



EFSA activities on emerging risks: bluetongue as a case study

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Director**

Scientific Cooperation & Assistance

Emerging animal diseases: from science to policy
17 October 2008, Brussels, Belgium

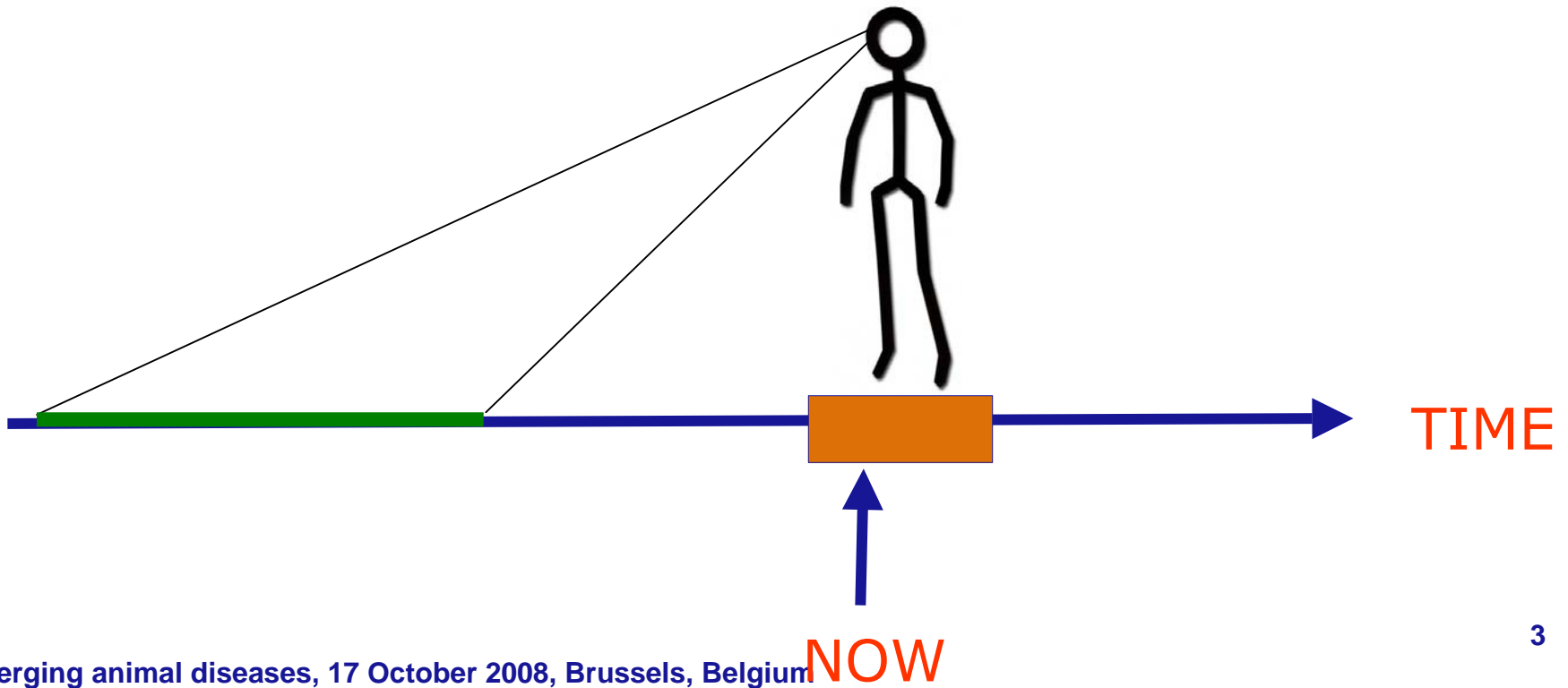
Components emerging diseases

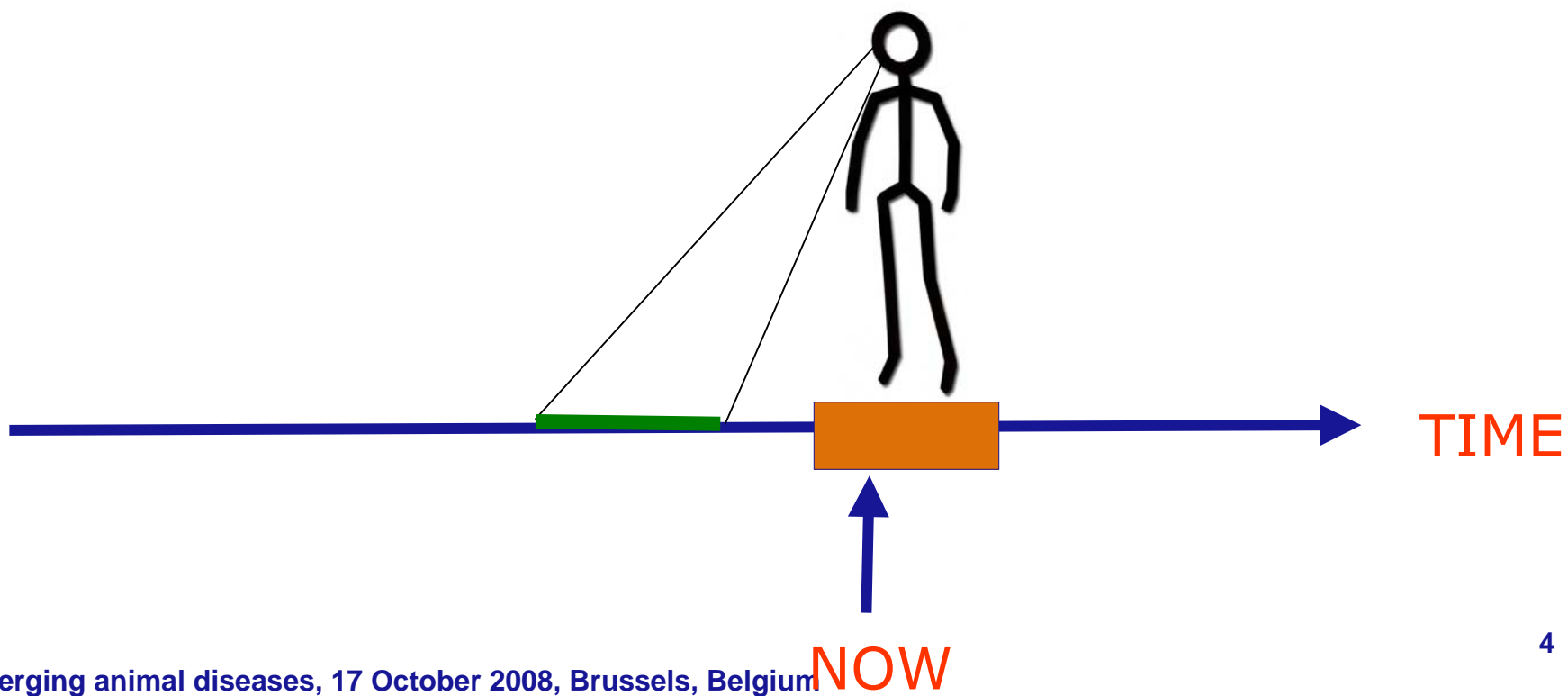
