INTRODUCTION

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The Biodiversity Crisis Driven by Food Production

70%

Terrestrial Biodiversity Loss

Caused by agricultural activities globally

50%

Freshwater Species Species

At risk from farming practices

86%

Threatened Species

Face extinction due to agricultural expansion

Food production has become the leading driver of biodiversity decline, threatening species survival whilst accelerating climate change through massive greenhouse gas emissions.

The Hidden Foundation of Food Food Security: Soil Health

Living Ecosystem

Supports nearly 60% of all species

Stores vast carbon reserves

Agricultural Pressure

Over 40% of global land used for food production

Fertility declining rapidly

Cascading Threats

Water systems at risk

Biodiversity loss

Climate resilience weakening

Regenerative Agriculture: A Pathway to Soil Restoration

No-Till Farming

Preserves soil structure and organic matter

Crop Diversification

Multiple species improve resilience and nutrient cycling

Agroforestry

"Forest garden" models integrate trees and shrubs

Improving yields and soil health for smallholders

Organic Inputs

Compost, mulching, improved water management

Reduce erosion, enhance moisture retention

Agrifood system and Climate

Carbon absorption

Indirect mitigation

Emissions of Greenhouse gases

Reducing emissions

Direct mitigation

Impacts of climate change

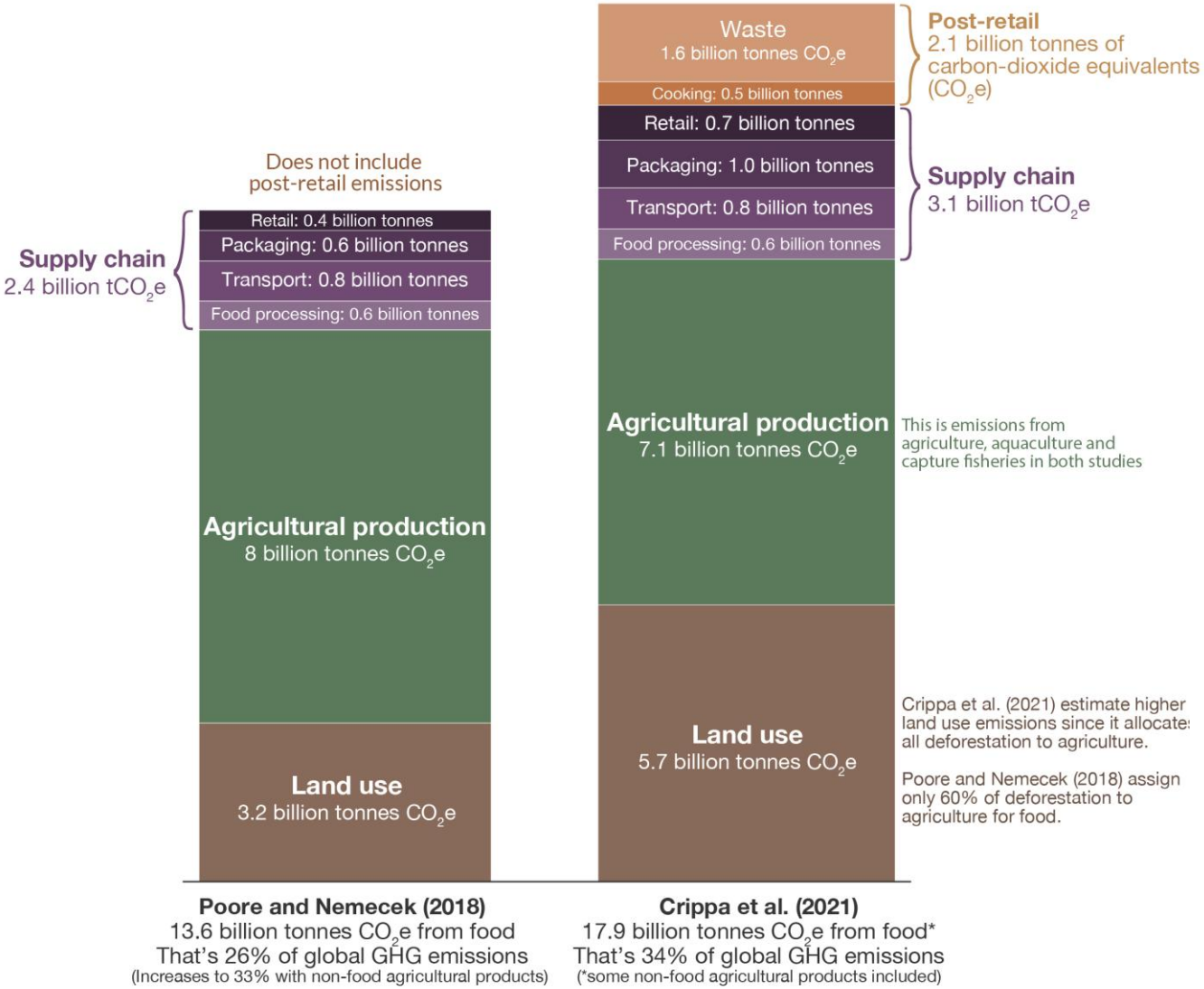
Adaptation

DOES FOOD MATTER FOR CLIMATE CHANGE ?

How much of global greenhouse gas emissions come from the food system?

Our World in Data

Shown is the comparison of two leading estimates of global greenhouse gas emissions from the food system.
Most studies estimate that food and agriculture is responsible for 25% to 35% of global greenhouse gas emissions.

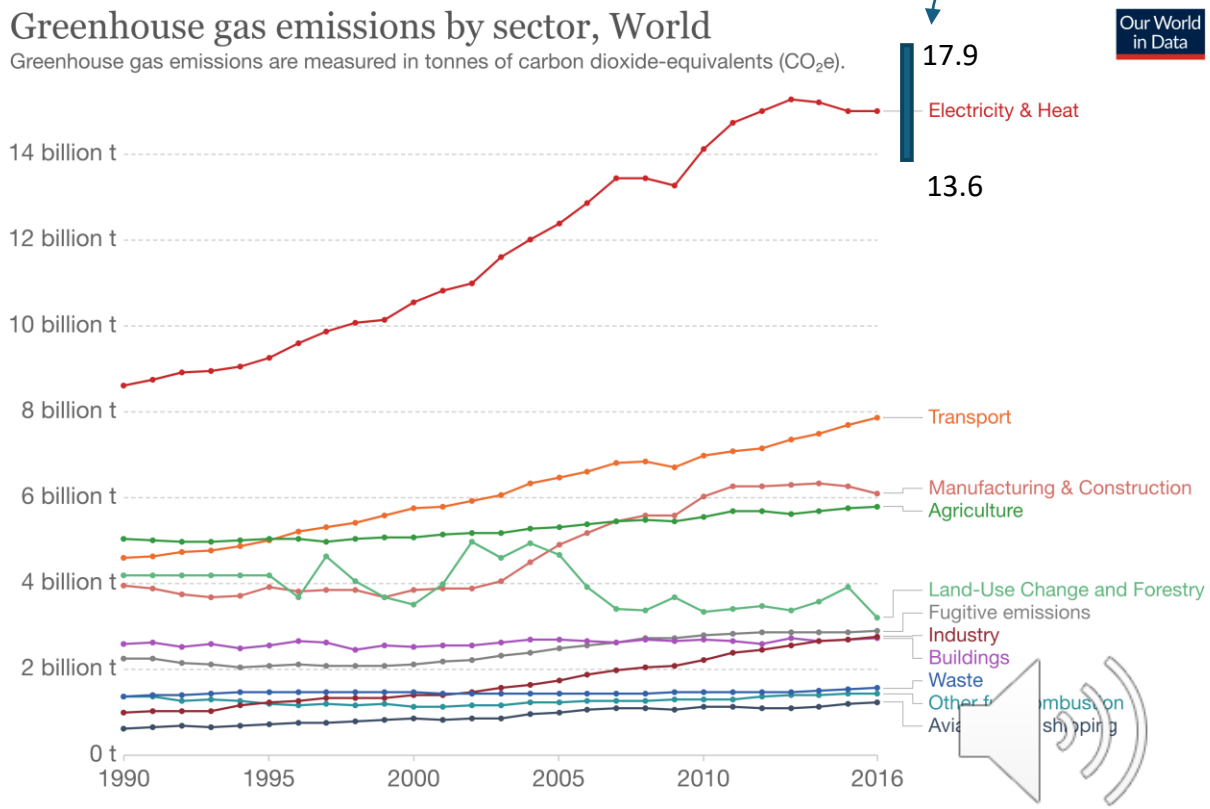


*Crippa et al. (2021) include emissions from a number of non-food agricultural products, including wool, leather, rubber, textiles and some biofuels. Poore and Nemecek (2018) do not include non-food products in their estimate of 13.6 billion tonnes CO_2e. This may explain some of the difference.

