



# **CIRCULAR ECONOMY FOR A NEW AGRICULTURE**

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**SistemiQ**

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International  
Resource  
Panel

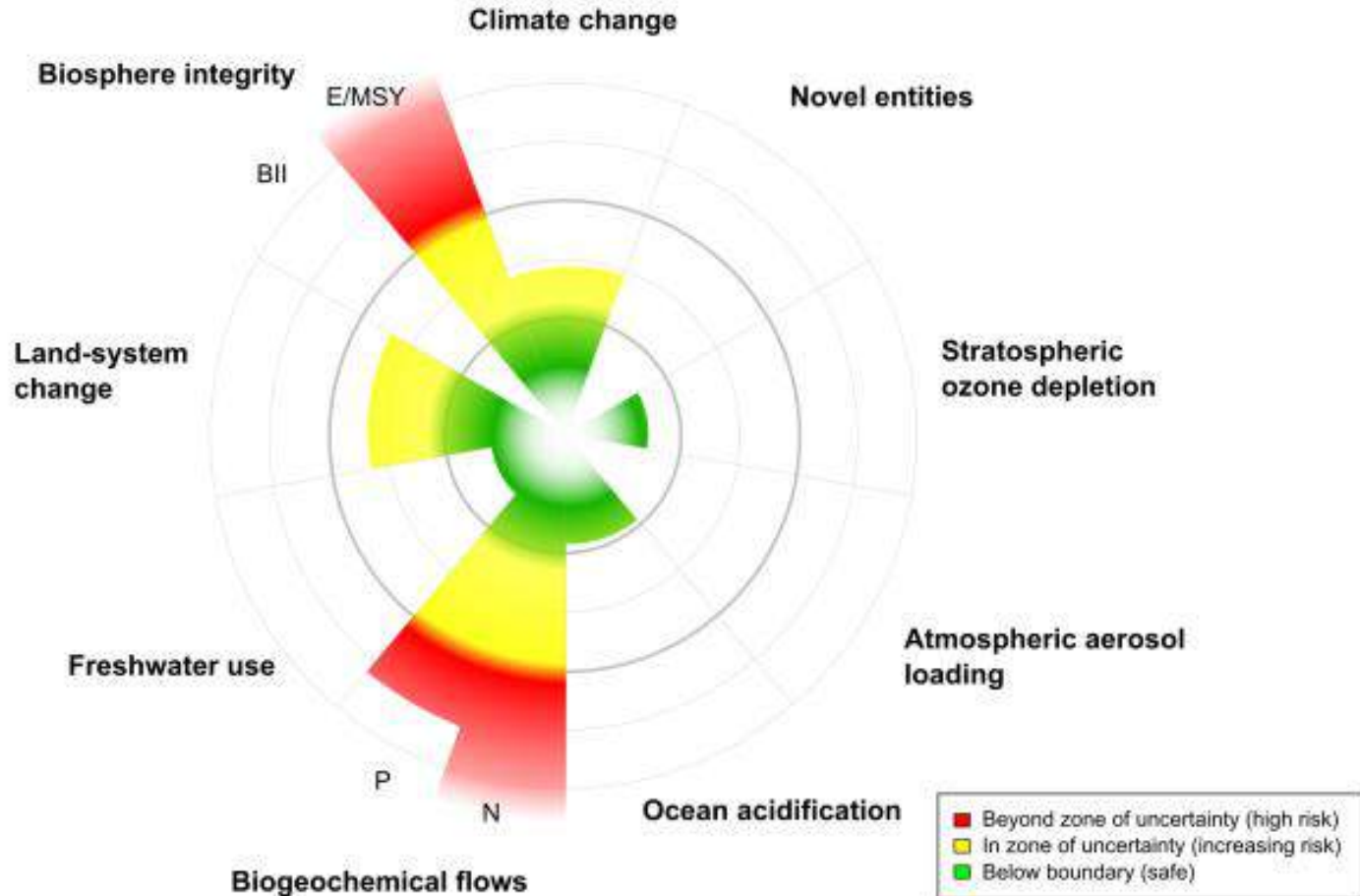
# 20<sup>th</sup> CENTURY

## THE GREAT ACCELERATION



- *Growth of population by a factor **3.7***
- *Annual extraction of construction materials grew by a factor of **34**, ores and minerals by a factor of **27**, fossil fuels by a factor of **12**, biomass by a factor of **3.6***
- *Total material extraction grew by a factor of **8***
- *GHG emissions grew by a factor of **13***
- ***Globalisation***

