

SAFE AND NUTRITIOUS FOOD INTO THE FUTURE

LADISLAV MIKO DG Health and Consumers

Join EEA Scientific Committee – EEA Seminar

Ecosystems and their services: building the knowledge base for European assessments

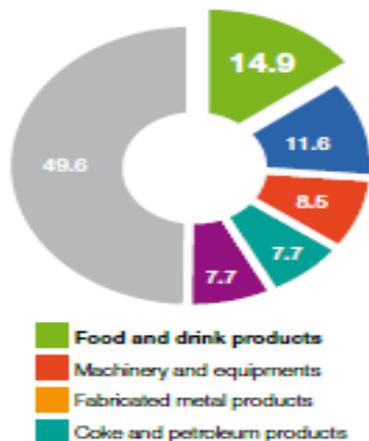
European Environment Agency, Copenhagen, 01 October 2014, 09.00 to 16.30



Economic dimension

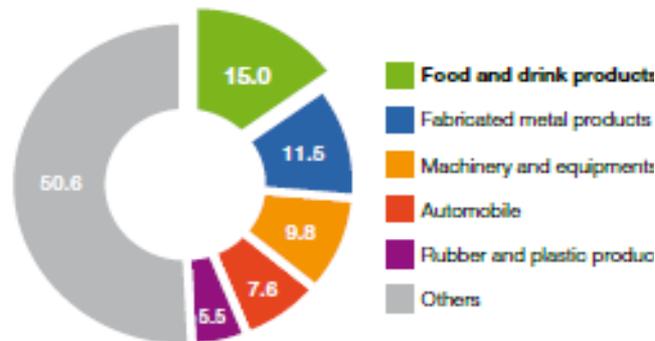
- **The food chain (including agriculture, distribution and consumer services) has a turnover of >3 billion, generates added value of EUR 751 billion = 6% of the EU27's GDP (2008)***
- **48 million people employed > 20% of EU27 workforce**
- **The largest manufacturing sector by turnover, added-value and employment**
- **Private expenditure on food and beverages = 14,5 % of EU household consumption expenditure**

Share of turnover in the EU manufacturing industry (%)



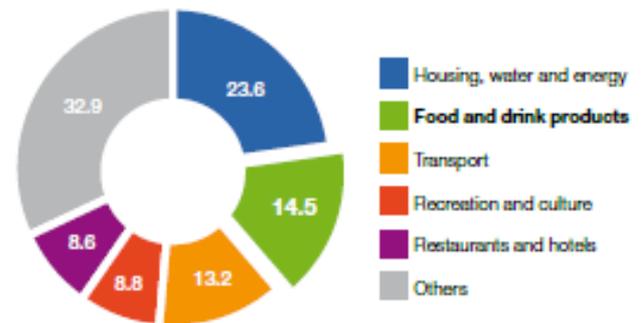
Source: Eurostat 2010 (SBS)

Share of employment in the EU manufacturing industry (%)



Source: Eurostat 2010 (SBS)

Top five consumption expenditures of households on goods and services in the EU, 2011 (% of total expenditure)



Source: Eurostat (National accounts)

Technology and Innovation

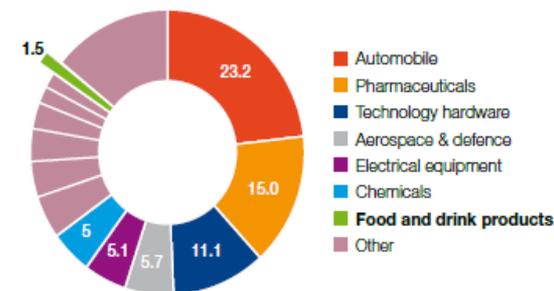
- **The EU food industry is characterised by lower R&D investment** lagging behind international peers, notably Japan, the U.S. and Switzerland.
- **Of the top 1,000 EU companies 29 are food and drink investing a total of €2.2 billion or 1.5%** of the overall private investment in R&D in the EU (2011) down in relative terms from 2010 (2,2%).
- **EU R&D Investment in food and drink manufacturing**= 2.2 % under FP7 EUR 500 million have been allocated with emphasis on SMEs in addition to 2 Joint Programming Initiatives (JPIs) contributing to improved cooperation between Member States.

