

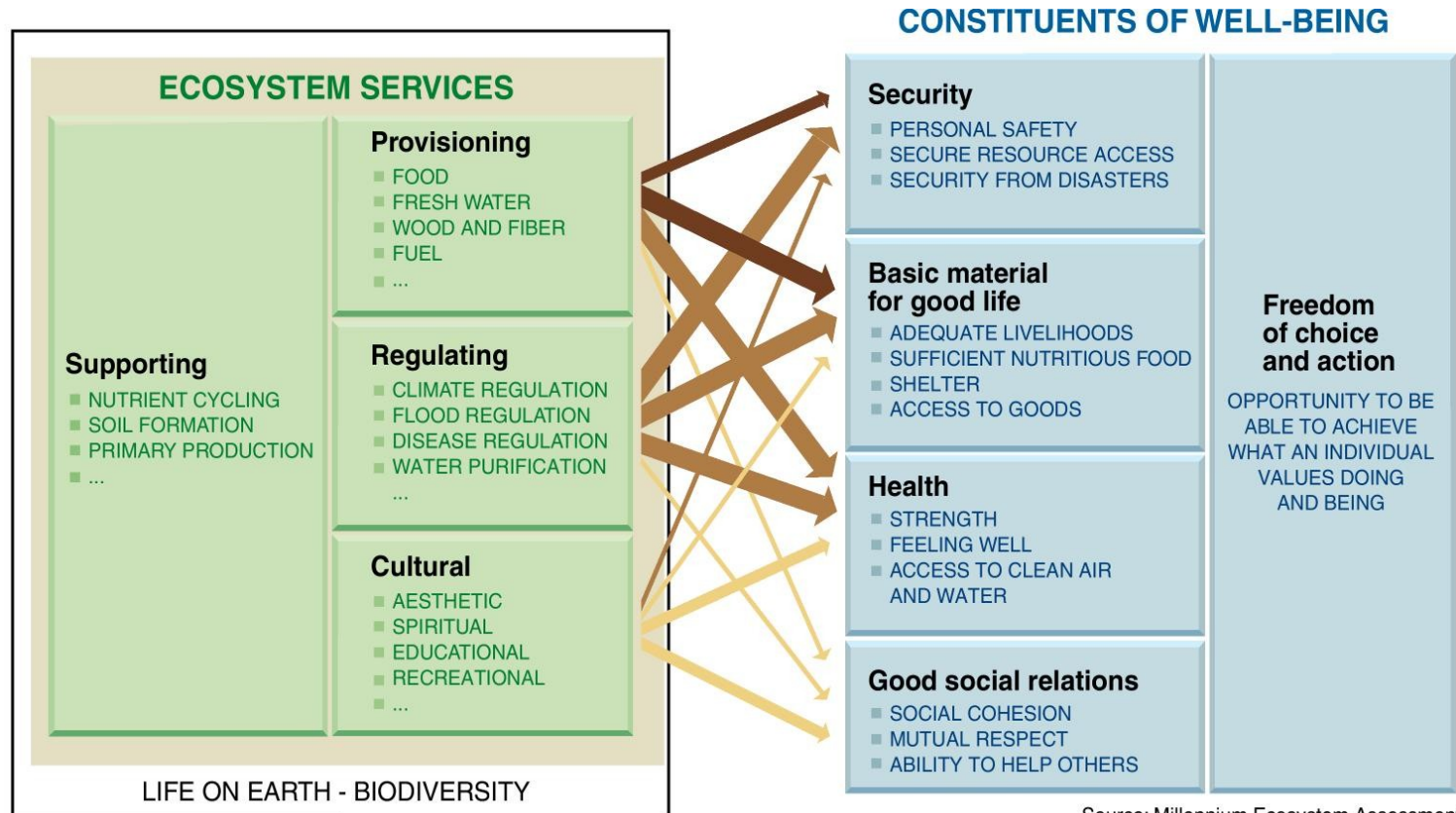


**COUPLING OF TRENDS IN FOOD  
CONSUMPTION AND  
ENVIRONMENTAL IMPACTS,  
ASPECTS AT REGIONAL,  
NATIONAL AND GLOBAL SCALE.**

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# From the environmental approach food production can be regarded as a component of ecosystem services and food consumption as a constituent of well-being.