# “PLANETARY BOUNDARIES”



Source: Steffen et al. 2015

# 21<sup>th</sup> CENTURY

## FACTS WE CAN NOT IGNORE

- **Population** growth (2050 - 9.7 billion)
- **Per capita consumption** growth (McKinsey estimates 3 billion consumers moving from low to middle class consumption till 2030)



# 21<sup>th</sup> CENTURY

## FACTS WE CAN NOT IGNORE

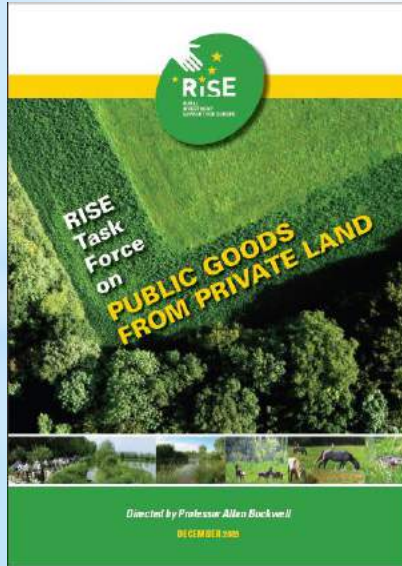
- **Poverty** and **social inequality** (Oxfam Report: 62 people own the same as half of the world and the richest 1% is more wealthy than the rest of the world)
- 60% of **ecosystems** already degraded or used unsustainably
- Increasing evidence of the **climate change** threat



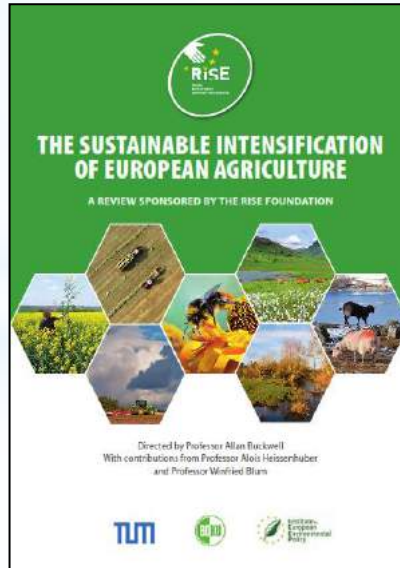


# THREE RISE REPORTS

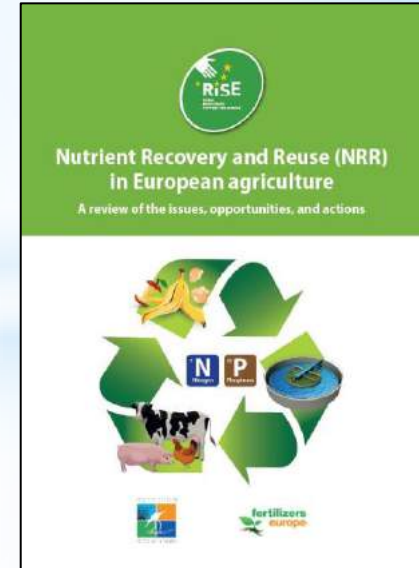
providing policy recommendations to address agricultural and environmental challenges in Europe



2009



2014



2016

# KEY POLICY RECOMMENDATIONS FROM THE REPORTS

- *It is imperative that both **public** and **private** sectors need to make changes and efforts to effectively deliver public goods and contribute to a sustainable European agriculture that policy development needs to take into consideration.*
- *Market failures in agriculture in the form of negative externalities needs to be addressed. Public policy measures should support delivery of **public goods** through incentivising land managers.*
- *The EU needs to promote specific **farming systems and practices** that tackle particular problems of sustainability through investment and knowledge transfer.*

