SCAR 2ND FORESIGHT EXERCISE

GOALS OF SCAR FORESIGHT PROCESS

- a wide foresight process
- aiming at identifying possible scenarios for European agriculture in a 20-year perspective
- to be used in the identification of priority research needs for the medium and long term.

SCANNING EXERCISE

- Definition of the list of documents
- Summary of documents
- Highlights of each documents

SOME HIGHLIGHTS

A NEW PHASE

- New trends (oil, food, financial, economic crisis)
- New political events
- New important documents

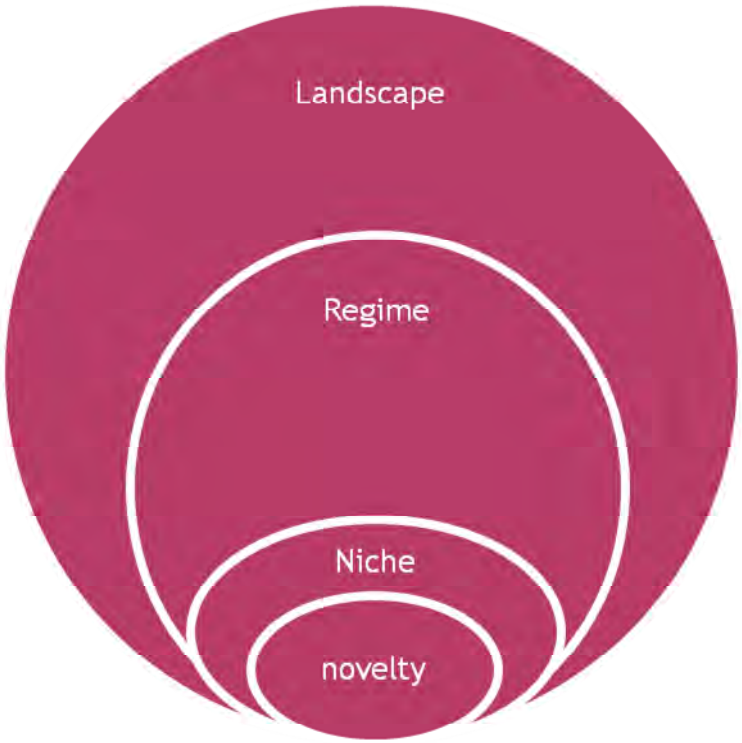
EMERGING CONSENSUS

- link between food, energy, climate, finance
- food security as a key issue both in the south and in the north
- need to reverse decline in investment in agriculture
- the role of family farming (and of women)
- multifunctional agriculture and ecosystem services of the countryside
- Increasing agricultural productivity, but with new approaches

AREAS OF DISAGREEMENT

- Agri-food paradigms / models
- Higher output with more inputs or with better resource-efficiency?
- Trade
- GMOs and nanotechnologies
- Energy mix (biofuels, nuclear, oil, renewables)
- Increase production or reduce consumption?

DRIVERS: CLASSIFICATION



- **Landscape**: External drivers whose change do not depend or depend only in part by decisions related to the object of analysis
- **Regime**: Internal drivers that set the rules and constraints for the evolution patterns.
- **Niches**: emerging drivers that potentially 'break the rules' and provide alternatives to the system.
- **Novelties**: not yet determined drivers of transitions, not existing before, the evolution of which can follow very different paths

A NARRATIVE FOR SCENARIO BUILDING

- Within the system, more or less niche drivers exist. They may be tolerated, encouraged, contrasted.
- Change may be caused: i) by change in the state of landscape drivers; ii) by internal contradictions between regime drivers
- Change may happen as the effect of a crisis or in anticipation of the crisis
- Along the change, niche drivers can become incorporated into a regime
- The outcomes of the change will depend on the available alternatives provided by the niche drivers.

A STRONGER EMPHASIS ON POLICY DRIVERS

- Food security
- Emissions cuts
- Millennium development goals
- Biofuels policies (support, certification)
- Rural development
- Trade and IPRs
- Sustainable consumption

Integration of policies

ENVIRONMENTAL DRIVERS: THE COSTS OF INACTION

- Water depletion
- Soil degradation
- Failure to reducing emissions
- Biodiversity erosion
- Phosphorous peak
- Pandemic diseases
- Resistance problems

→ Limits to growth
Catastrophic events
Geopolitical instability

Focus on public goods, ecological services and links with current agricultural paradigms

MORE ATTENTION TO SOCIAL DRIVERS

- Differential impact of trends and policies
- Demography
- Trends in consumption
- Mobilities
- Trust and panics
- Rural/urban change

How to embody social drivers into policies?

