



Climate Change research and observations in the Seventh Framework Programme (FP7): Results, planning activities, research needs

Presentation by the Research Directorate General, European Commission
SBSTA 30 informal dialogue meeting on research and systematic observations

FP7 climate research with global scope: International co-operation in FP7



FP7 is a research programme open to the world, with in total 39 States contributing

- **Opening of the FP :**
 1. FP7 is open to participation of all countries of the world
 2. Funding of ICPC countries
- **Two approaches:**
 1. Specific international co-operation actions (SICA) dedicated to developing countries and emerging economies
 2. INCO leveraging/supporting instruments
- **International agreements**
 1. Association to the FP
 2. S&T cooperation agreements

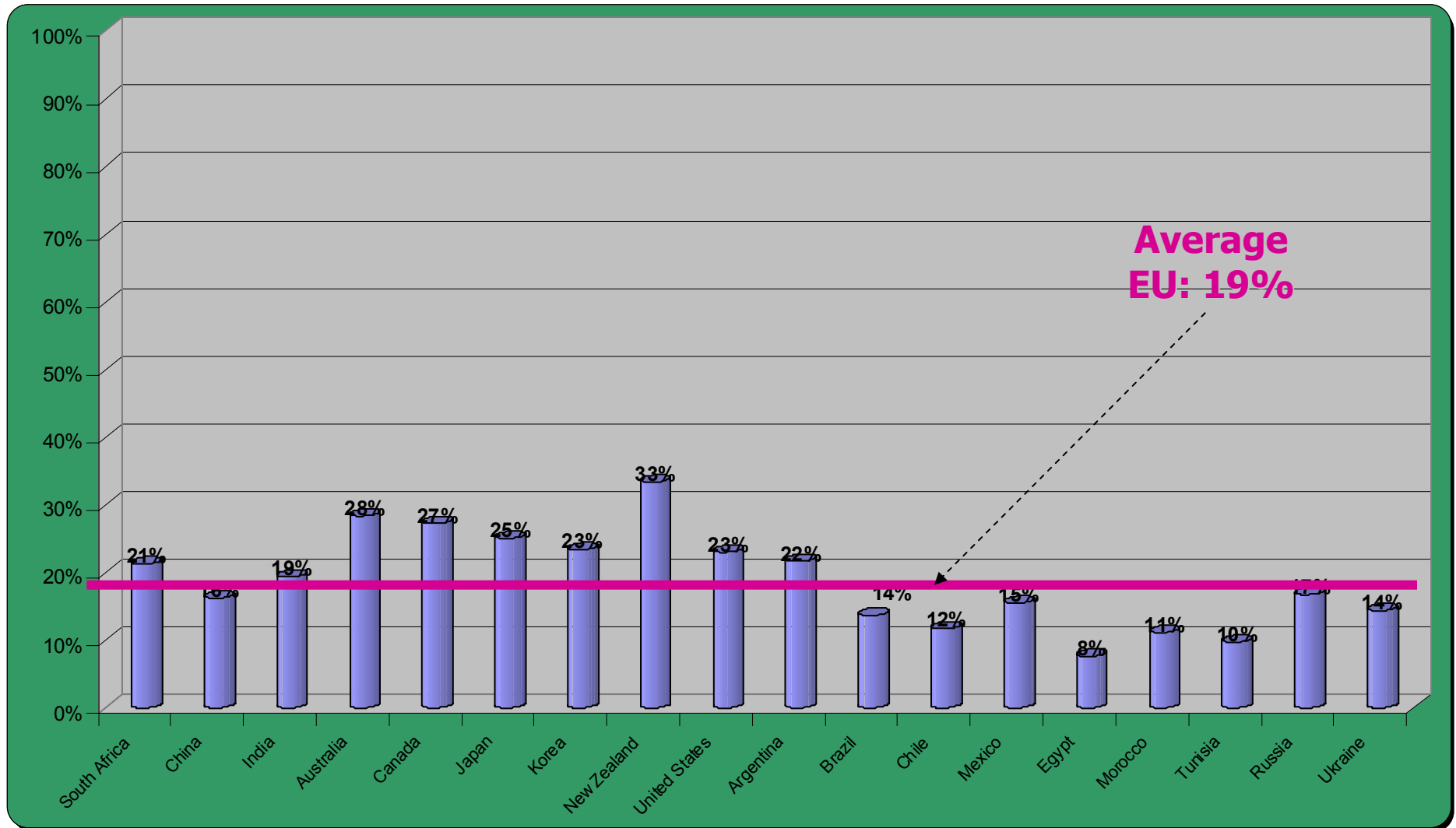
*International Co-operation Partner Country (ICPC)

Contributing states:

