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# Value chains in food systems

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# Biorural The agenda

- Food systems: Definitions
- Sustainable Food Systems Model
- Actors and the Governance
- Public policy
- Summary and challenges



# Sustainable food systems - SFS



# Why Food Systems?

- **Systemic approach** instead of sectoral, monofunctional, fragmented
- The need to create **institutional foundations** for changes in shaping public policies (political economy), confronting demographic, environmental, spatial and social challenges in the national and EU dimension (and in the global context)
- **Visions of rural and agricultural development** discussed in the EU for 2030 / 2050.
- **Strategic work** for development policy in EU countries, practical work for research and innovation policy advice...
- Very **interesting topic** of deliberations in the context of **rural development, contemporary agrarian change, European (dis)integration, global challenges, societal transformation in EU and worldwide**



# BIORural Food Systems

- The food system is made up of **individuals and their activities** that play a role in growing, transporting, delivering and ultimately consuming food.
- These processes also include **elements that often remain in the background**, such as food preferences, grassroots organisation of communities, and resource flows.
- Food systems **influence consumption** (eating) patterns through preferences for the types of food produced. They also influence what food people want to eat and what food they have access to.
- The different elements of a food system include **food supply chains, the food economy environment, individual factors and consumer behaviour, and external factors** (factors that influence the system). These different elements shape food systems and can lead to both positive and negative outcomes.



# Biorural Food Value Chain

- A **strategic alliance** between farmers and other supply-chain partners that deal in significant volumes of high quality, differentiated food products that distributes rewards equitably across the chain
- Partner alliances recognize that maximum **value for products depends on interdependence, collaboration, and mutual support**
- Alliances form around shared values such as **social or environmental concerns** that are reflected in the product and consumer/customer relations
- **Communicating shared values** to customers differentiates products, expand market share, and builds loyalty



# Biorural Food Chain: Shared Values

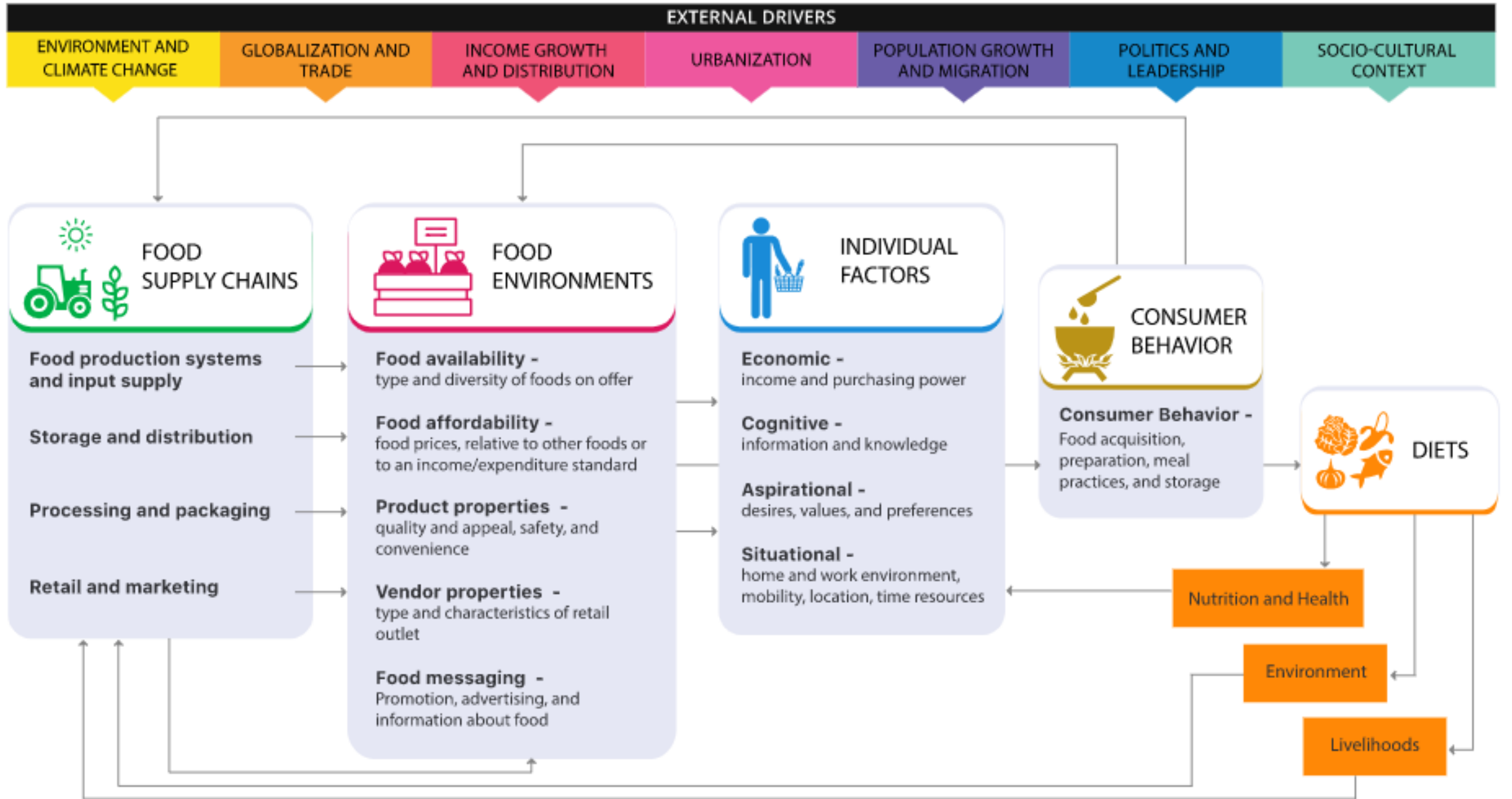
Operational values established to guide interactions with each other and create foundation for business practices, e.g.,