# KEY POLICY RECOMMENDATIONS FROM THE REPORTS

- *Increased measuring and monitoring of EU agriculture **resource use and impact** is needed and targets need to be set for waste prevention in agriculture.*
- *R and D, education, advice and innovation: **bottom-up capacity and institution building** is required for the success of sustainable intensification as well as for nutrient recovery and reuse.*
- *As **consumers** become more and more disassociated from the production of the food they eat, we need to invest and encourage greater consumer awareness of the impact of their food choices.*

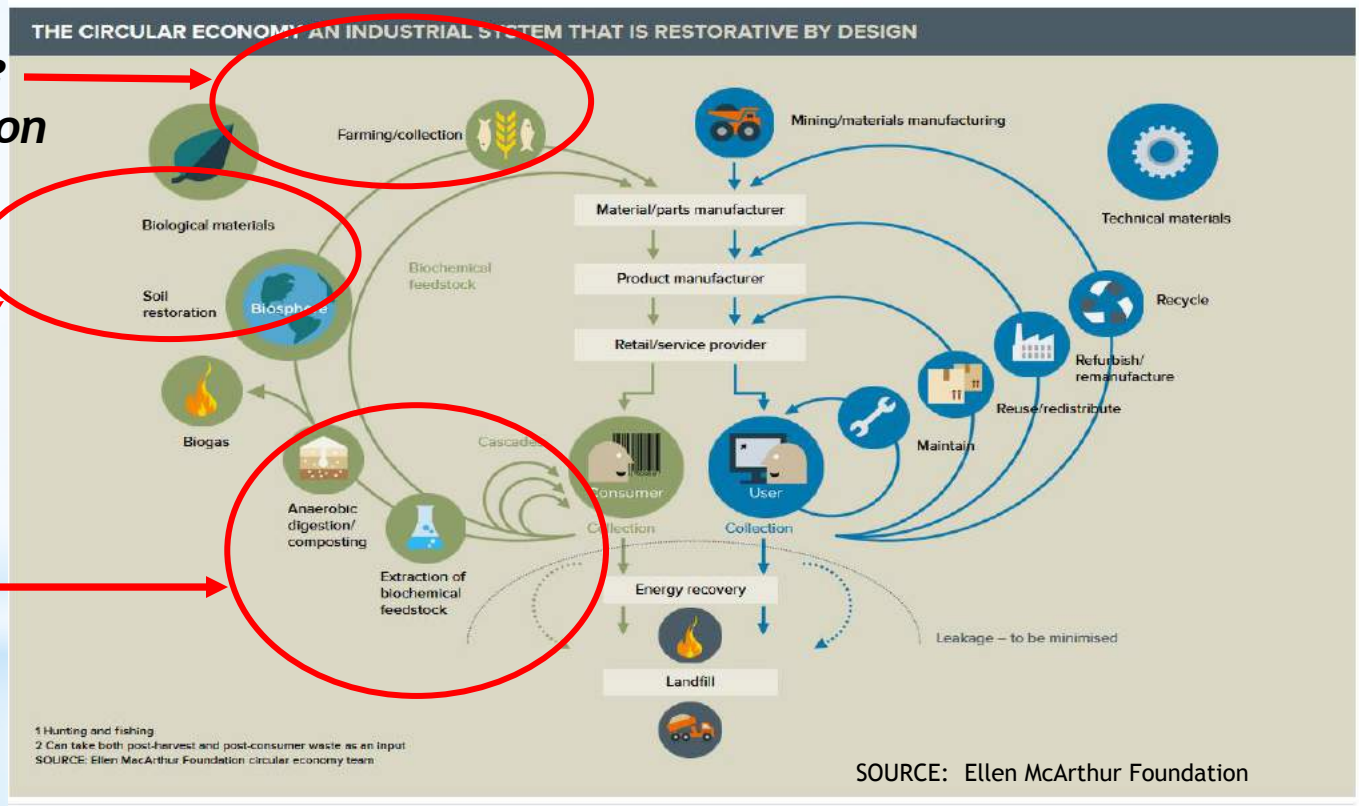


# AGRICULTURE AND THE CIRCULAR ECONOMY

**Sustainable Intensification**

**Public goods**

**NRR**





International  
Resource  
Panel



# FOOD SYSTEM APPROACH



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Resource  
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# *Food systems are at the heart of the 2030 agenda for sustainable development.*