- | | |
|--|-------------------|
| 1 Albania | 20 Italy |
| 2 Austria | 21 Latvia |
| 3 Belgium | 22 Liechtenstein |
| 4 Bosnia & Herzegovina | 23 Lithuania |
| 5 Bulgaria | 24 Luxembourg |
| 6 Croatia | 25 Malta |
| 7 Cyprus | 26 Montenegro |
| 8 Czech Republic | 27 Netherlands |
| 9 Denmark | 28 Norway |
| 10 Estonia | 29 Poland |
| 11 Former Yugoslav Republic of Macedonia | 30 Portugal |
| 12 Finland | 31 Romania |
| 13 France | 32 Serbia |
| 14 Germany | 33 Slovakia |
| 15 Greece | 34 Slovenia |
| 16 Hungary | 34 Spain |
| 17 Iceland | 36 Sweden |
| 18 Ireland | 37 Switzerland |
| 19 Israel | 38 Turkey |
| | 39 United Kingdom |

Third Countries Success Rate (FP7/ Cooperation SP)

Ref. data FP7: WP 07+08 – date: 23 Feb. 09



FP7 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 Global Monitoring for Environment and Security (GMES) (total budget € 1.43 billion)

International Cooperation Projects in Environment– climate and global observations



Sixth Framework Programme

- 74 projects involving partners from outside the EU and associated states
- 62 Countries involved

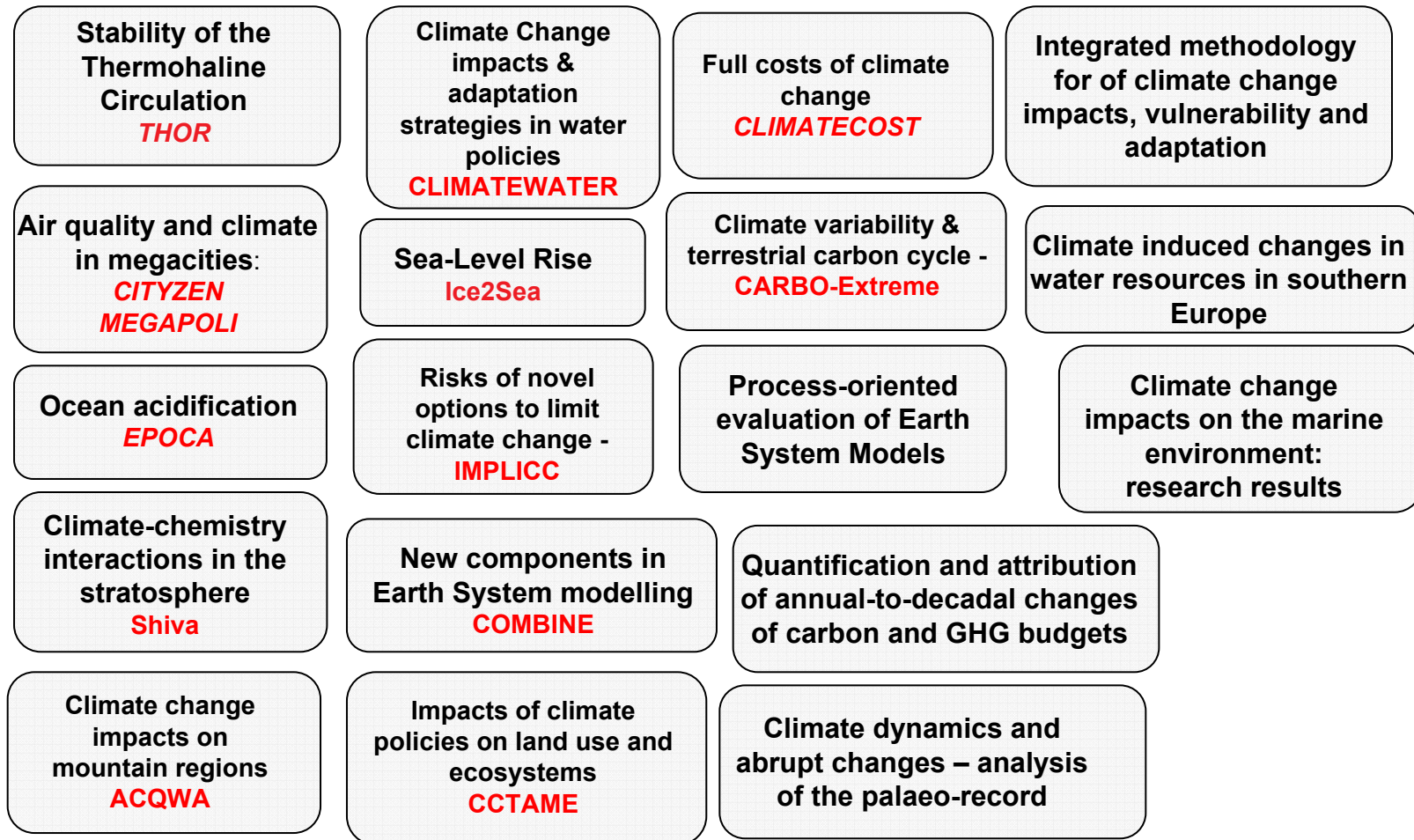
Seventh Framework Programme (ongoing)