Elements of risk

- **New or re-emerging hazard**
 - Chemical e.g. use of *new* contaminant
 - Microbiological
- **Change in Exposure, for contagious diseases**
 - Introduction
 - Establishment and
 - Spread
- **Change in Exposure to chemicals e.g. mycotoxins**

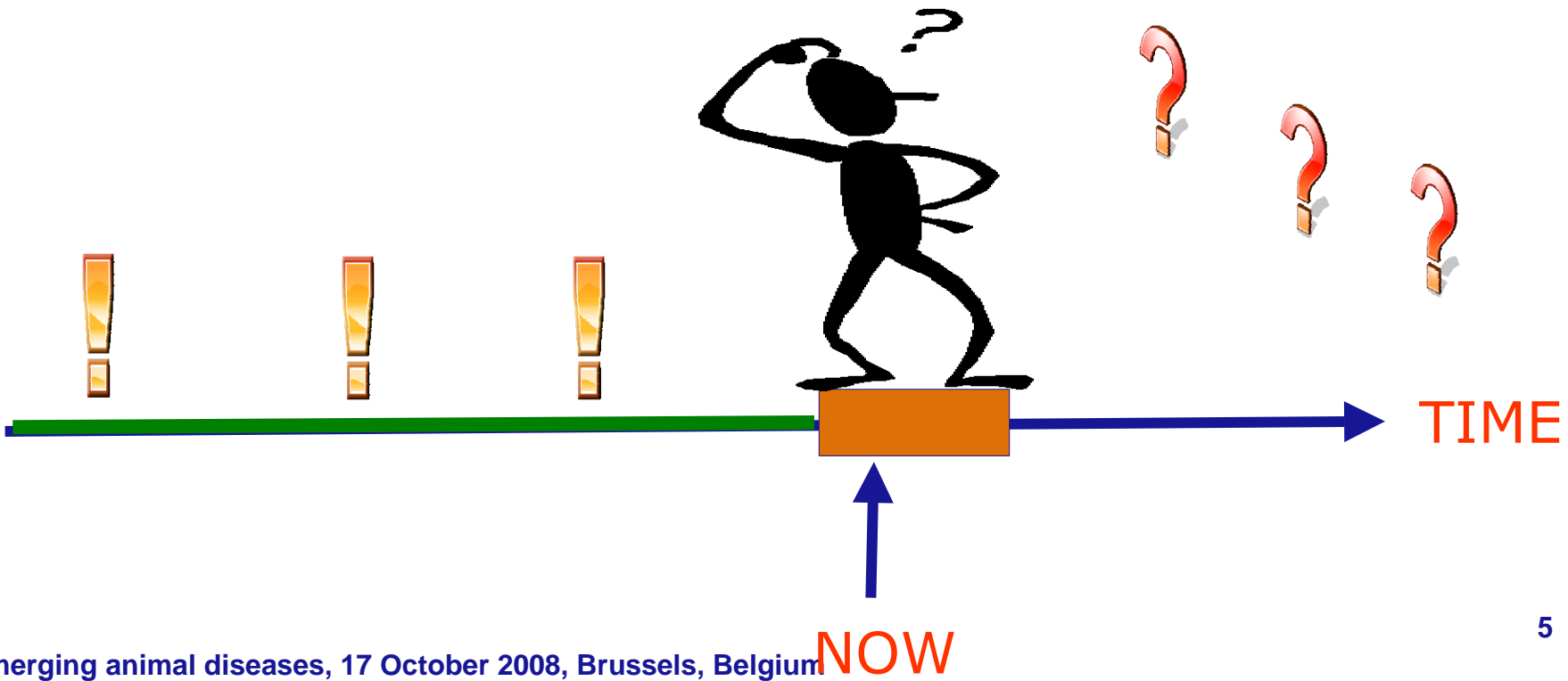
What influences the risk?

