Impacts of Climate Change on Human, Animal and Plant Health

Adapting to Climate Change

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- Impacts on Human, Animal and Plant Health
- Levers to improve EU capacity to react
  - Ongoing actions
  - Future steps
- Conclusions
Impacts on Human Health (1/4)

Positive elements
- milder winters with less cold-related fatalities

Morbidity and mortality related to extreme heat
- Heat stroke, cardiovascular, renal, respiratory and metabolic disorders
- in 2003: 70,000 excess deaths
- by 2030s: 30,000 extra deaths/year (*)

Food-borne diseases
- by 2030s: 20,000 extra cases/year (*)

* 1-4% mortality increase for each 1°C rise in temperature
Impacts on Human Health (2/4)

- Vector-borne diseases
  - geographic range of vector distribution
  - seasons of vector activity
  - vector population size
  - change in land use and human behaviour

- Chikungunya virus
- Leishmaniosis
- Dengue Fever
- Tick-borne encephalitis
Relationship between air temperature and occurrence of TBE from 1993 to 2002 in the Czech Republic, n=5873 cases

\[ y = 0.6536x^{2.1743} \]

\[ R^2 = 0.9501 \]

Source: Daniel, et. al. 2006
Impacts on Human Health (3/4)

- **Water-related issues**
  - Heavy precipitation
  - Reductions in summer water flows

- **Air quality**
  - Ozone-related air pollution

- **Air allergens**
  - Increase in seasonality and duration of allergic disorders
  - COPD patients particularly at risk

- **Ultraviolet radiation**
  - Increase of exposure (more time spent outdoors)
Impacts on Human Health (4/4)

- Mental diseases
  - Psychological effects due to weather disasters

- Vulnerable groups
  - Lower income groups, children, outdoor workers, the elderly, women and persons with pre-existing illness
  - Uneven distribution across EU regions

- Increased migration
  - National economies
  - Food and water availability
  - Rise in sea levels
Levers to improve EU capacity to react
Human Health

- Improve Health Security
  - Health Security Committee: preparedness and response to major health threats (influenza pandemic, CBRN ...)
  - Coordination with MS and International Agencies

- EU Health Programme
  - Surveillance and Monitoring (EUROHEIS, EUROSUN, EuroHEAT)

- European Centre for Disease Control and Prevention (ECDC)
  - European Environment and Epidemiology (E3) Network
  - Early warning and risk mapping (e.g. vector-borne diseases)
  - Conference on Zoonoses and Climate Change 2-3 July 2009, Jönköping, SE

- Community Statistical Programme

- EU Research Programmes
  - Adaptation Strategies (cCASHh, PHEWE)
Impacts on Animal Health (1/4)

- **Non-statutory diseases**
  - not covered by the EU veterinary legislation
  - metabolic disorders, certain parasitic diseases, sunstrokes etc.
  - may have significant negative impact on animal wellbeing and farm economy

Need of adaptation at individual farm level
Impacts on Animal Health (2/4)

Statutory diseases
- diseases subject to EU animal health legislation
- international animal health standards of the World Animal Health Organisation (OIE)
- serious transmissible animal diseases with major trans-boundary economic impact and/or posing a threat to human health

Need of adaptation at EU level
Impacts on Animal Health (3/4)

- Vector-borne diseases
  - Bluetongue
  - African Horse sickness
  - Epizootic hemorrhagic disease
  - West Nile Fever
  - Rift valley Fever
Impacts on Animal Health (4/4)

- **Wildlife-related diseases**
  - Avian influenza
  - African swine fever
  - Rabies
  - Bovine tuberculosis
  - Brucellosis

- Frequency and/or intensity of contacts between animals of different species (wild and domestic)

- Virus persistence
Possible HPAI H5N1 Dispersal Routes (2005 - 2006)
(Note: Arrows indicate apparent sequence of geographic spread over time)
Levers to improve EU capacity to react
Animal Health

- Community Animal Health Strategy
- Review of priorities
- Enhanced data gathering
- Task force on animal disease surveillance
- Vaccine banks

- Integrated approach to epidemiological, entomological and environmental data collection and analysis