Data sources: Joseph Poore & Thomas Nemecek (2018). Reducing food's environmental impacts through producers and consumers. *Science*.
Crippa, M., et al. (2021) Food systems are responsible for a third of global anthropogenic GHG emissions. *Nature Food*.

Total 55.3 billions tons CO_2eq

FOOD



Source: CAIT Climate Data Explorer via. Climate Watch

OurWorldInData.org/co2-and-other-greenhouse-gas-emissions • CC BY

6% of global greenhouse gas emissions come from food losses and waste

Emissions from food that is never eaten accounts for **6%** of total emissions

Food production is responsible for 26% of global greenhouse gas emissions

Source: Joseph Poore & Thomas Nemecek (2018)

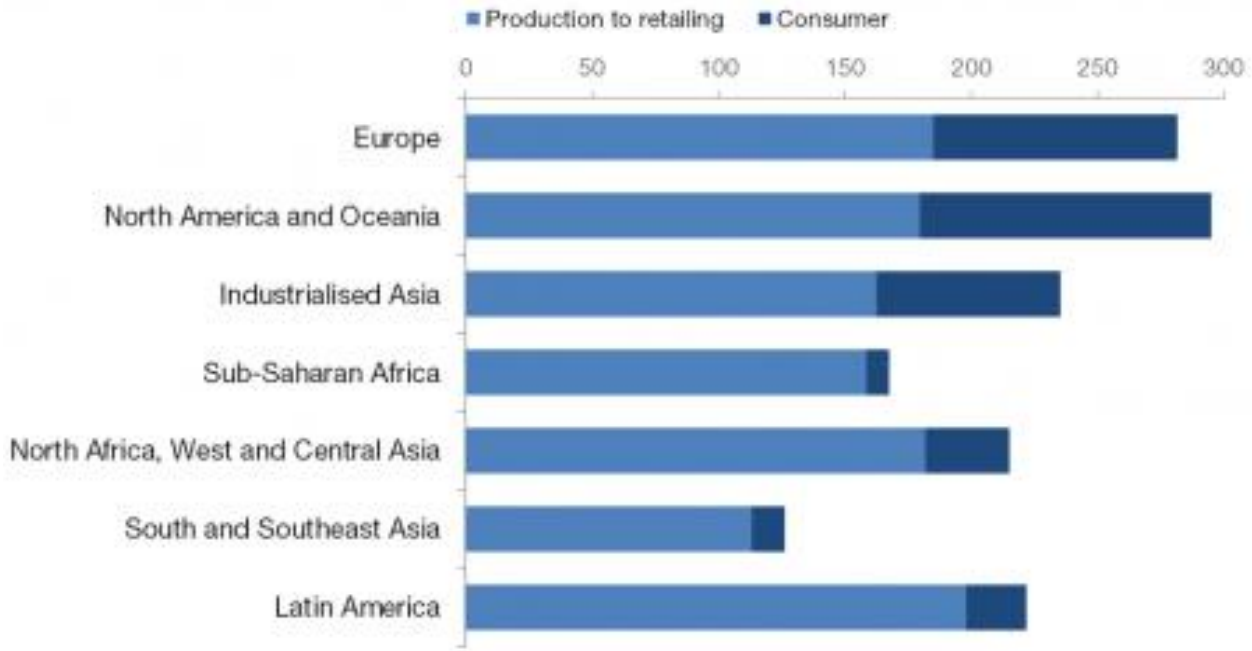
Note: One-quarter of food emissions comes from food that is never eaten: 15% of food emissions from food lost in supply chains; and 9% from consumer waste.

Our World in Data

Which regions waste the most food?