- **Globalisation - increased movement**
of goods, people, animals, plants and vectors
- **Climate change**





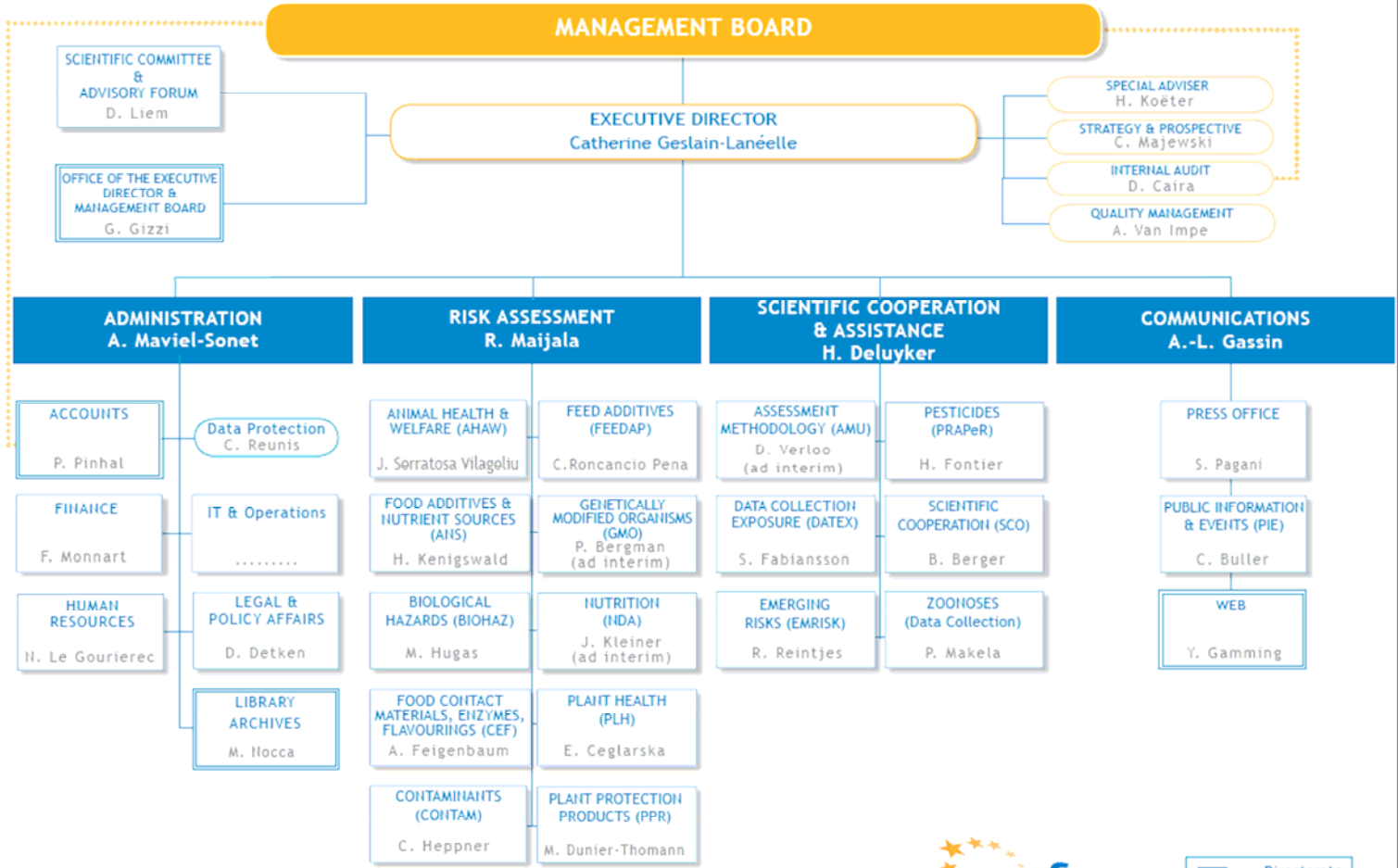
Identification/Forecasting of Emerging Risks



- **Scientific opinions** (art. 29 & 30)
- Promote and coordinate uniform **risk assessment methodologies** (art. 23)
- **Scientific studies** (art. 32) and **Data collection** (art. 33)
- Establish **networks of organisations** field of EFSA's mission (art. 36)
- **Emerging risks** (art. 34) and **Rapid Alert Systems** (art. 35)