- Accountability
- Long-term commitment
- Open and ongoing communication
- Transparency

Social or environmental mission values: local economy, preserving farmland, animal welfare, community access to fresh food, landscape and environmental services.

- **actors and their interlinked value-adding activities**
- involved in the **production, aggregation, processing, distribution, consumption** and disposal of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal and natural environments in which they are embedded in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised.
- The food system is composed of **sub-systems** (e.g. farming system, waste management system, input supply system, rural (local) systems etc.) and interacts with other key systems (e.g. R&I&Edu system, energy system, trade system, health system, etc.).





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# Biorural Sustainable Food System

- A **sustainable food system** provides **high quality food to meet current food needs while maintaining healthy ecosystems** that can also provide food for future generations with minimal negative environmental impacts.
- A sustainable food system **supports local food production and distribution infrastructure** and makes food available and affordable for all. It is also humane and equitable, protecting farmers and other workers, consumers and communities.

American Public Health Association (APHA), 2020



# Value chain and the ecosystem: actors

Stakeholder	1. Producers	2. Processors	3. Distributors	4. Consumers
<b>Role</b>	<ul style="list-style-type: none"> <li>• Research and development</li> <li>• Farming</li> <li>• Ranching</li> <li>• Trading</li> </ul>	<ul style="list-style-type: none"> <li>• Harvesting</li> <li>• Butchering</li> <li>• Processing</li> <li>• Value add processing</li> <li>• Manufacturing</li> <li>• Marketing and sales</li> </ul>	<ul style="list-style-type: none"> <li>• Distributing</li> <li>• Retailing</li> </ul>	<ul style="list-style-type: none"> <li>• Shopping</li> <li>• Consuming</li> </ul>
<b>Key issues</b>	<ul style="list-style-type: none"> <li>• Mangement capabilities (e.g., brand and risk management, skill gaps)</li> <li>• Strategy (e.g., market strategy, M&amp;A for scale)</li> <li>• Financial issues (e.g., input and sale price volatility)</li> </ul>	<ul style="list-style-type: none"> <li>• Strategy (e.g., going global, regulatory)</li> <li>• Achieving scale (e.g., M&amp;A)</li> <li>• Supply chain strategy (e.g., vertical integration, security, safety)</li> </ul>	<ul style="list-style-type: none"> <li>• Strategy (e.g., consumer)</li> <li>• Supply chain strategy (e.g., vertical integration, traceability)</li> </ul>	<ul style="list-style-type: none"> <li>• Food prices (e.g., high prices, price volatility)</li> <li>• Food security (e.g., availability)</li> <li>• Food safety (e.g., traceability)</li> <li>• Health and wellness (e.g., obesity)</li> </ul>
<b>Stakeholder</b>	<b>5. Goverments/NGOs/Regulators</b>			
	<ul style="list-style-type: none"> <li>• Public health and safety</li> <li>• Public policy</li> </ul>			
	<ul style="list-style-type: none"> <li>• Food and product safety</li> <li>• Security (e.g., resource, land and food availability and allocation)</li> <li>• Policy and support</li> </ul>			

The logo for Biorural features a stylized illustration of a rural landscape with a sun, clouds, trees, a house, and a river. The word "Biorural" is written in a colorful, rounded font, with "Bio" in green and "rural" in orange. 