Source: Millennium Ecosystem Assessment

**ARROW'S COLOR**  
Potential for mediation by socioeconomic factors

- Low
- Medium
- High

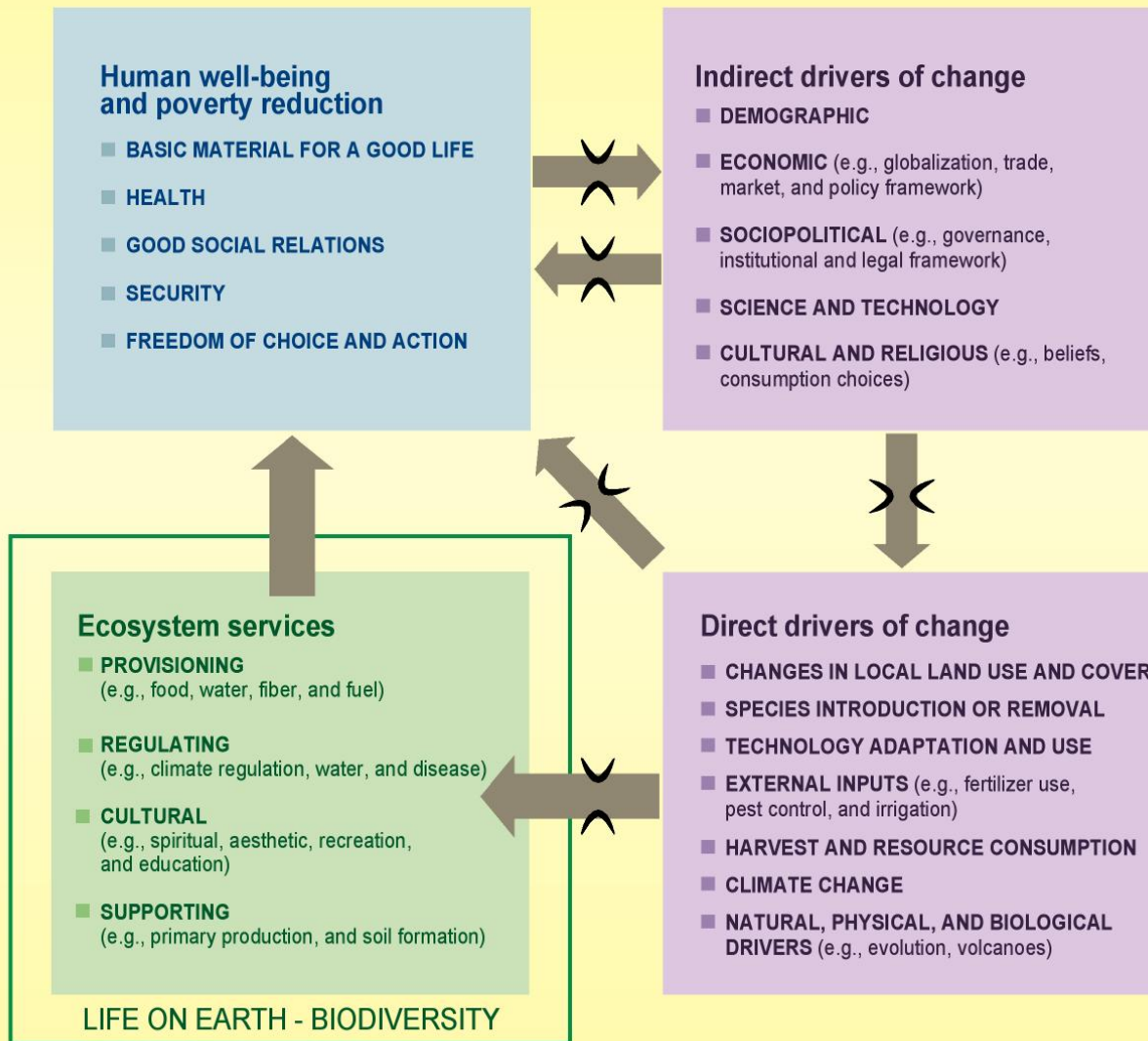
**ARROW'S WIDTH**  
Intensity of linkages between ecosystem services and human well-being

- Weak
- Medium
- Strong



REGIONAL

LOCAL



...and regional as well as global Sustainability in various time scales.