1. **Known Hazards** - EFSA Scientific Panels assess emerging diseases, including the risk for EU introduction
2. **Post Introduction** - EFSA's Community networks for data collection and analysis e.g. Zoonoses Task Force
3. **New Threats** - Dedicated Emerging Risk Unit to horizon scan for early identification of emerging diseases

EFSA Organigram



Organisational chart 2008



European Food Safety Authority

- Directorate
- Unit
- Section

- **EFSA Panels on Animal Health and Welfare (AHAW) and Biological Hazards (BIOHAZ)**
- **Delivered 132 scientific opinions to this date**
- **Network of 227 experts in this field.**

- **Objective data collections: Art. 22 Reg. 178/2002**
 - monitoring risks – exposure assessments compliance
 - risk assessment
- **Scope: Art. 33 Reg. 178/2002**
 - food consumption
 - occurrence micro-organisms
 - contaminants & residues and
 - all data in EFSA's remit: food composition, animal health and welfare, plant health, and GMOs
- **Specific Legislation**
 - zoonoses - Directive 2003/99
 - pesticide residues - Regulation 396/2005

Collaboration with Member States

| | Member States Networks | Contracts and Grants (mostly 2007 and 2008) | | |
|----------------------------|-------------------------------|--|--------------------------------|-------------------------------|
| | | Number of agreements | Number of Member States | Number of Institutions |
| Data Collection | 4 | 6 | 12 | 15 |
| Scientific Opinions | 12 | 2 | 9 | 11 |

Mandate from the European Commission on Bluetongue

- **22 September 2006**

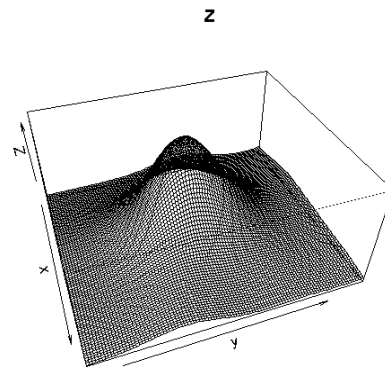
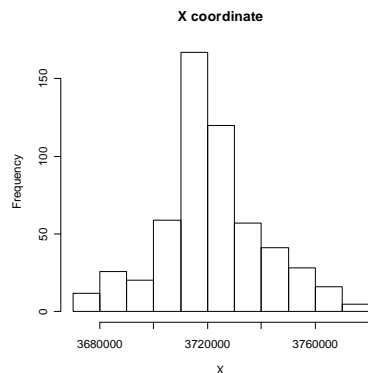
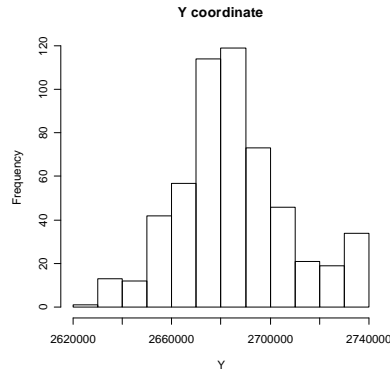
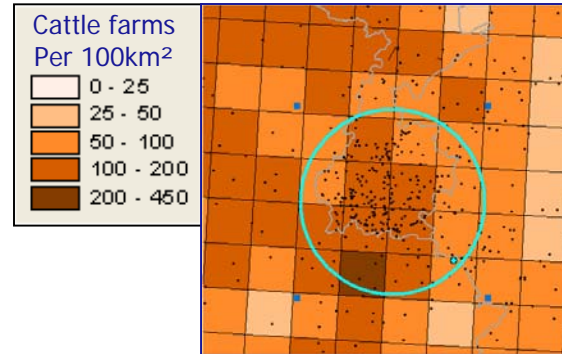
- European Commission (EC) Chief Veterinary Officer (CVO) meeting recommends for EFSA to create BT Epi WG with experts from Commission, Member States (MS), CRL, OIE Ref Lab chaired by Prof. D. Pfeiffer (Member EFSA AHAW Sci. Panel)

- **objectives and timelines**

- regular epidemiological reports: weekly reports EFSA website
- overall epidemiological analysis: draft report on 31 January 2007

Detailed Description of Epidemic: Onset, Establishment and Spread

- Time-space distribution of the outbreak between herds & Identification of the area of first infection – **G. Gerbier, CIRAD**
- Description of the clinical aspects of the outbreak and Pattern of the disease within herds – **A. Elbers, CIDC**
- Vector studies – **R. Meiswinkel, CIDC**
- Environmental factors affecting spread – **C. Staubach, FLI**
- Human interventions affecting introduction and spread – **K. Mintiens, VAR13**



- **Potential earliest case**
 - farm in Belgium 5km from B,NL,D borders
 - earliest clinical signs: possibly 17/07/2006
- **Model-based estimation**
 - probable origin: centered close to Maastricht (The Netherlands)

Environmental and Climatic Factors affecting the Vector and the Disease

- daily variations in Culicoides numbers were strongly correlated with prevailing temperatures
- lag time between temperature and outbreaks is estimated at ~4 weeks
- lower average temperatures in cooler, hilly areas may have slowed down the spread of the disease
- lower cattle and sheep densities interrupted the spatial continuity of outbreaks of BTV-8