- Animal Health emergencies
  - Preparedness
  - Early detection
  - Rapid response

- EU Research Programmes
  - ASFRISK (controlling risk of African swine fever)
  - ARBOZOONET (control of emerging viral vector borne zoonotic diseases)
Impacts on Plant Health

- Geographical distribution of cropping systems, plant breeding and natural vegetation
- Incidence and severity of plant diseases
  - Western corn rootworm
  - Red palm weevil
  - Certain thermophilic fungi
  - Root rot and blight
- New or migrant plant pests
  - Pine wood nematode (50-90% mortality of conifers should be expected, if average temperature increases above 20ºC during July or August for Northern EU)
- Increasing difficulty to produce virus-free seed material
Levers to improve EU capacity to react
Plant Health

- Existing legislation for notification and emergency measures to prevent introduction into and spread of harmful organisms
- EUROPHTY: EU database of intercepted consignments
- Plant health panel within the European Food Safety Authority provide risk assessment
- EU research
  - ENDURE, BIOEXPLOIT, EUPHRESCO
Conclusions (1/2)

- Guidance on surveillance to support implementation and capacity development
- Health action plans for extreme weather events
- Co-operation and data exchange between human animal and plant health services in the Commission and in MS
- Modelling of health effects such as forecasting of heat waves
- Identification of efficient health measures
- Collaboration with international bodies such as WHO, OIE, FAO
Conclusions (2/2)

- Enhanced networking with third countries e.g. in the context of the European Neighbourhood Policy
- Stepping up existing animal disease surveillance and control measures with sufficient flexible rules
- Evaluation of risks of newly introduced organisms harmful to plants
- Closer links between plant health and environmental policy
- Evaluation of the existing Community Plant Health legislation
Herman, Animal and Plant Health Impacts of Climate Change

A Staff Working Document entitled ‘Human, Animal and Plant Health Impacts of Climate Change’ has been proposed by the Commission.

The purpose of this document is to explain the means which will be implemented to adapt health responses to the climatic challenge, and to cope with the key problems of climate change affecting human, animal and plant health. It also describes what measures are currently in place, and the key steps that the Community and the Member States will have to take to tackle this problem in the most effective way possible, with the tools and financing plans available. This document was developed based on the broad outline of the White Paper on the Adaptation to the Climate Change, 2007, also published on 1 April, 2007.


I) Human Health

The EU and WHO-EURO agree that climate change can have considerable effects on a significant number of diseases and on general health. This highlights the importance of finding solutions and the need for DG SANCO, which has already developed certain tools to solve these problems, to pay greater attention to climate change.

Adopted in 2007, the EU Strategy in the field of health regards citizens’ protection against health threats of prime importance.

What are the threats?

Climate change has both direct and indirect effects on human health, and an increase in the impact related to this change has already been observed in Europe over the past decades. For example, changing levels of diseases transmitted by vectors such as the mosquitoes or ticks will have to be addressed.

The principal concern for public authorities in Europe regards the rise of mortality due to annual increases in temperatures and heat-waves. Further problems, including the quality of water and air, are added to the list of the issues that must be addressed.

How can the threats be tackled?

The Commission considers that good cooperation between the Member States is of primary importance in order to be able to act even more effectively. It was given three years to test and improve readiness and coordination between the Member States, in particular the development of preparedness plans.

The EU-Health Programme is the funding opportunity for Member States action of its health policy, setting up and supporting important information measures (on urban pollution, exposure to the ultraviolet, etc.) and surveillance measures.

Moreover, the European Centre for Disease Prevention and Control (ECDC) has recently launched, with the aid of external consultants, the E3 Network which will help to model and map the various types of risks of infectious diseases. ECDC also has several other projects in the field of climate change and the spread of communicable diseases.

The EU will rely on its statistics programmes, such as the European Health Interview Survey, to collect and record data which will help to compile, analyse, and take the necessary measures with respect to these threats.

Obviously, international cooperation is necessary, thus it is also an issue of working and of supporting a policy with countries which are not current EU Member States.
Thank you for your attention!