Funding scheme: Collaborative Project (small or medium-scale focused research project)
Expected impact: Improve the accuracy of climate information needed at local scale according to the current demands on adaptation measures.

ENV.2010.1.1.6-3 Quantifying the costs of mitigating climate change by means of activities involving joint climate and economic modeling

Funding scheme: Collaborative Project (small or medium-scale focused research project)
Expected impact: Better quantify the costs of climate change mitigation within an intercomparison framework; increased consistency in cost- related information for policy making. Provide input to international assessments including the 5th IPCC report.

ENV.2010.1.3.4-2 Social science research, natural hazards and decision making process

Funding scheme: Coordination and Support Action (coordinating action)
Expected impacts: Identification of barriers in decision making process related to risks, Identify clear social science contribution towards disaster risk reduction research agenda, and contribute to the European and international effort in this field.

COOPERATION

EUROPEAN COMMISSION
Community research

FP7 adaptation research – highlights from staff working document (SEC(2008) 3104 final18.12.2008)

- Development of integrated methodology for cost-effective adaptation
- Quantification of damage and adaptation costs also covering countries important for international negotiations
- Europe-wide risk, impact and cost/benefit assessment for adaptation responses
- Analysis of presently developed/adopted adaptation strategies of EU Member States
- Quantification of the relative costs
- Stimulate innovation in the field of adaptation to climate change

COOPERATION

EUROPEAN COMMISSION
Community research

Conclusion

- At EU level, direct support to policy developments and implementation with participation of policy-makers and stakeholders in research consortia and involvement of scientists in policy discussions
- Strong need for strengthening the efficient transfer of research knowledge to policy-makers with the perspective of reducing uncertainties of predictive scenarios for better decision-making at policy level
- EU-funded research establishes close links with international policy developments e.g. through participation in IPCC, UNFCC, ISDR etc.

COOPERATION

EUROPEAN COMMISSION
Community research

Thank you very much for your attention

More info on

http://ec.europa.eu/research

COOPERATION