Studies on *Culicoides* in the affected countries

- ***Culicoides imicola*, that is involved in BTV transmission in southern Europe, was not found in central Europe**
- ***Culicoides* endemic to central Europe include multiple vectors of BTV**
- **Hence orbiviruses affecting livestock stand a good chance of being transmitted once they are adventitiously introduced in this part of Europe**
- **Significant numbers of *Culicoides* were found to enter buildings to bite animals indoors**

- **Observed density of wind events in an east-west direction** may partly explain this ‘horizontal’ spread of the epidemic
- **The relatively low number of cross-channel wind density events, after the outbreaks had reached the Belgian coastal zone, may explain why BTV did not arrive in the UK in 2006**
- **Terrain roughness may be an important factor preventing the spread of infected midges on the wind**
- **Preventing establishment of dense primary foci of infected *Culicoides* should probably inhibit subsequent long-range spread of BTV, assuming infected animal movement is controlled**

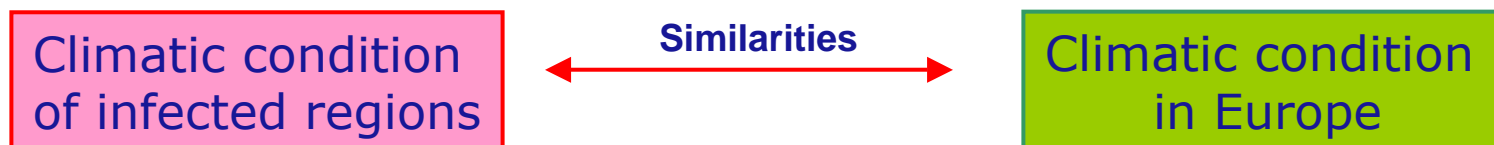
Overall Conclusions: epidemic resulted from interactions

- ***Biology:*** virus, vector, and animal
- ***Environment:*** may be influenced by climate change
- ***Human intervention:*** can affect movement of infected animals and vectors

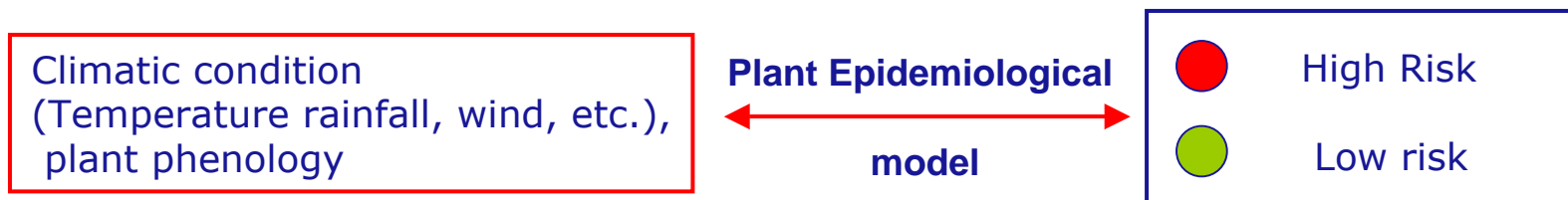
- **Good cooperation between institutions involved**
 - Member States
 - Commission
 - EFSA
- **Data availability and access**
 - confidentiality issues
 - consistency of data between Member States
 - availability/quality of databases on ‘minor’ species (e.g. small ruminants) and wildlife
- **Preparedness through ‘peace time’ cooperation on data collection: including training and standardisation**

Example: “Citrus Black Spot” (Fungus)