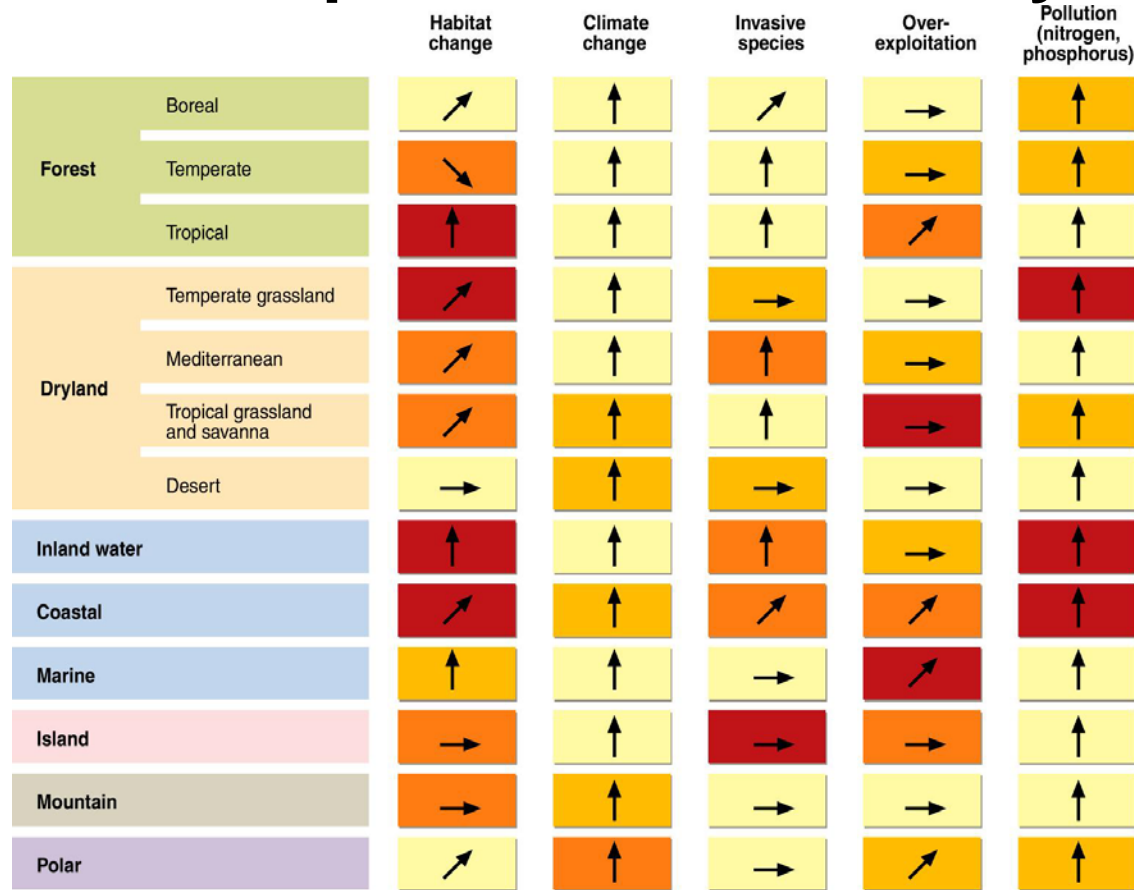
# The requirement of pure market economy is from region to region:

- free movement of materials
- and money
- economically optimized efficiency of production and supply

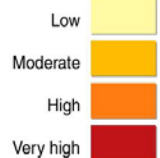
## In food market

- global circulation of food and feed raw material and products
- processing of food and feed raw material to transportable components; example dairy products from NZ
- centralization investments
- larger units for production and consumption
- urbanization
- eating out from home, ready-to-eat meals and snacks
  