*The food we grow, harvest, process, trade, transport, store sell and consume is the essential connecting thread between people, prosperity, and planet.*



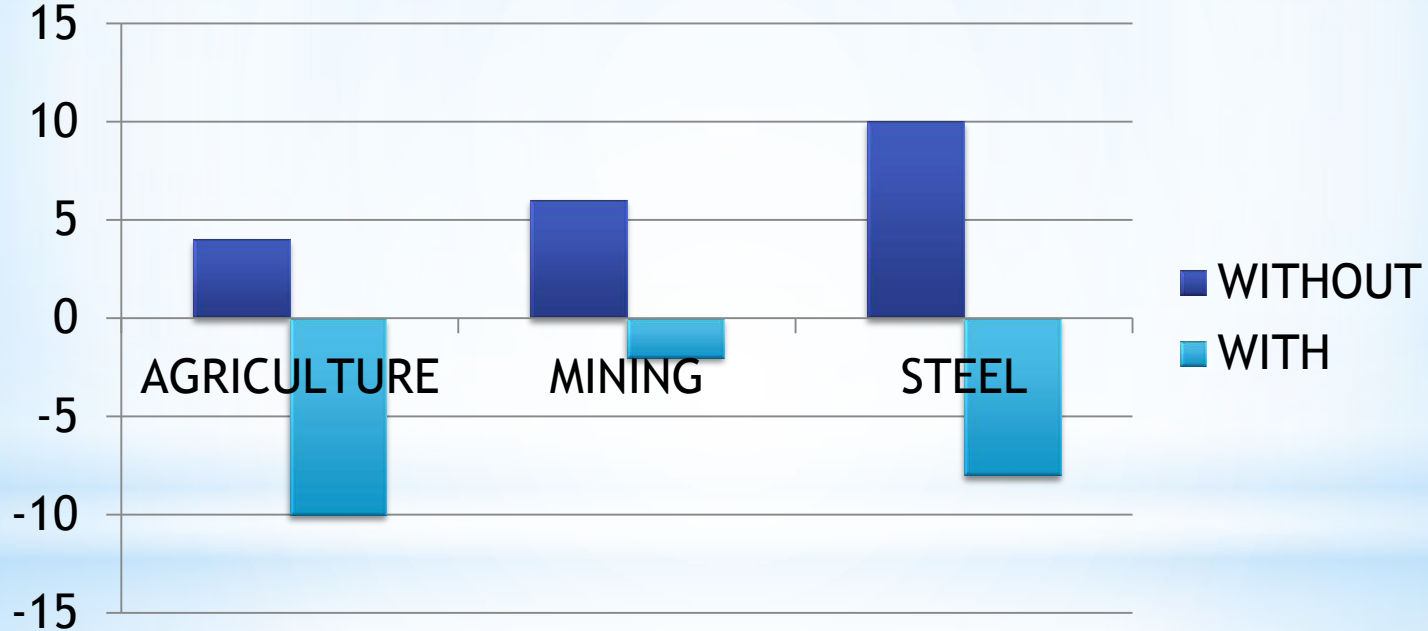


# SOME WORRYING FACTS

- **33% of soils is moderately to highly degraded** due to erosion, nutrient depletion, acidification, salinization, compaction and chemical pollution;
- **61% of 'commercial' fish populations are fully fished and 29% are overfished**
- **At least 20% of the world's aquifers are overexploited.**
- **60% of global terrestrial biodiversity loss is related to food production, ecosystem services supporting food production are often under pressure;**
- **Of the total input in the form of nitrogen - and phosphorus fertilizers, only 15-20% actually reaches the consumers' plates.**
- **Globally, food systems account for around 24% of the global greenhouse gas emissions.**

# EXTERNALITIES

*Profit margins* without natural capital costs included  
and with natural capital costs included