Can be modelled by similarities



Or by plant epidemiological models

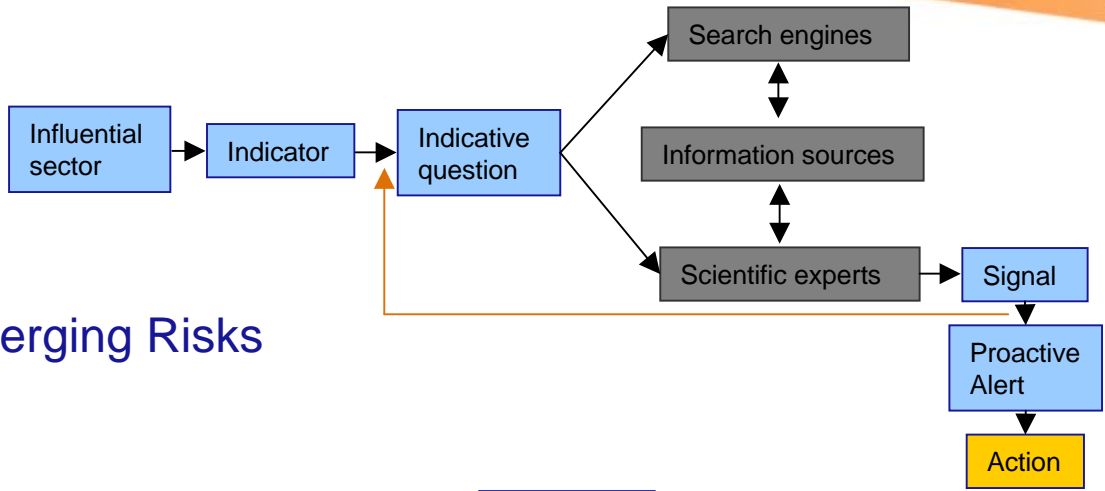


Milestones on Emerging Risks

Timeline

2006

EMRISK Project



SC Opinion on Emerging Risks

2007

EFSA Adopts Emerging Risk Definition



ESCO Working Group on Emerging Risks



2008

Emerging Risks Unit



Emerging zoonotic diseases, 17 October 2008, Brussels, Belgium

- *Art. 34-1. Identification of emerging risks:*
The Authority shall establish **monitoring** procedures for systematic searching for, **collecting, collating** and **analysing** information and data **with a view to the identification of emerging risks** in the fields within its mission
- *Art. 34-2.* Where the Authority has information leading it to suspect an emerging serious risk, it shall **request additional information** from the Member States, the Community agencies, and the Commission....

- *Art. 34-4.* The Authority shall **forward** the evaluation and information collected on emerging risks to the European Parliament, the Commission and the Member States.

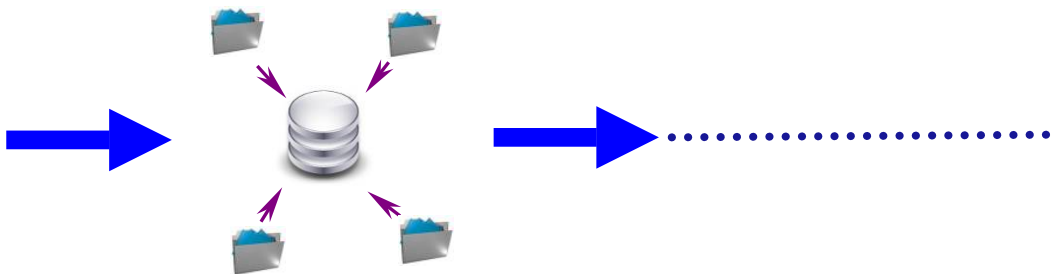
Mandate of the Emerging Risks Unit

(Regulation EC 178/2002, art 34)