R&D private investment in the food and drink industry for the world's top 1,500 companies, 2011

	R&D Investment € billion	Share of world regions (%)	Number of companies
U.S.	3.0	36.9	13
EU	1.9	23.4	9
Japan	1.9	22.7	16
Switzerland	1.3	15.6	2
South Korea	0.1	0.7	1
New Zealand	0.1	0.7	1
Total	8.3	100	42

Source: the 2012 EU Industrial R&D Investment Scoreboard, JRC and DG RTD

R&D private investment in the EU manufacturing sector for the EU's top 1,000 companies, 2011 (%)



Source: 2012 EU Industrial R&D Investment Scoreboard, JRC and DG RTD

Food and ecosystem services

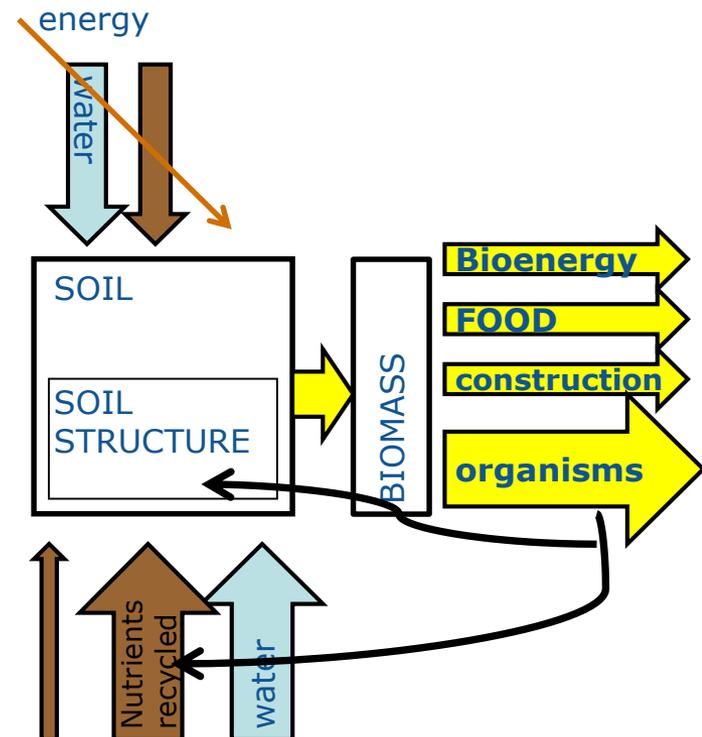
- *Nutritious, safe and affordable food – important part of human well-being*
- *Linked to ecosystem services (production, nutrient cycling, water holding, biological degradation of toxic/alien substances, water purification.... etc.)*
- *Despite of huge economic importance, many externalities – not included in the calculations – HOW TO ADDRESS IT?*
- ***TEEB AF – identification and valuation of externalities***
- *Central role of soil and soil services („fertility“ as a complex of services)*

Soil (ecosystem) problem

- ***Soil fertility and soil itself crucial for food/feed production***
- *Soil threats: losses and degradation (erosion, sealing, grabbing, compaction, contamination, salinisation, organic C loss, nutrient leaching...) – linked to human activities directly or indirectly*
- *Consequent effects on soil biology as integral part of healthy soil (ensuring resilience of the system)*
- *Speed of degradation alarming – related to intensification*
- *2006 Soil strategy, 2014 Soil framework withdrawn*
- *40 research projects financed/to be financed DG RTD (none explicitly on evaluation of externalities)*

Some thoughts

- Soil (structure) as result of soil biota
- Role of soil structure for water and nutrients
- Nutrient recycling
- Use of produced biomass, energy flows
- HANPP (over 50 %)
- Measuring crucial (balances, energy flows): integrated views essential (CC vs BIODiV)



Some thoughts II

Energy pathways

Evolution of soil ecosystem from energy distribution point of view (concept)