- economic scale completely out of ecological scale and social understanding

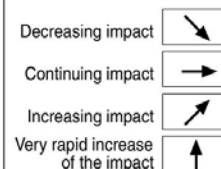
# The present impacts on biodiversity



Driver's impact on biodiversity over the last century

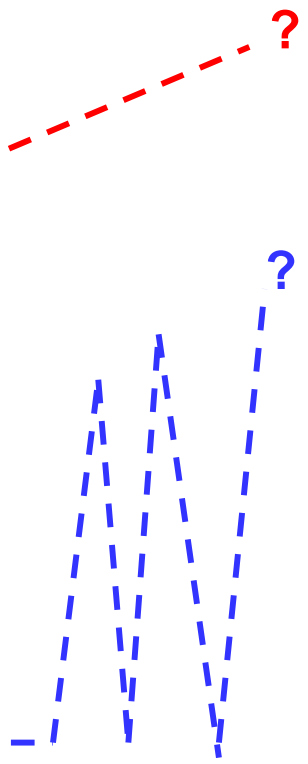
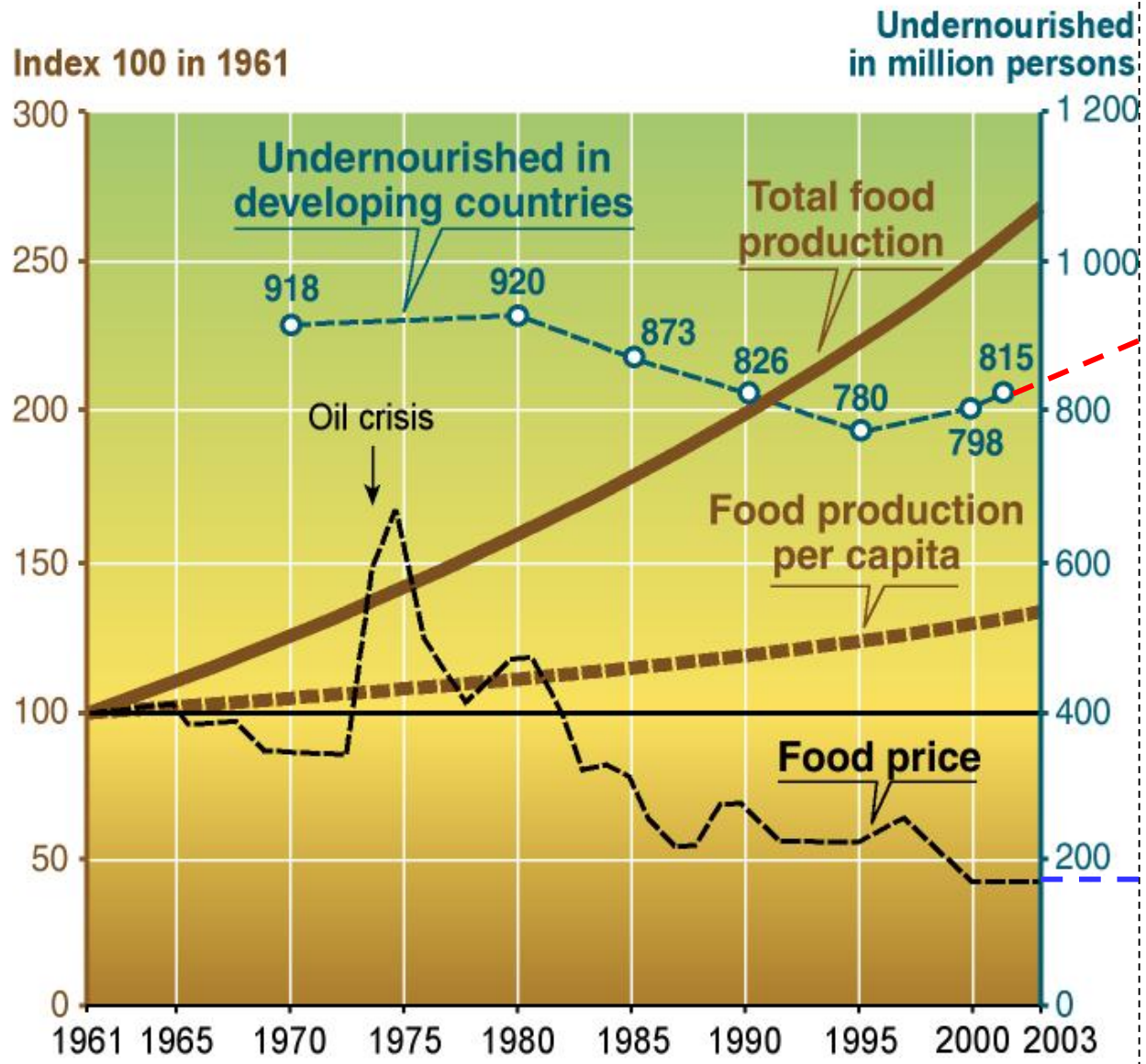