Per capita food losses and waste, kg/year

WORLD ECONOMIC FORUM

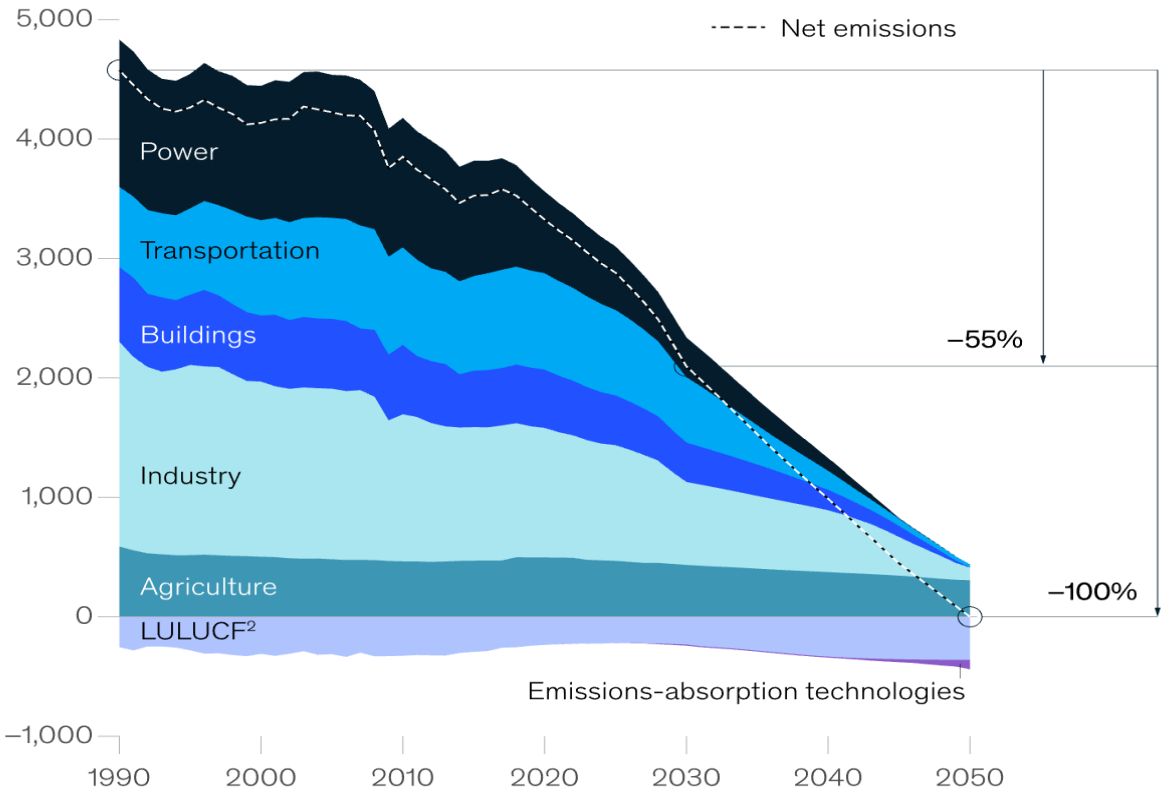


Source: The Food and Agriculture Organization of the United Nations (FAO)

The Europe Challenge on carbon neutrality

The power sector would reach net-zero emissions before the others.

Total emissions per sector in cost-optimal pathway for EU-27,[1] megatons of carbon dioxide equivalent



[1]Excluding international aviation and shipping.
[2]Land use, land-use change, and forestry entails all forms in which atmospheric CO_2 can be captured or released as carbon in vegetation and soils in terrestrial ecosystems.
Source: UNFCCC; McKinsey analysis

Residual:
65-85
MtCO2eq

McKinsey & Company


CARBON FARMING
atmosphere
air
ecosystem
land
climate
farming
process
groundwater
financial incentives
greenhouse
trees
farming
plant
farming
gas emissions
climate change
pollution
health
bamboo
seaweed
carbon
biomass
ecosystem
health
organic matter
efficacy
groundwater
gas emissions
plantation
nutrient
health
co2
sequestration
environment
money
develop
soil
planning
nutrient
organic matter
wood
agriculture
water
wetlands
seaweed
climate
carbon pollution
landholders
vegetation
wetlands
carbon
biomass
bamboo
seaweed
forest
wood
greenhouse
technique
efficacy
bamboo
carbon pollution
green
methods
technique
soil
plant