- 59 projects involving partners from outside the EU and associated states
- 60 Countries involved

Countries involved

- In the Balkans: Bosnia and Herzegovina, Serbia and Montenegro
- In the Mediterranean: Algeria, Egypt, Gaza Strip and the West Bank, Jordan, Lebanon, Morocco, Syria, Tunisia
- Russian Federation and Central Asia: Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Russian Federation, Ukraine, Uzbekistan
- In Asia: Bangladesh, Bhutan, Cambodia, China, Hong Kong, India, Indonesia, Iran, Malaysia, Nepal, Pakistan, Philippines, South Korea, Sri Lanka, Taiwan, Thailand, Vietnam
- In Central and Latin America: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Perú, Uruguay
- ACP States: Barbados, Benin, Botswana, Burkina Faso, Cameroon, Cape Verde, Congo, Ethiopia, Fiji, Ghana, Guinea, Ivory Coast, Kenya, Malawi, Mali, Mozambique, Namibia, Netherlands Antilles, Niger, Nigeria, Senegal, South Africa, Sudan, Suriname, Tanzania, Uganda, Zambia

**Examples of Climate related themes published
in the FP7 calls of proposals
(2007-2009)**



**Examples of themes focussing different
areas of the world, published in FP7 calls**

**Climate change impacts
in the
Parana-Plata river basin**
CLARIS LPB

**Water resources in
Northern India, and
adaptation strategies**
HighNoon

**Addressing
deforestation in tropical
areas**
*REDD-ALERT +
REDD-DIP*

**Climate Change impacts
on and thresholds of
Arctic ocean ecosystems**
ATP

**Analysis of emerging
economies in a post-
Kyoto regime –**
POEM

**Climate change
predictions in
Sub-Saharan Africa**

**Adaptation strategies
in post-2012 climate
initiatives**



Commission staff working paper on:

Integrated climate change research following the release of the 4th AR of the IPCC and most recent research developments

18 December 2008, SEC(2008) 3104 final

Particular emphasis will be given to the following elements:

- Quantification of climate change feedbacks in Europe and beyond
- Regional climate change projections, aiming at local-scale information
- Quantification of climate change impacts on vulnerable ecosystems, and key economic sectors
- Climate change and human health
- Coupling between climate and economic models
- Feasibility and related costs of adaptation and mitigation policies and measures in Europe and beyond.
- Assessment of the effectiveness and risks of novel options to combat climate change

Climate research in time for the IPCC 5th AR



EC-funded research projects are managed to deliver results in due time for the IPCC 5th AR

Examples of relevant project results by 2013:

- **ENSEMBLES**
 - Emission scenarios at 450ppm CO₂eq (2009)
- **CARBOOCEAN**
 - Future CO₂-uptake by oceans under various climate conditions (2011)
- **CCTAME**
 - impacts of agricultural, climate, energy, forestry and other associated land-use policies (2011)

Climate research in time for the IPCC 5th AR



Examples of relevant project results by 2013:

- **Climate Cost**
 - Socioeconomic scenarios of mitigation and adaptation (2011)
- **ATP**
 - Climate thresholds and tipping points for key Arctic marine ecosystem components and processes (2012)
- **COMBINE**
 - Scenarios and climate impacts (2010-2012)
 - Climate predictions (2010 and 2011)