# Biorural Definitions

Sustainable Food System means that it:

- is **profitable** over time (economic sustainability);
- provides broad **benefits to society** (social sustainability);
- and has a **positive or neutral impact on the environment** (environmental sustainability).

(FAO, 2018)



# Food Systems Impacts

## Diet and health

- Access to adequate calories or a variety of healthy, nutrient-rich foods contrasts with the phenomena of hunger and micronutrient deficiency
- Rising incomes have increased the availability and accessibility of nutrient-rich foods such as fruit, vegetables and seafood
- Globalisation and rising incomes have also contributed to people consuming more highly processed foods and drinks sweetened with (not only) sugar
- Disease risk factors, malnutrition, changes in the human microbiome which is associated with poorer cognitive development and increased susceptibility to disease and infection (comment: back to research on the properties of traditional products such as pickled / fermented food)



# Food Systems Impacts

## Environmental effects

- Global food production uses about 50% of land area valuable for biodiversity (Tilman & Clark, 2014) and accounts for 20-30% of total greenhouse gas emissions (problem of small farms, production structure, intensity, soil quality)

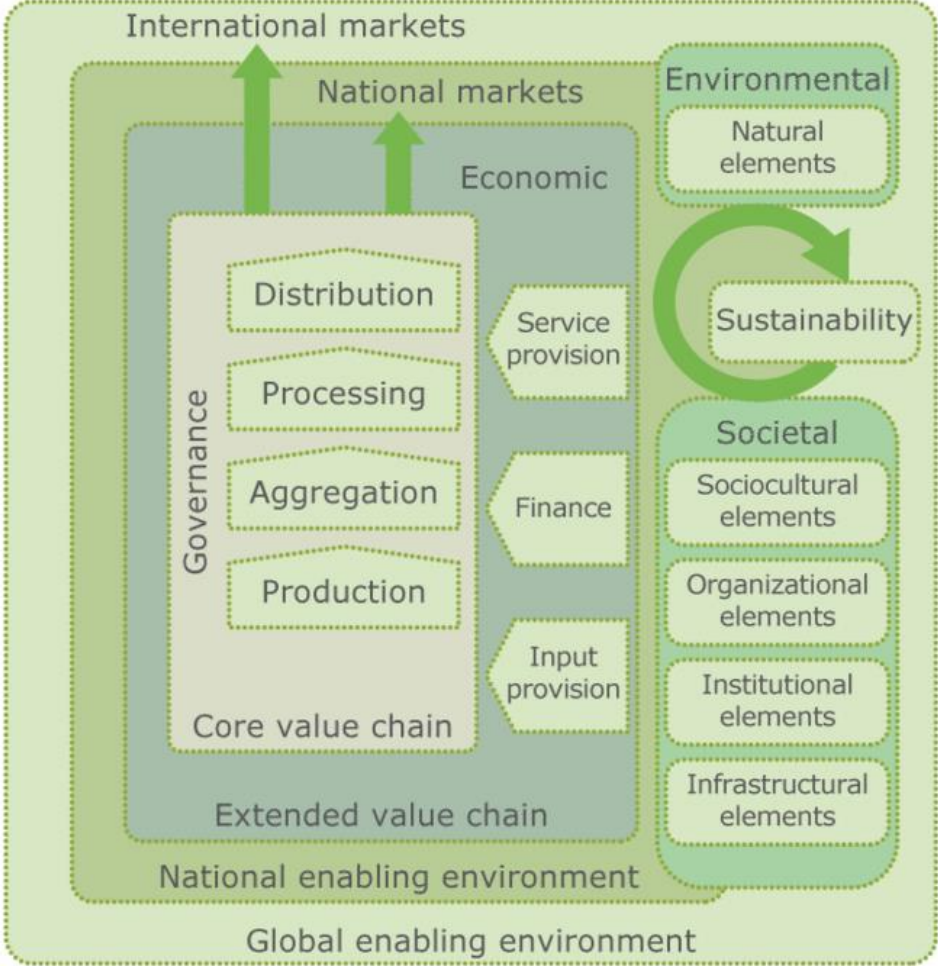
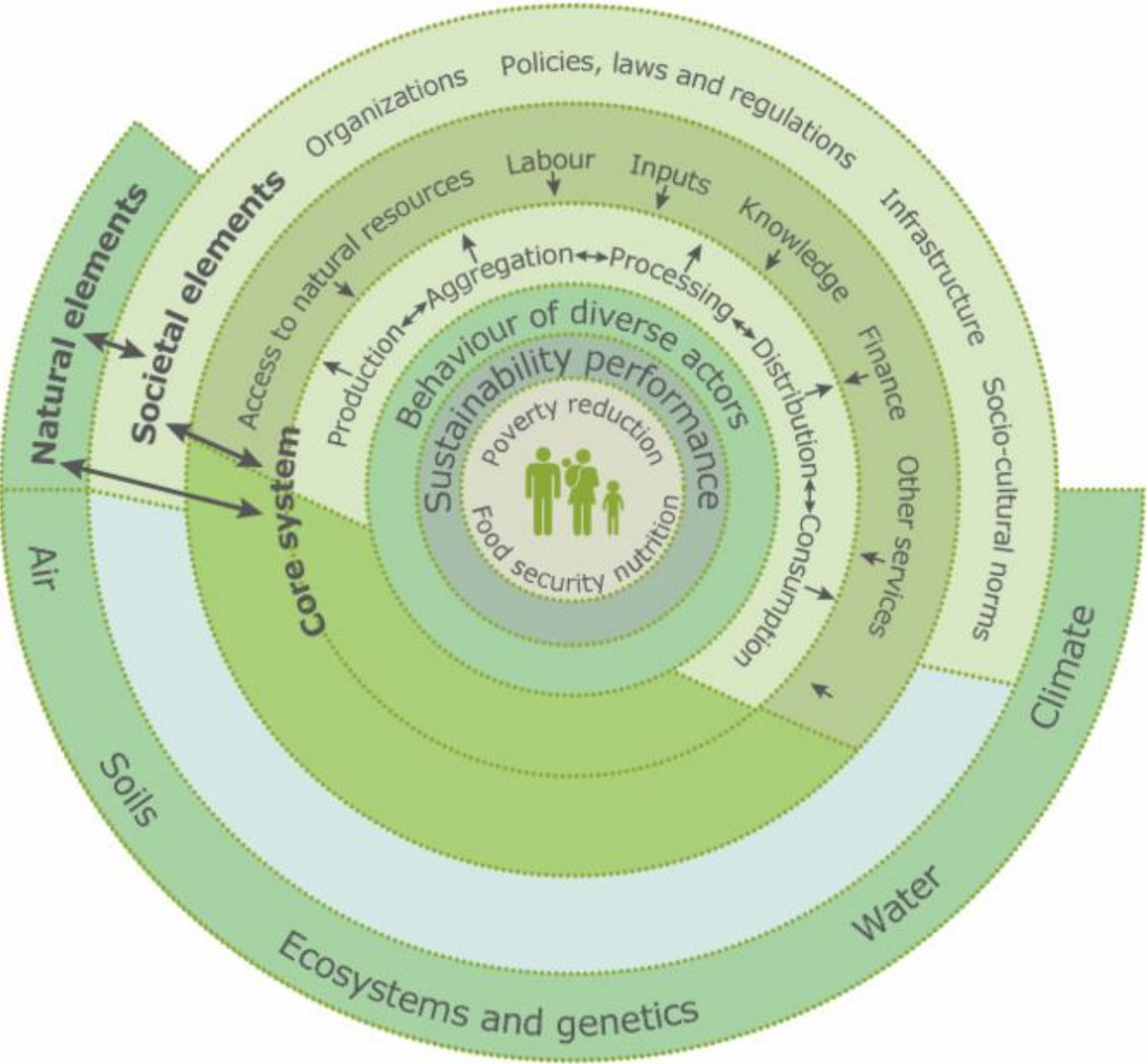
## Economic effects

- Significant employment sector (larger in less developed countries)
- Import and export subsidies for local producers
- Investment and development of food industry and other actors in the chain

## Social effects

- Welfare, health, labour market, community development.