Ancient

Extensive farming

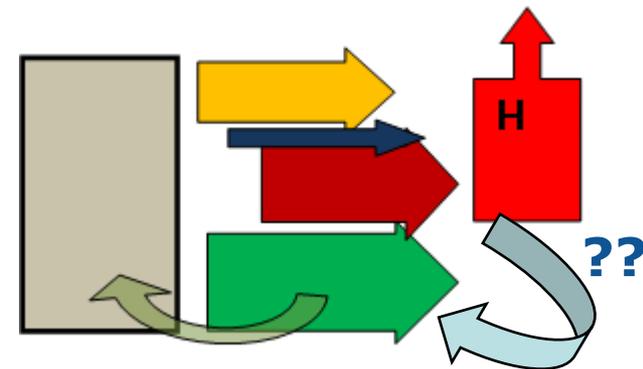
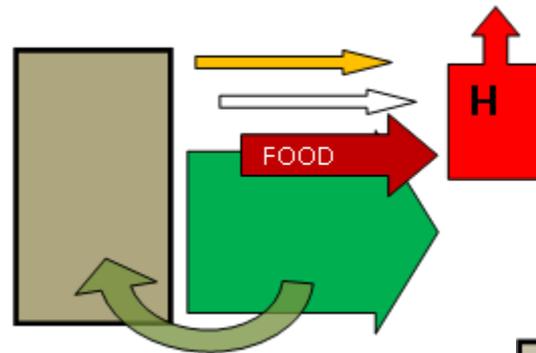
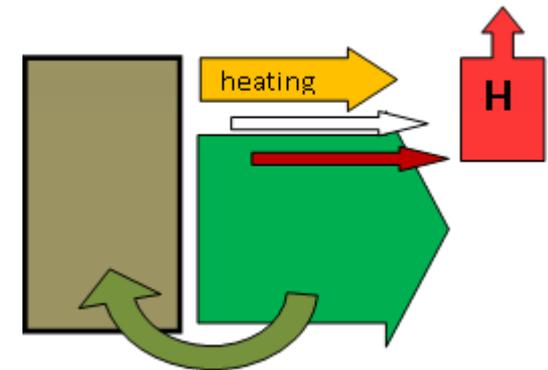
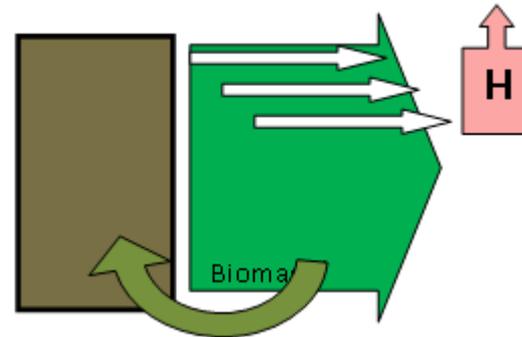
Intensification

**Climate change/
Biofuels**

Energy sources for soil biodiversity (and processes) exploited

To restore:

FEED THE SOIL



PROACTIVE POLICY-MAKING

- **Sustainability** of Food Safety and Nutrition in the face of emerging challenges
- **Foresight analysis** on "*Delivering on Food Safety and Nutrition in 2050-Scenarios of future change and policy responses*" to:
 - **Identify the critical challenges for EU Food legislative framework** and trace their future evolution (2020, 2030 and 2050)
 - **Assess their impact on the current policy framework and define the potentially critical changes** necessary for maintaining the standards of food safety and nutrition
 - **Provide insight and guidance** towards **the development of future policy responses** together with **future analysis and research needed to support an appropriate EU policy response** to these challenges

CONCLUSIONS OF THE FORESIGHT ANALYSIS

METHODOLOGY

- **Scenarios represent plausible alternative futures** based on an exploratory foresight approach. They depict pathways based on the future trends of the drivers.
- They are used to **highlight the discontinuities from the present**, to reveal the choices available and their potential consequences.
- The aim of our approach is to **develop a set of complementary plausible futures**.
- Scenarios are **neither predictions**, nor the **most likely or desirable** of the set of possible futures.
- They depict **a limited number of "disruptive" plausible futures** that are the **outcome of several drivers** and likely to include several common elements.