ONGOING RESEARCH IN THE FRAMEWORK PROGRAMME

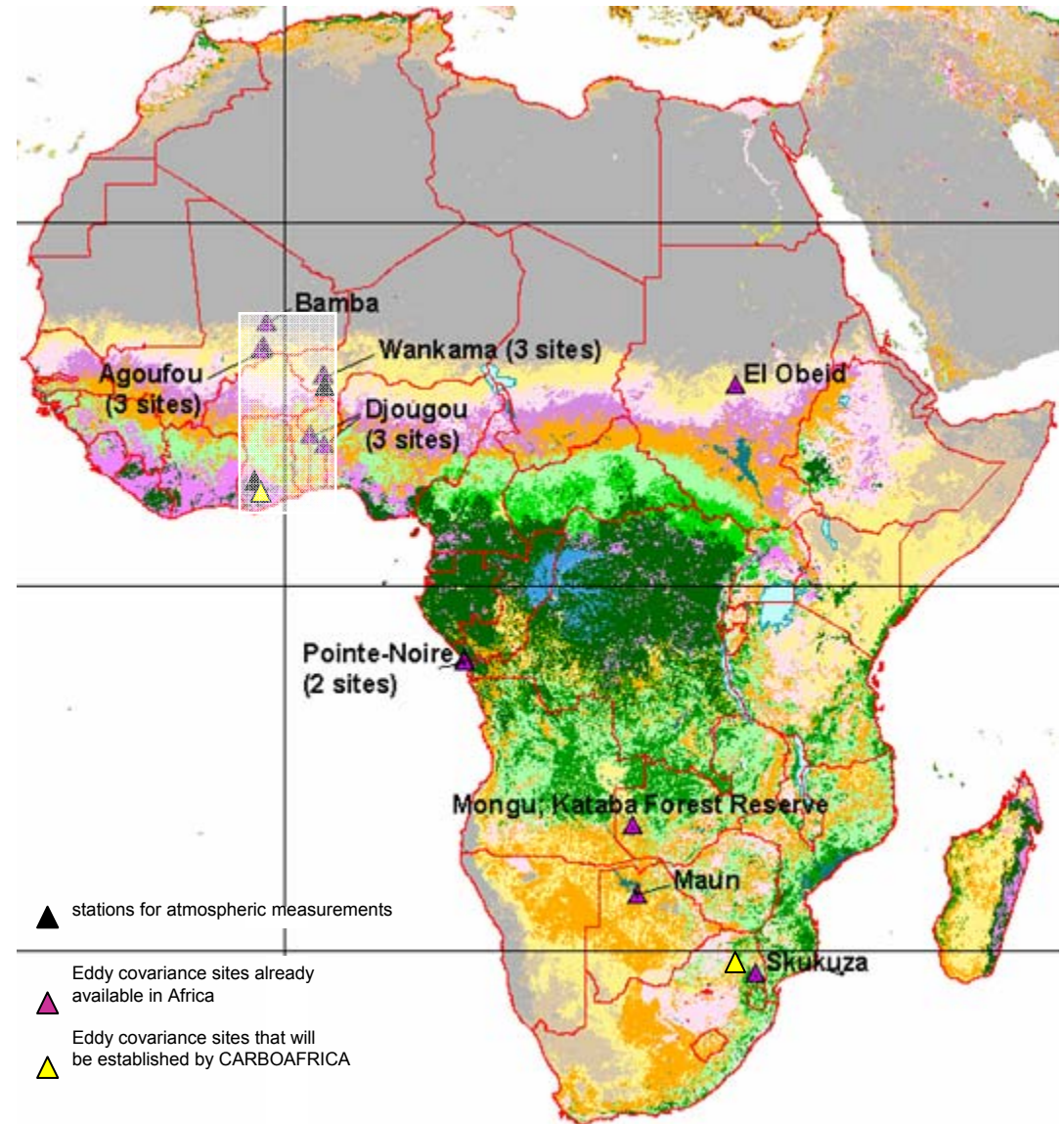


First Carbon and GHGs terrestrial monitoring network of Sub-Saharan Africa:

- better quantify GHGs emissions and balance (considering also fires and deforestation)

- evaluate the potential for carbon sequestration (CDM) and avoiding deforestation (REDD)

- Capacity building and communication





The ENSEMBLES project



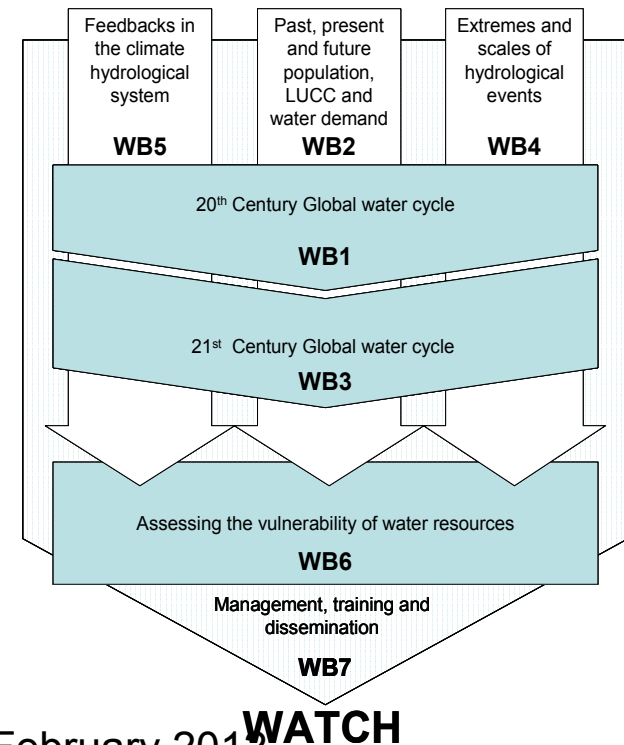
- *Policy relevant information on climate and climate change and its interactions with society*
- *Develop an ensemble prediction system based on global and regional climate models, validated against observations and analyses*