BROADENING THE LIST OF ECONOMIC DRIVERS

- Distribution of power – concentration of retailing
- The role of consumers - citizens
- Systems of food provision and sustainability
- Agricultural and rural entrepreneurship
- What resources?

What, and whose competitiveness?

ASSESS TECHNOLOGIES IN SOCIAL CONTEXTS

- Social concerns regarding GMOs and nanotechnologies
- Digital divide and ‘scientific apartheid’
- Who benefit from new technologies in the present regulatory context?

How to address the link between science, technology and society?

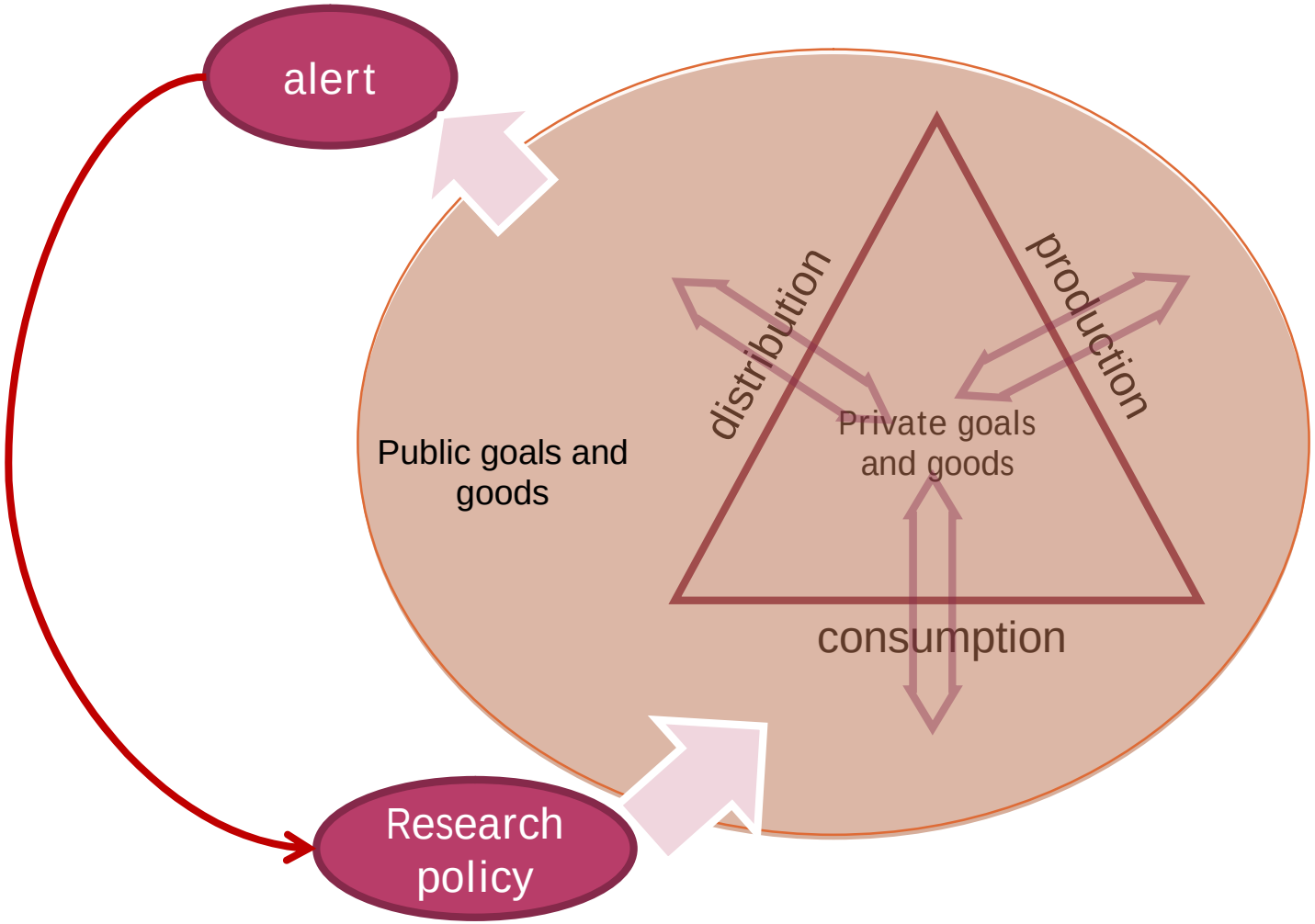
Transitions to sustainable knowledge-based bio-economy, and multi-functional food and farming serving the public good, require concerted public cross-sectoral effort and funding.