Driver's current trends



Source: Millennium Ecosystem Assessment

# The stated and potential trends in undernourishment and food price.



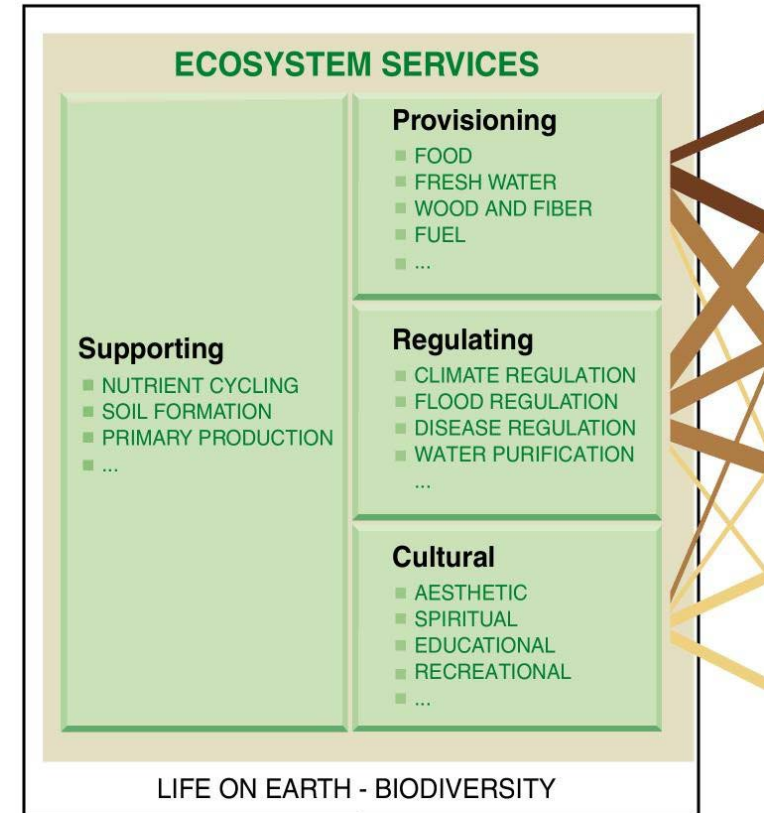
Sources: FAOSTATS, SOFI, Millennium Ecosystem Assessment

# The requirements based on regional ecosystem services are

- optimization sustainable use of those services
- focus on regional innovation and
- aim to regionally originating niche markets.

**This could be regarded as the regional CSR.**

- holistic approach becomes a necessity
- approach to ecological scale
- support of innovations
- ❖ We should take the challenge to cope with nature and approach the regional CSR strategy as an alternative to globalizing markets



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**More specifically, the present major trend in global food market is an increase of food consumption that not necessarily improved welfare.**

- throughout developing world (1961-2000): consumption of vegetable oils tripled, consumption of foods from animal source tripled, added caloric sweeteners introduced to diet everywhere, consumption of fruits increased by 70 %, consumed energy increased between 30-100%, vegetable intakes remained steady, cereal products are being displaced (*fat-sugar-energy*)
  - obesogenic shift is strong
  - food intake data suggests that adverse shifts in dietary composition are taking place at a much higher speed than potentially beneficial changes.