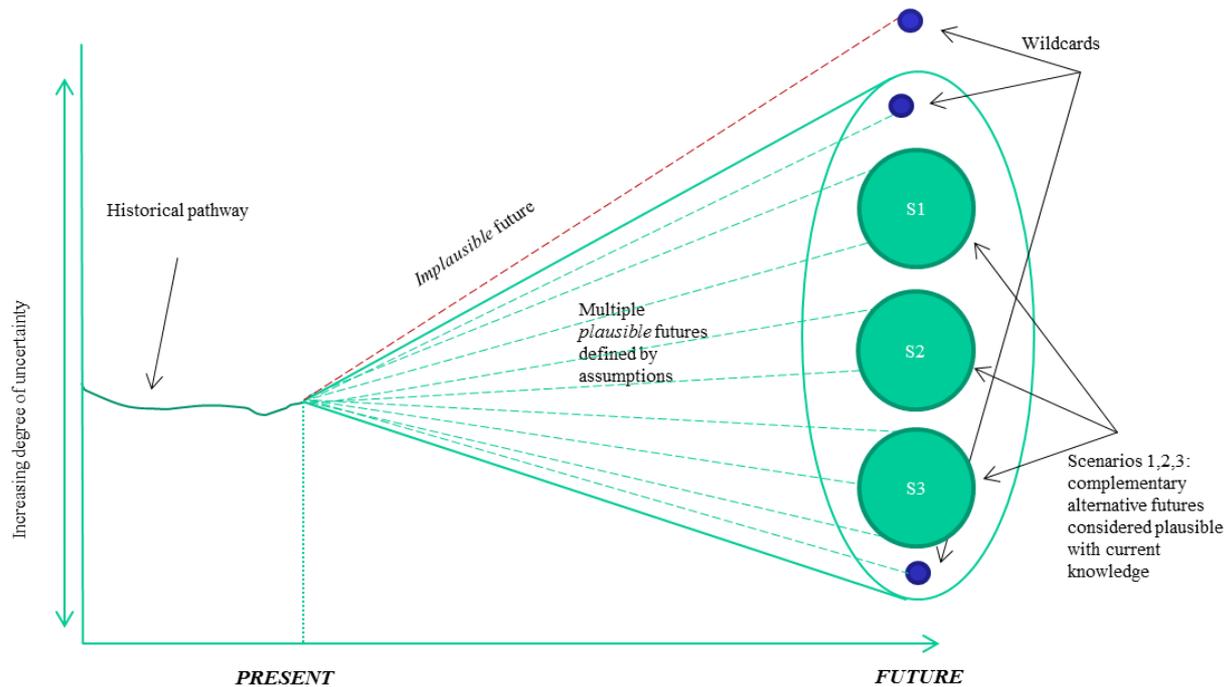
SCENARIOS AND DRIVERS

1. Rapid surge in global trade in food and feed, with highly concentrated agri-food industries (**Global economy and trade**)
2. Break-down of global cooperation in a multipolar world (**Cooperation and standard setting**)
3. Long-term austerity and a shift to private food safety controls (**EU governance**)
4. Severe inequality linked to food insecurity of vulnerable consumers and polarised diets (**Demography and social cohesion**)
5. Strong shift in EU consumer preferences to food from alternative production systems (**Consumer attitudes, New agri-food chains**)
6. Widespread consumption of high-tech functional foods (**Consumer attitudes, New food chain technologies**)
7. Global resource depletion (**Competition for key resources**)
8. Global disruptions of agriculture from climate change (**Climate change**)
9. Breakdown of consumer trust in food following the emergence of food chain risks (**Emerging bio risks and disasters**)