# Sustainable food value chain framework



Source: FAO



# Sustainability dimensions for sustainable food value chain development

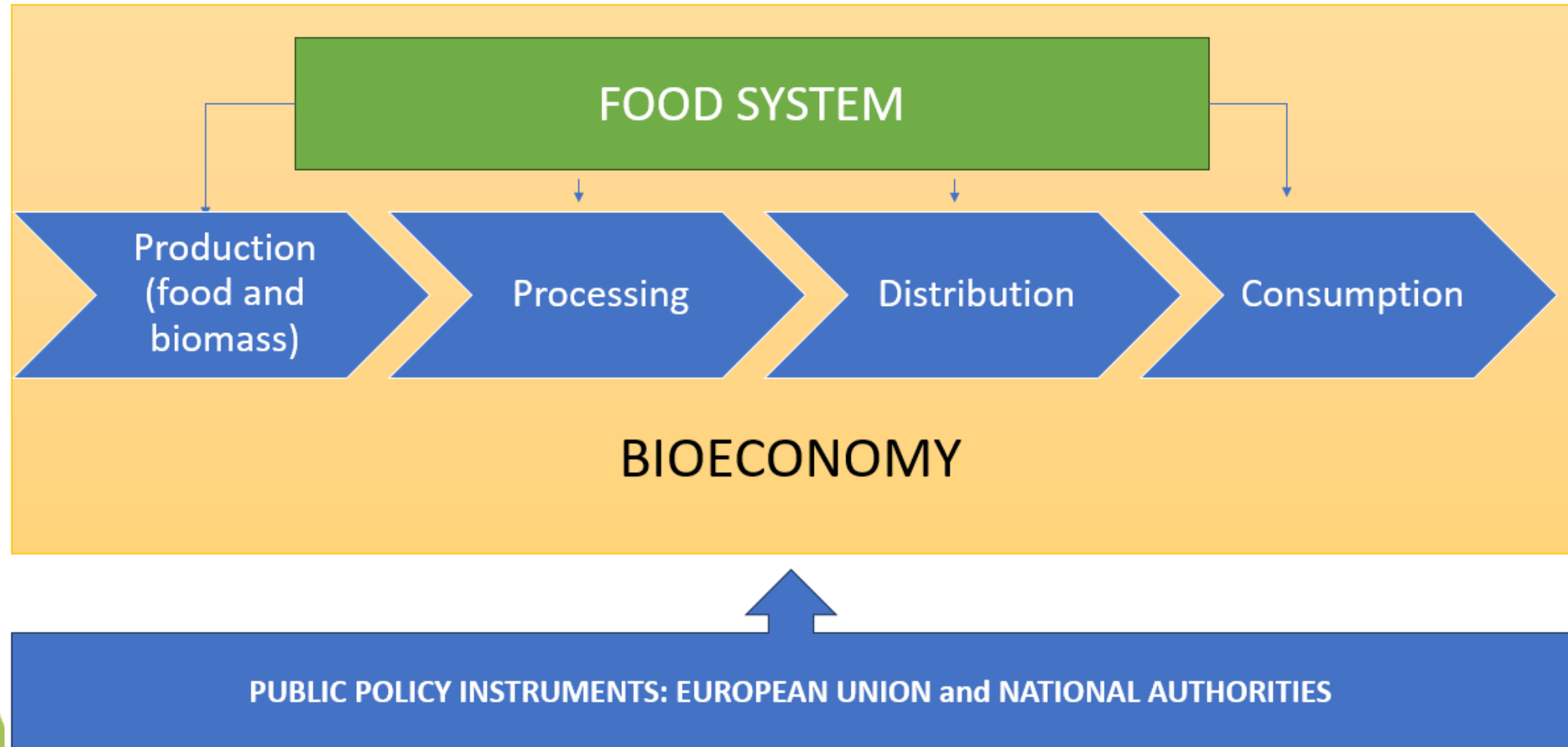


trade-offs between the elements within the three dimensions of sustainability

climate-smart agriculture interventions: to minimize trade-offs and capture synergies



# Food Systems based bioeconomy





# BIOECONOMY

- **The bioeconomy** encompasses all sectors and systems that rely on biological resources (i.e. comprising animals, plants, micro-organisms and their derived biomass, including organic waste).
- It encompasses and connects: terrestrial and marine ecosystems; **sectors that use and produce biological resources** (agriculture, forestry, fisheries and aquaculture); and **all economic and industrial sectors that use biological resources and processes to produce** food, feed, bioproducts, energy and services...



# Agriculture and rural areas in the (bio)economy

- Agriculture, forestry and aquaculture as the **foundation of the new economy** (bioeconomy)
- Change in the paradigm: **From agricultural economics to sustainable food systems** and their fundamental role in the development of the modern economy (bioeconomy).
- The **ROLE** of farming: Food production. BIOMASS production. Production space management -> ecosystem management.
- Traditional **model** of agriculture vs. sustainable farming - environmental services (soil quality, water quality, CO2 emissions) and boost for bioeconomy
- **Fair distribution in the value chain:** Agricultural income vs. remuneration for environmental services (standards are increasing vs. costs can be included in the price as it is not the farmers who decide).