- 15 million € of EC funding (but closer to 25 million € in total)
- 5 Year “integrated project” under the theme “Global Change and Ecosystems” (Sept 2004 to Dec 2009)
- 67 partners and 29 Affiliates Europe, Australia China, Japan, Canada and USA
- Multi-model projections for Europe at 25km
- Significant contribution to IPCC AR4
- Investigating probabilistic methods for “s2d2c” timescales for range of models to explore impacts
- Earth system model simulations, will use a mitigation emissions scenario developed within ENSEMBLES
- Providing information relevant to IPCC planning
- Web-based statistical tools for finer scale information
- Daily gridded dataset for Europe, + uncertainty estimates

The WATCH Project (Water and Global Change)



- Analyse and describe the **current** global water cycle
- Evaluate how the global water cycle and its extremes respond to **future** drivers of global change
- Evaluate **feedbacks** in the coupled system as they affect the global water cycle
- Evaluate the **uncertainties** in the predictions
- Develop a modelling and data framework to assess the future **vulnerability of water as a resource**



25 partners from 13 countries, budget of 10 M€, end February 2012

– International partners: Niger, South Africa, India

The QUANTIFY project: Quantifying the Climate Impact of global and European Transport Systems



Objective: To quantify the climate impact of the global and European transport systems for the present situation and for different scenarios of future development.