# Simultaneously, food supply is being centralized into hands of global companies that focus on globally accepted growing plants and cultivars.

FAO: Asian agriculture is on an irreversible path leading away from its traditional pre-occupation with cereal crop production, especially rice, towards a production system that is becoming increasingly commercialized and diversified. Paths:

- ❖ income induced diet diversification
- ❖ diet globalization and westernization
- ❖ severing of the link between diets and the local availability of resources and local habits
- ❖ The need for increasing the productivity of cereals is higher the greater the diversion of high potential irrigated lands to non-cereal pursuits.

Vandana Shiva (2004) *"Biodiversity is being rapidly eroded and food, the very source of health and nutrition has become a major source of health hazards caused by toxic chemicals in factory farming and new genetically engineered foods and crops."*

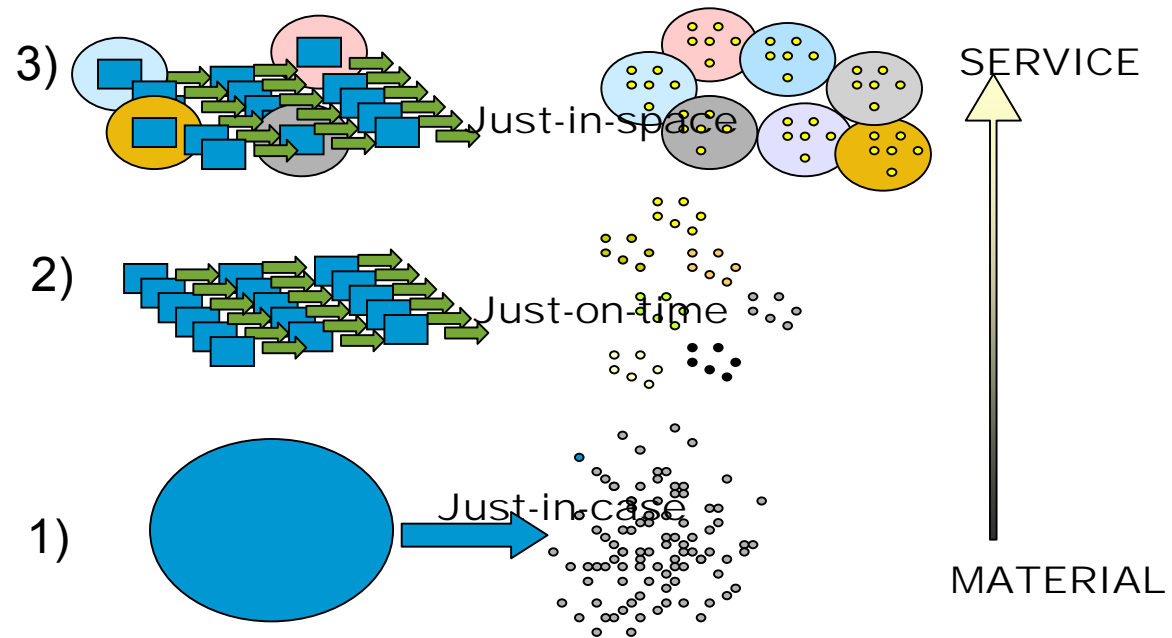
**Respecting of a local culture or heritage is not a feature that is commonly included into CSR of globalizing companies.**

That means

- narrowing of a raw material base of final products
- moving towards monocultures and
- narrowing a base for culture, economic life, rural landscape and biodiversity,
- and with competition results
- into narrowing of supply and increase of price.