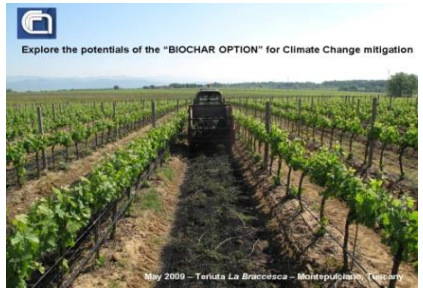
Soil greening

Reforestation

Pasture management

Organic farming

Minimum tillage

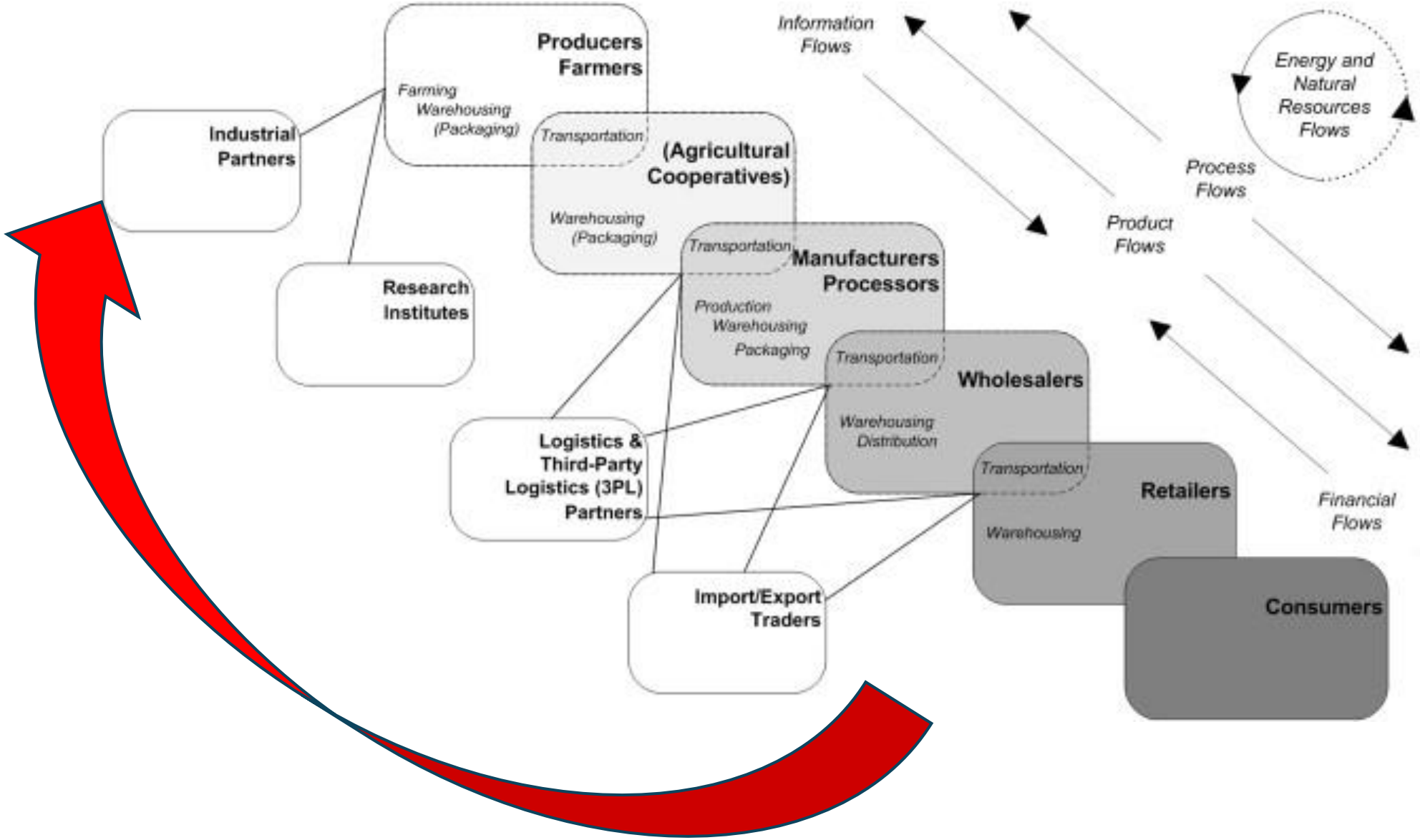


Biochar

Bioenergy

The Agrifood system – Circularity of Actors

The strenght of integration !



Grazie !!!