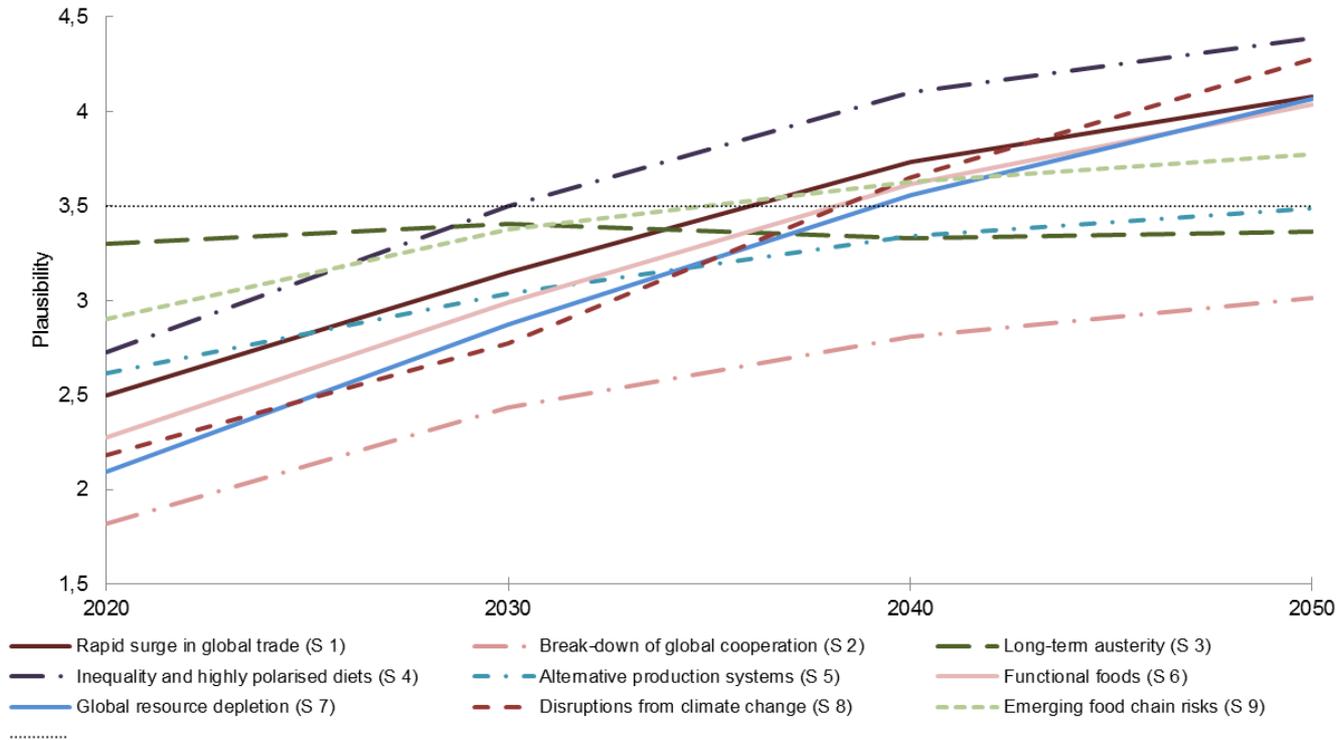


European
Commission

GRAPHICAL REPRESENTATION OF SCENARIOS



PLAUSIBILITY OF SCENARIOS (1=not plausible to 6=highly plausible)



MEASURES/COURSE OF ACTION BY THE EU: (1=not needed to 6=highly needed)

Scenarios	1. Rapid surge in global trade	2. Break-down of global cooperation	3. Long-term austerity	4. Inequality and highly polarised diets	5. Alternative production systems	6. Functional foods	7. Global resource depletion	8. Disruptions from climate change	9. Emerging food chain risks	Average
Research	4,7	4,3	4,3	4,6	4,5	5,3	5,3	5,3	5,2	4,8
Education, awareness raising & training	4,6	4,2	4,5	5,1	4,8	4,6	4,5	4,7	5,0	4,7
Improving communication	4,7	4,3	4,3	4,6	4,6	4,7	4,3	4,4	5,0	4,6
Promoting international governance	4,9	4,7	4,4	3,8	3,4	4,2	5,1	4,8	5,0	4,5
Legislation	4,4	3,7	4,2	4,3	3,9	4,4	4,2	4,1	5,0	4,2
Economic incentives	3,7	3,8	3,8	4,4	3,8	3,3	4,1	4,0	4,0	3,9
Institutional changes	3,7	3,7	3,9	3,8	3,5	3,5	3,8	3,7	4,0	3,7
Promoting self-regulation	3,6	3,3	4,1	2,9	3,7	3,6	3,1	3,1	3,7	3,4

NEXT STEPS

FORESIGHT PROJECT

- **Consolidation of scenarios** focusing on their interdependences and **identification of their impact** on food safety and nutrition in the EU
- **Assess the capacity of the EU's current food policy instruments** (compliance, control and enforcement) to **respond successfully to the challenges**
- **Identify appropriate (optimal) policy responses, transition pathways** and the **requisite research** for the development of a **future food safety and nutrition policy and legislative framework** necessary to safeguard the high standards of safe , nutritious, high quality and affordable food for EU consumers

ENGAGE IN A COMMUNICATION POLICY ON FOOD SCIENCE AND TECHNOLOGY

- **Build the general public's awareness** of the importance and benefits of food science, technology **to enhance the acceptance of innovation as a means to meet future challenges**

http://ec.europa.eu/food/food/foodlaw/future_en.htm