**The choice is in the food consumers, the power is in food trading companies and impacts will be seen in surrounding growing and living environment and, indirectly, in welfare of consumers.**

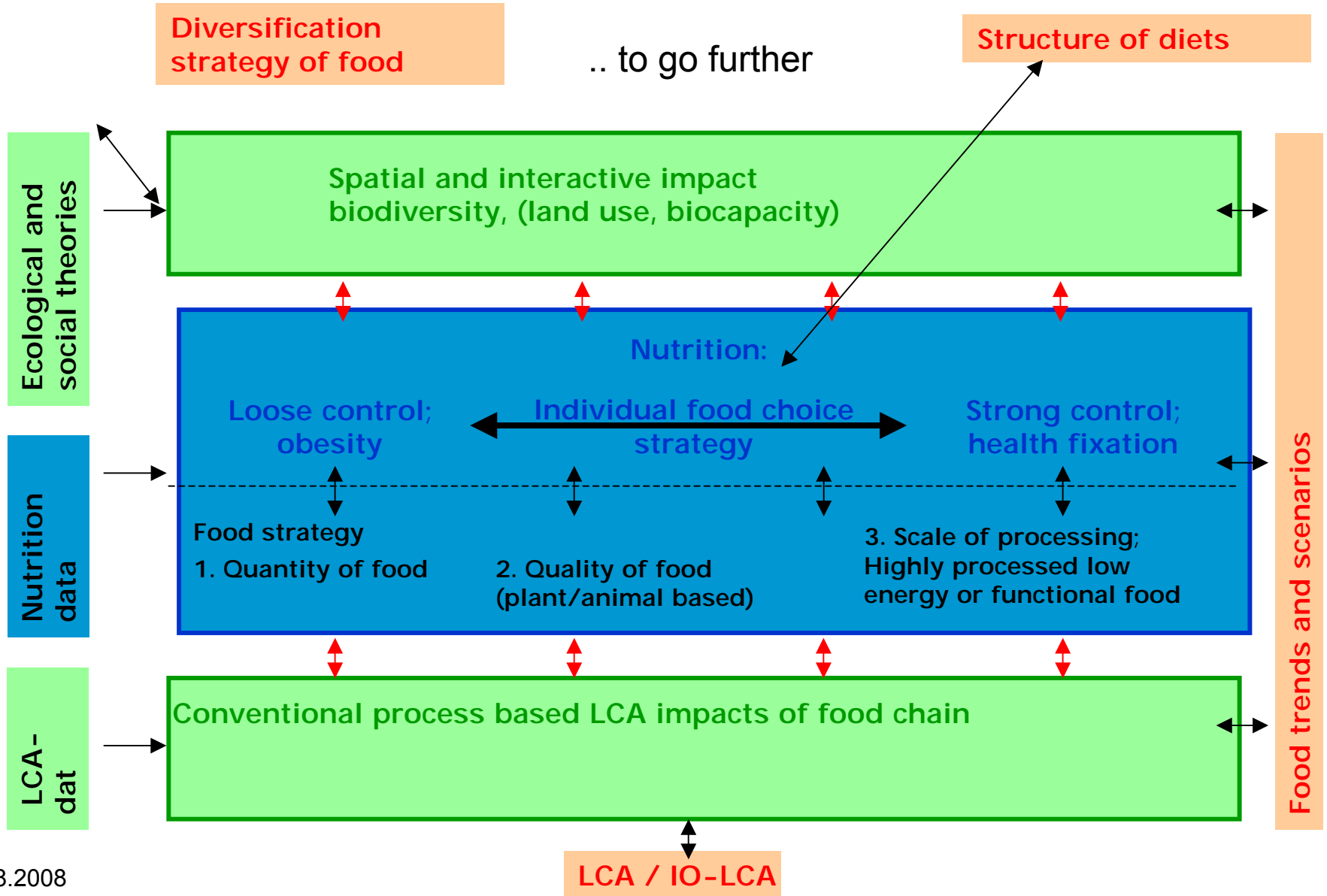
- Lean manufacturing, comparable to (3), does work for car manufacturing but doesn't work for food economy!



**The general environmental impact categories of the LCA approach at present are: impact to water, climate and soil, added with use of primary energy.**

- Use of land area represents the impact to biodiversity and that is not enough!
- Biodiversity is the dynamic component that is directly linked to multifunctionality of human society, and impacts on biodiversity are highly context specific.

# Potential framework for integrated research covering food nutrition and environmental linkages.



**Thank you for your  
interest!**