Participants: 41 from 19 countries

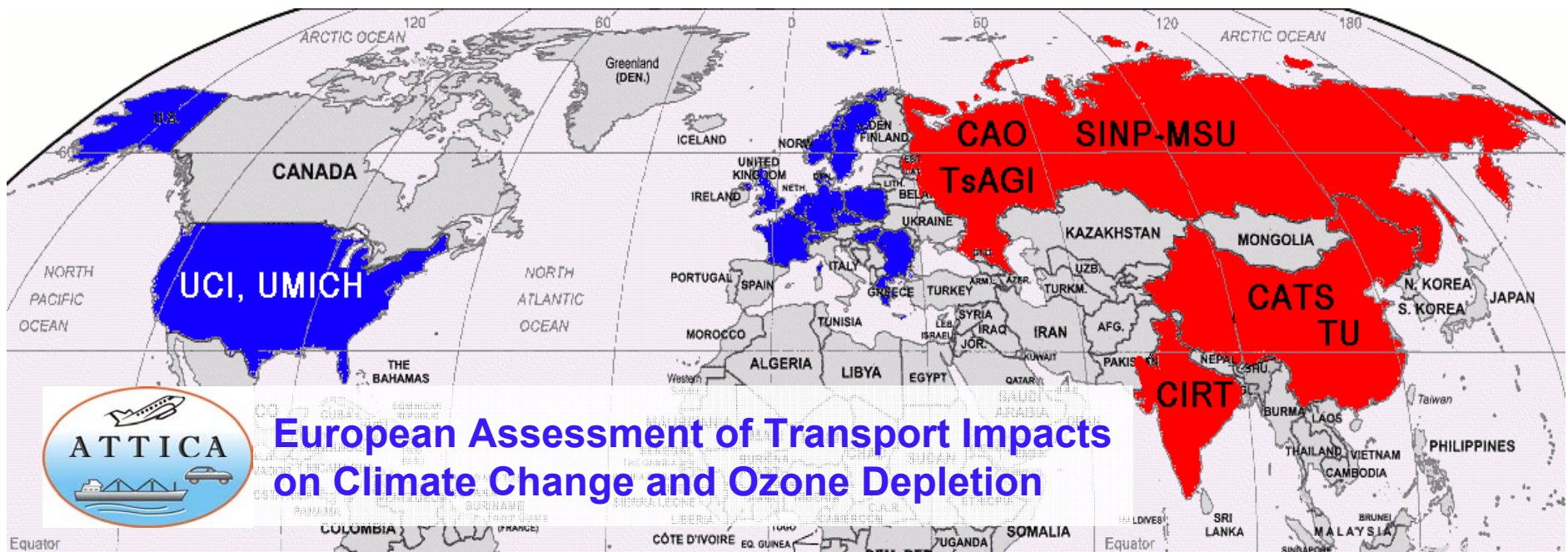
Duration: March 2005 to February 2010

EC Funds: 8.4 M€

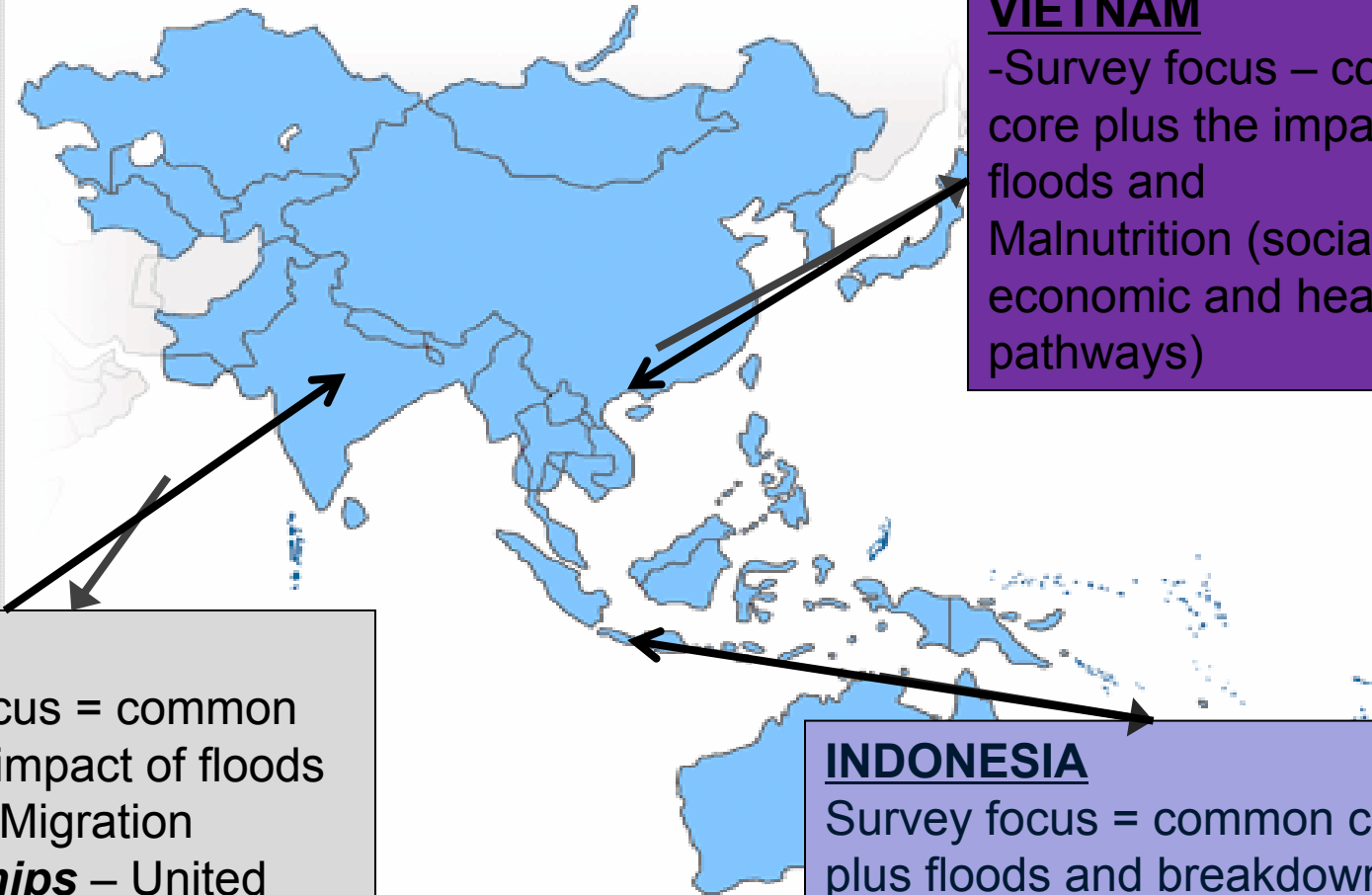
Total costs 12.8 M€

<http://ip-quantify.eu>

QUANTIFY-TTC



Project: Health, Social and Economic impacts in extreme events and their relation to human populations



VIETNAM

-Survey focus – common core plus the impacts on floods and Malnutrition (social, economic and health pathways)