# Food systems and the political economics



# Food systems at the heart of the Green Deal

**Greening the CAP - a farm-to-fork strategy**

Conservation and **protection of biodiversity**

**Climate objectives** - climate neutrality by 2050 Link to the European Climate Pact - exchange of information on risks, joint measures, bottom-up initiatives

Clean, affordable **energy** - relying on renewable sources

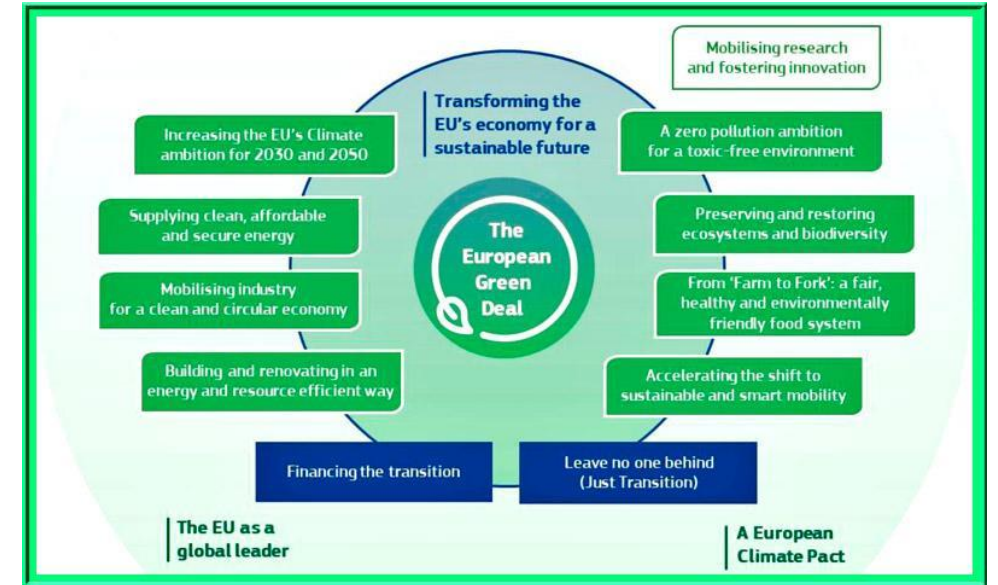
Striving for **zero emissions** - monitoring air, water, soil pollution,

Industrial strategy for a **closed loop economy** - reducing material consumption. **NEW bio-based materials and products!**

Sustainable and intelligent **mobility** - reduce transport emissions by 90% by 2050

Sustainable development issues in all EU policies - "green": funding, investment, budgets, research, education, public procurement, above and beyond the "do no harm" principle

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# Challenges for public policy

- **CAP: Valuation of the environmental services** of agriculture and their importance for the economy (farmers' income vs. public goods) / Better planning of the CAP: Making use of scientific and technological developments (e.g. Robotisation and digitisation as a response to social challenges (labour, generational replacement)).
- **Consolidation of activities** - a systems approach to the economy and linking agriculture with other sectors - biomass flow management systems
- **Exploiting Europe's privileged position and wealth** - technological leap and pressure on the rest of the world!



## Will we succeed in achieving a new deal?

- **Technologies** - resource-efficient, labour-efficient, precisely adapted locally, tested and disseminated!
- **Collaboration and integration** => systems approach: who will help to combine knowledge and experience. How to connect researchers with entrepreneurs and farmers, society and public administration. A task for artificial intelligence?
- **Science and expertise** - The poor position of science! Has anyone counted it all up yet? Has anyone gathered existing knowledge and related it? Why (costs, fragmentation of approach, bureaucratic function of the purpose of science vs. valuation of its effects)



# Fundamentals of good governance in a systemic approach to the food economy



- **The difficult road to sustainable (sustainable) food systems:** sustainable versus competitive.
- **Does political economy (institutional economics) offer an opportunity to create a sustainable rationale for the decisions of farmers** in the context of current challenges (sustainable rent-seeking approach)?
- What will be the **role of consumers**, their awareness and attitudes, as a basis for transforming (demand) food systems towards sustainability? What is the relevance of alternative food systems for the transformation of the food economy?
- The problem of '**local**' (EU) **utopia vs. global neoliberalism**, which is doing well and leads mainly to concentration of resources and funds.





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**THANK YOU!**

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