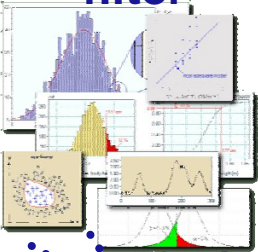
Monitoring



Collecting and collating



Analyse and filter

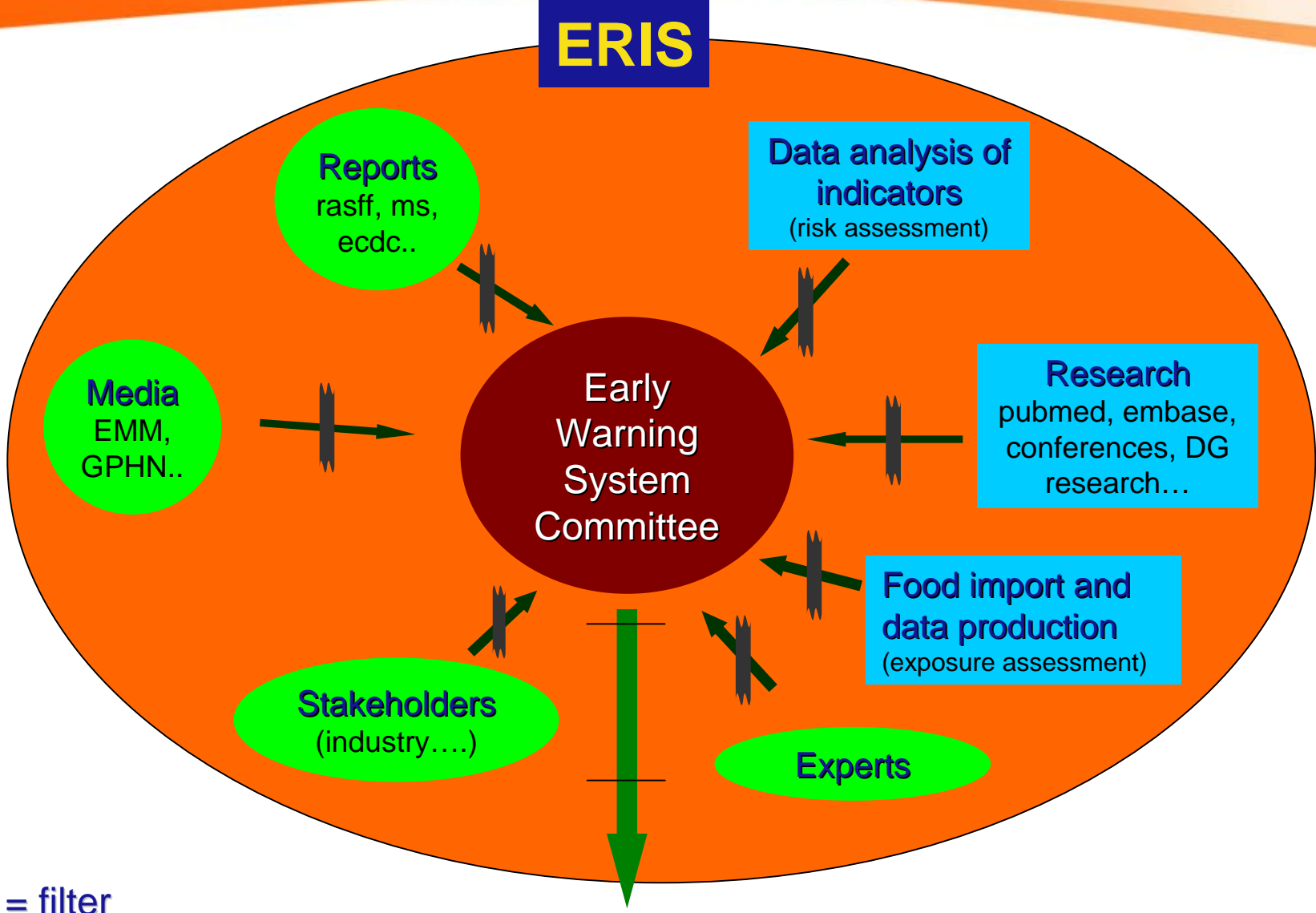


sharing

- **Analysis based on “Early detection of facts related to that risk derived either from research, monitoring programs or episodic observations” (EFSA Scientific Committee, 2007)**
- **Good cooperation between institutions involved in Member States, Commission, and EFSA**
 - MS Network is needed
- **Preparedness through ‘peace time’ cooperation on annual report**