INDIA

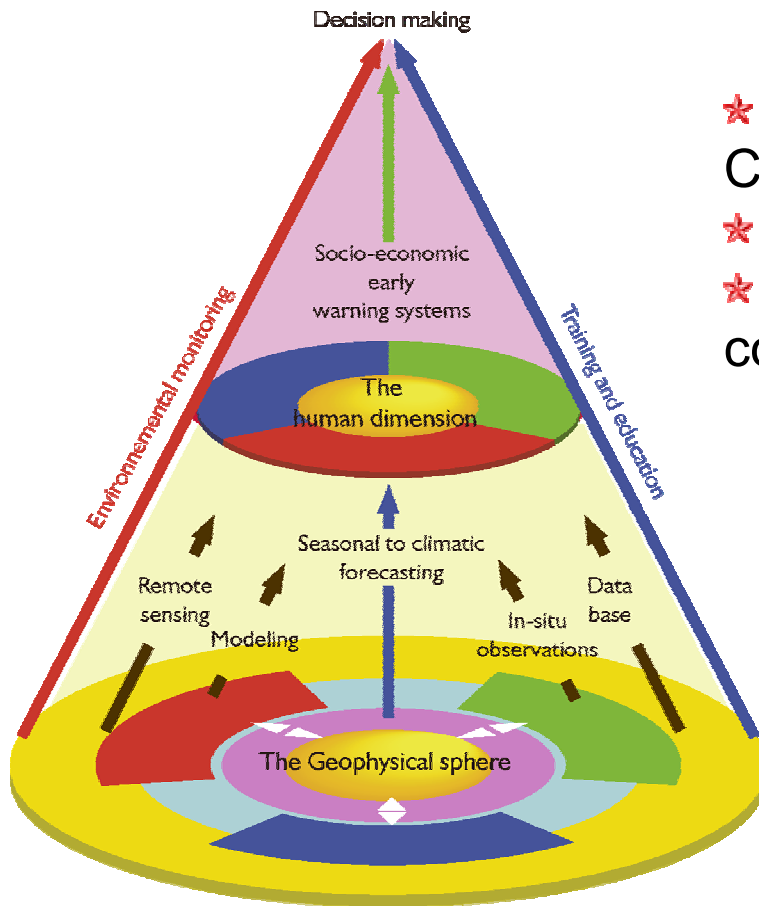
Survey focus = common core plus impact of floods on labour Migration
Partnerships – United Kingdom, Germany, India, etc.

INDONESIA

Survey focus = common core plus floods and breakdown in social networks
Partnerships – Vietnam, Indonesia, Belgium, etc.

African Monsoon Multidisciplinary Analysis

The AMMA Project



- ★ 58 partners are coordinated by the CNRS/IPSL.
- ★ 22 African institutions are partners.
- ★ The total budget is 36m€ with 13m€ contributed by the European Commission

- ★ Improve weather and seasonal forecasts for the region
- ★ Increase our confidence in climate change projections
- ★ Improve early warning systems for food security
- ★ Enhance the environmental monitoring in the West Africa
- ★ Train African experts for maintaining and developing monitoring and forecasting tools

AMMA addresses the geophysical as well as the human aspects of climate fluctuations and trends in West Africa



The Ice2sea project: improve projections of the contribution of ice to future sea - level rise



**FP funding : ~10 Mill. € / 2009 - 2013 / 24 partners,
→ input to 5th Assessment of the IPCC**

1. Improved understanding of the key processes that control glacial systems (ice sheets and mountain glacier)
2. New methodologies for the prediction of global sea-level rise based on improved models
3. Updated assessments of the likely contribution of the cryosphere to sea-level rise over the next 200 years
4. A collective view of the likelihood of catastrophic sea-level rise, due collapse of either Greenland or Antarctic ice sheets.
5. A clearer view of uncertainties



European Project on Ocean Acidification



The EPOCA project: European Initiative on Ocean Acidification

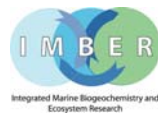
- 27 institutes from 9 European countries
- Total budget: 15.9 M€, EC contribution: 6.5 M€

Svalbard campaigns 2009 and 2010:

EPOCA focuses on areas where **ocean acidification** is thought to strike first, such as the *Arctic Ocean* and the *North Atlantic*, where water temperatures are low and the CO₂ dissolves more easily.

EPOCA Project Office, Villefranche-sur-mer France

(hansson@obs-vlfr.fr)





Arctic Tipping Points (ATP)



**Climate change impacts and thresholds on
Arctic Ocean systems**



Total budget: 5 m €

Period: 2009-2011

13 partners from 11 countries: Norway (Coordinator), Denmark, France, Germany, Greenland, Poland, Portugal, Russia, Spain, Sweden and UK

The AQCWA Project : Assessing Climate Change Impacts on the Quality and Quantity of Water



- 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



37 partners from 10 countries, budget of 6.5 M€, end September 2013
– International partners: Chile, Argentina, Kyrgyzstan