EUROPEAN AKS NOT WELL ORGANISED, TRAINED OR FUNDED TO ADDRESS THE NEW CHALLENGES

CROSS-CUTTING QUESTIONS

- How to deal with the vulnerability of food and rural systems at different scales?
- How to embody the limits to growth into agro-food paradigms?
- What links between public goods, ecosystem services and agriculture?
- What role for state, market and civil society? New social and institutional arrangements

THE ROLE OF RESEARCH POLICY



GENERAL PRIORITIES

Priorities	How
Strengthening the alert function of science	•Strengthening the link between science and society •Transdisciplinary research •Encourage impact assessment form research design •From hierarchical to network-like knowledge systems
Increase the resilience of the agri-food systems	•Cultivate plurality of paradigms •Nurture niche research
Build new mindsets	•More theoretical research (eco-eco, socio-eco, ecc.)

THANK YOU!

THEMES

- Biomasses / green chemistry / energy
- Environment / climate / pandemic diseases
- Food security/ rural areas / agripolicy
- Agricultural knowledge systems

INCREASING VOLATILITY

- Unavoidable
- Key drivers:
  - Linear economic growth in a globally interdependent market
  - Climate change impacting biological and physical world
  - Policy responses & human behaviour

Collapse in one domain propagates & amplifies throughout

WHY UNAVOIDABLE VOLATILITY?

What we do not have:

- institutions that could mitigate, adapt, de-couple
- prices that signal the 'true' costs (i.e. social and environmental costs) of economic activity
- sophisticated understanding of human & social values and behaviour at policy making levels (there is more than 'fear' and 'greed')

Absent change, technology choices in food & farming will continue to drive away from sustainability

SCENARIO: RADICAL REFORM OF IPRS

POLICY DRIVERS (1)

Regulation making compulsory for all public research institutions to:
a) publish only on ‘free to access’ journals;
b) to register research products only under ‘open source’ regime (patenting is prohibited);
c) to use only methods upon which patents exist only if they manage to register the products of the research under ‘open source’ contracts.

POLICY DRIVERS(2)

Further reforms:
a) extended farmers' rights to farmer-to-farmer seed exchange
b) allowed registration of new varieties only under UPOV rules and prohibited industrial patenting systems
c) tightened coexistence rules to avoid accidental contamination
d) Improved GMO authorization procedures taking into account social and environmental impact

RESPONSES

Big seed companies	shifting from seed development to retailing and technical services
Small seed companies	specialize in regionally-specific seeds and developing collaboration with farmers
Effects on farmers' activity	Intensification of on-farm activities in genetic improvement; peer-to-peer exchange networks
Public research	costs of research are consistently reduced; growing pressure to collaborate with farmers
AKS	Growth of the number of knowledge brokers in the field of genetic improvement
Public sector	Developing monitoring and control systems related to coexistence

IMPACT

On the environment	Improved agri-biodiversity and intra-species GMOs
On systems of provision of food	Increased diversification
On consumers' welfare	Higher freedom of choice; higher degree of trust in GMOs

SCENARIO BUILDING EXERCISE

- Narrowing down the object of observation
- Choosing one among the many options available
- Looking at interaction between drivers and cross-scale and cross-sectorial impacts
- Developing a narrative

HOW WE HAVE PLANNED TO WORK

- Scanning exercise
- Analysis of new drivers, issues, research needs / knowledge gaps
- Writing first draft
- Feedback from SCAR
- Final version of report

IMPLICATIONS FOR AKS: PREPARE FOR SURPRISE

- Relevance and usefulness of research design and output
- A decentralized model of knowledge production e.g plant breeding
- Invest in niche drivers
- Build and support multi-stakeholder deliberation & technology assessment, at all levels
- Promote IPR that allow the greatest possible free flow of information, data, materials