Emerging risks identification system

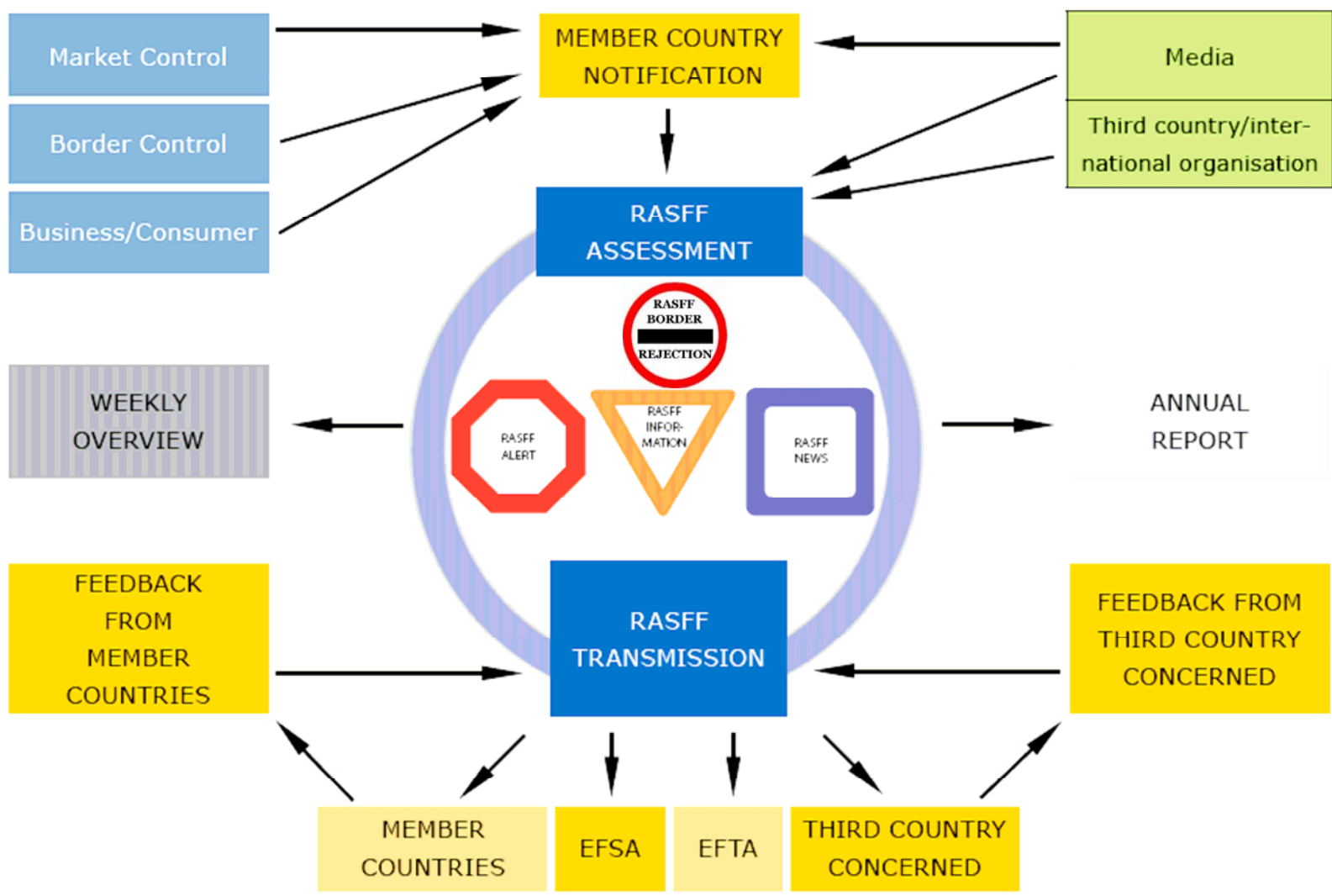
ERIS



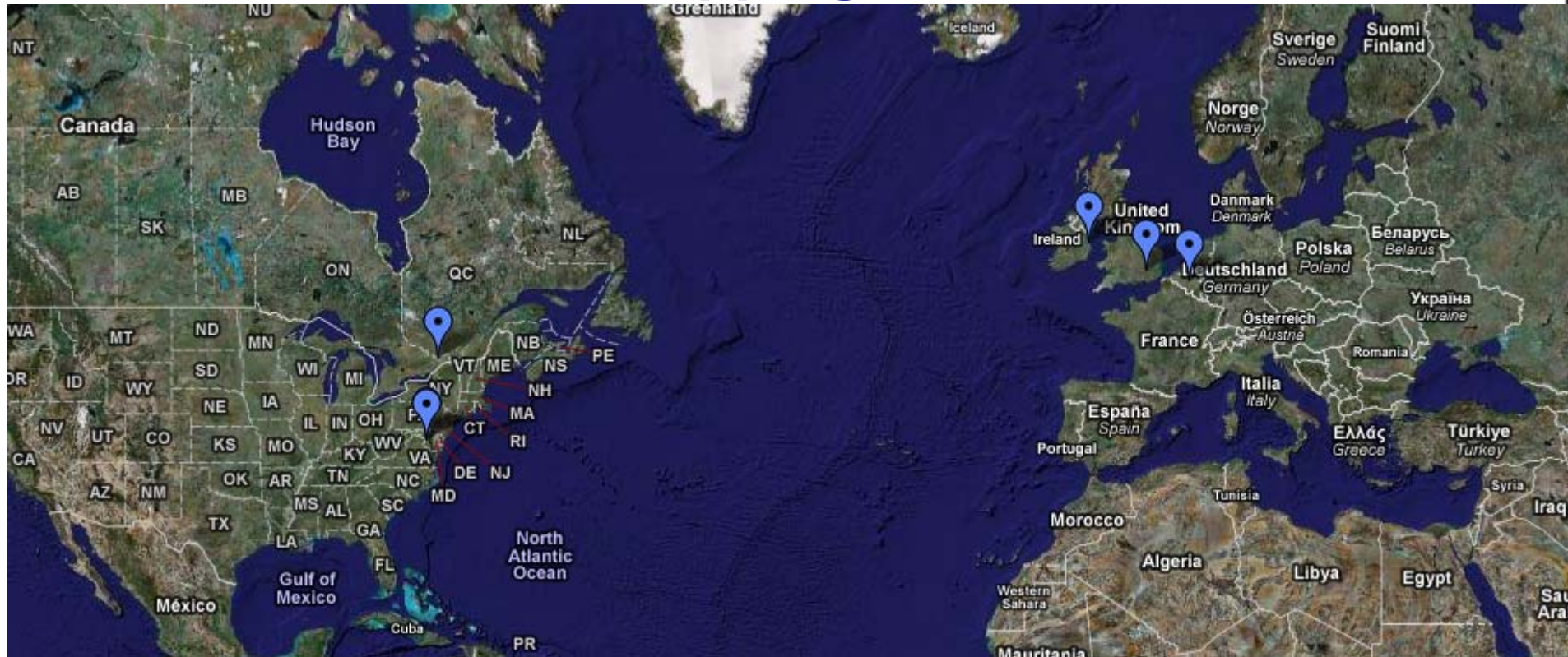
 = filter

Proactive alert

Rapid Alert System for Food and Feed (RASFF)

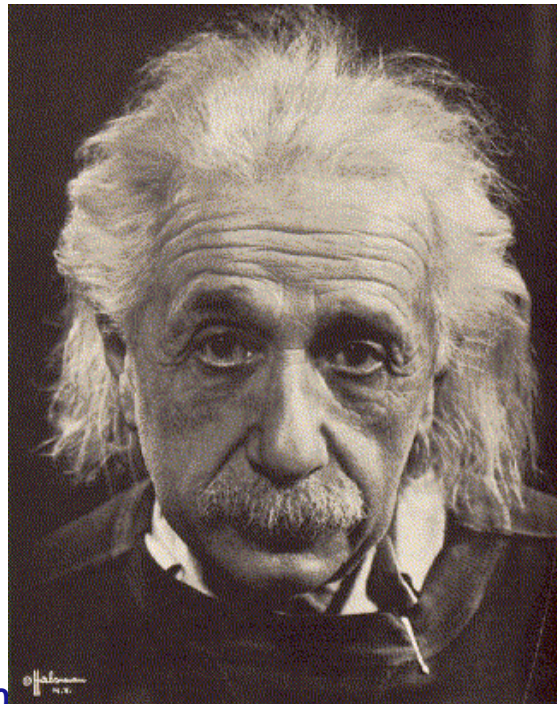


- RASFF mapping tool



- Import surveillance

**Not everything that can be counted counts,
and not everything that counts can be
counted!**



Albert Einstein



Grazie per la vostra attenzione!