Contributing to the GEOSS
2007-2010



TRANSVERSE GEOSS

ARCHITECTURE
EuroGEOSS

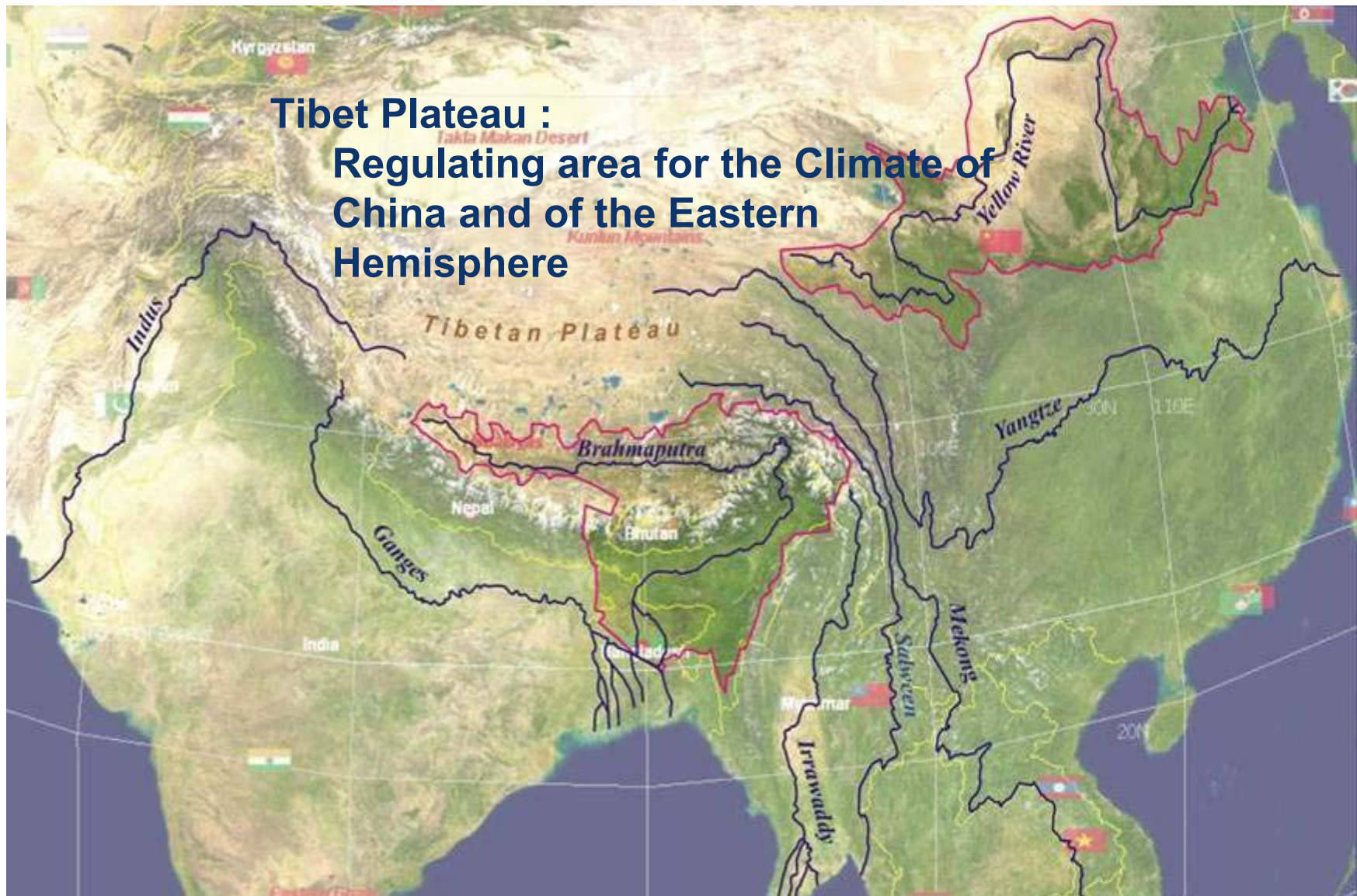
DATA
MANAGEMENT

CAPACITY
BUILDING
YEOS (FP6)
DevCocast
Aegos
EnviroGRIDS

SCIENCE AND
TECHNOLOGY

USER ENGAGEMENT
GeoBene (FP6)
e-SOTER

The CEOP-AEGIS project: Long-term Observing system of Qinghai–Tibet Plateau and of the Asian-monsoon system



The African-European Georesources Observation System: AEGOS



- Design a pan-African infrastructure of interoperable data and user-oriented services in Africa
- Define common strategies for capacity building and training programmes
- Geoscience contribution to GEOSS
- 23 European and African partners
- FP7 Support Action – 2008-2011

The HighNoon Project :

Adaptation to changing water resources availability in Northern India with Himalayan glacier retreat and changing monsoon



- Assess the impact of Himalayan glaciers retreat and possible changes of the Indian summer monsoon on the spatial and temporal distribution of water resources
- Provide recommendations for appropriate and efficient response strategies for adaptation to hydrological extreme events
- Improve climate forecast skills at regional scale
- Integrate socio-economic drivers in our studies



10 partners from 6 countries, budget of 3.3 M€, end May 2012
International partners: India, Japan



Thank you very much for your attention

More info on

<http://ec.europa.eu/research>

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