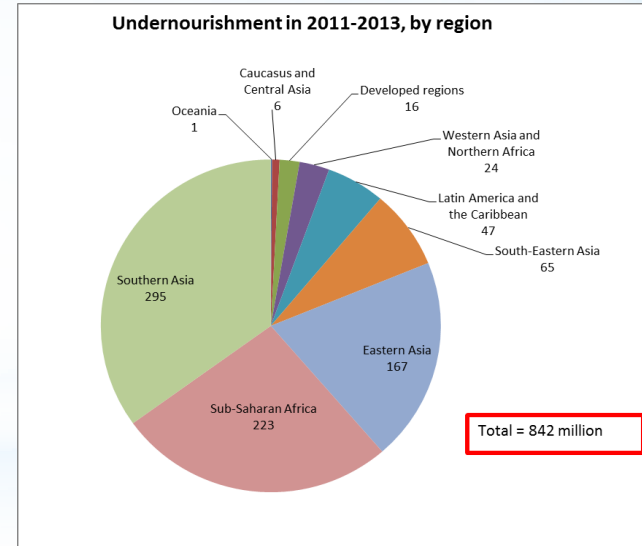
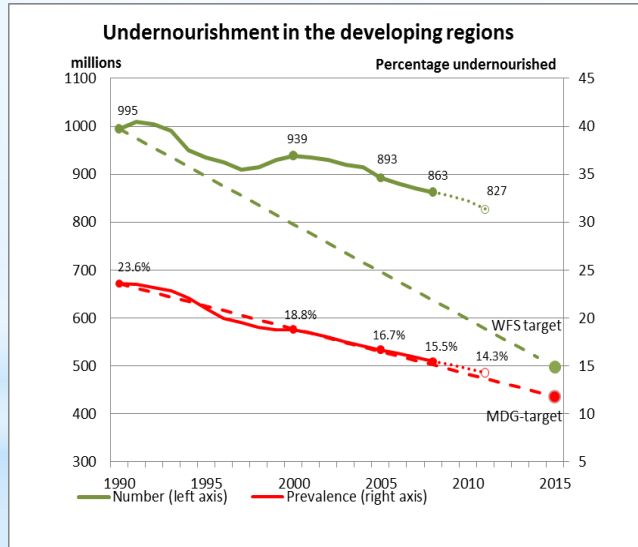


Source: Truecost study - 2013



# PREVALENCE OF UNDERNOURISHMENT

*Nearly 800 million people are hungry, over 2 billion suffer from micronutrient deficiencies ...*



Source: (UNEP, 2011a)

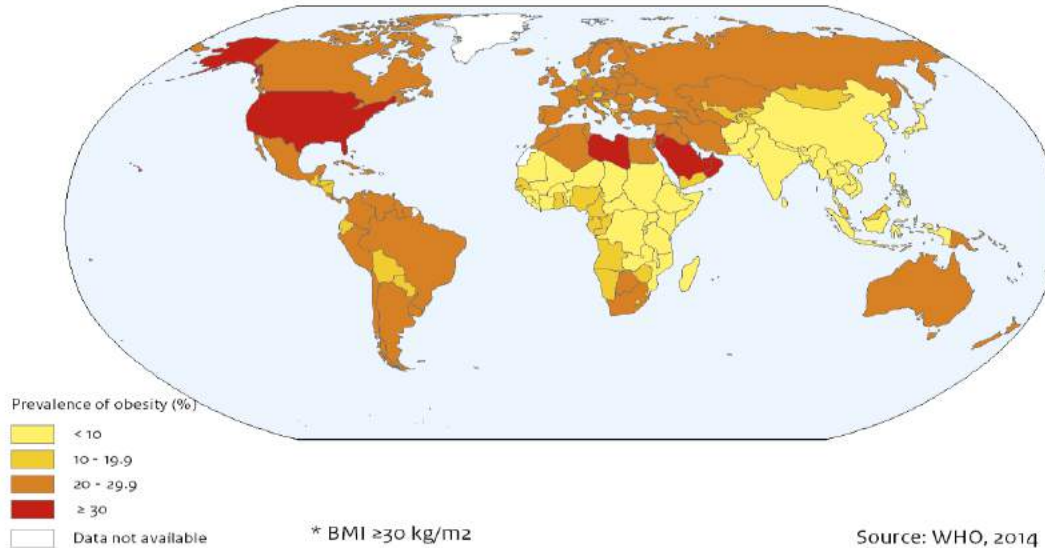




# PREVALENCE OF OBESITY

... *While over 2 billion people are obese*

Prevalence of obesity\* , ages 18+, both sexes, 2014



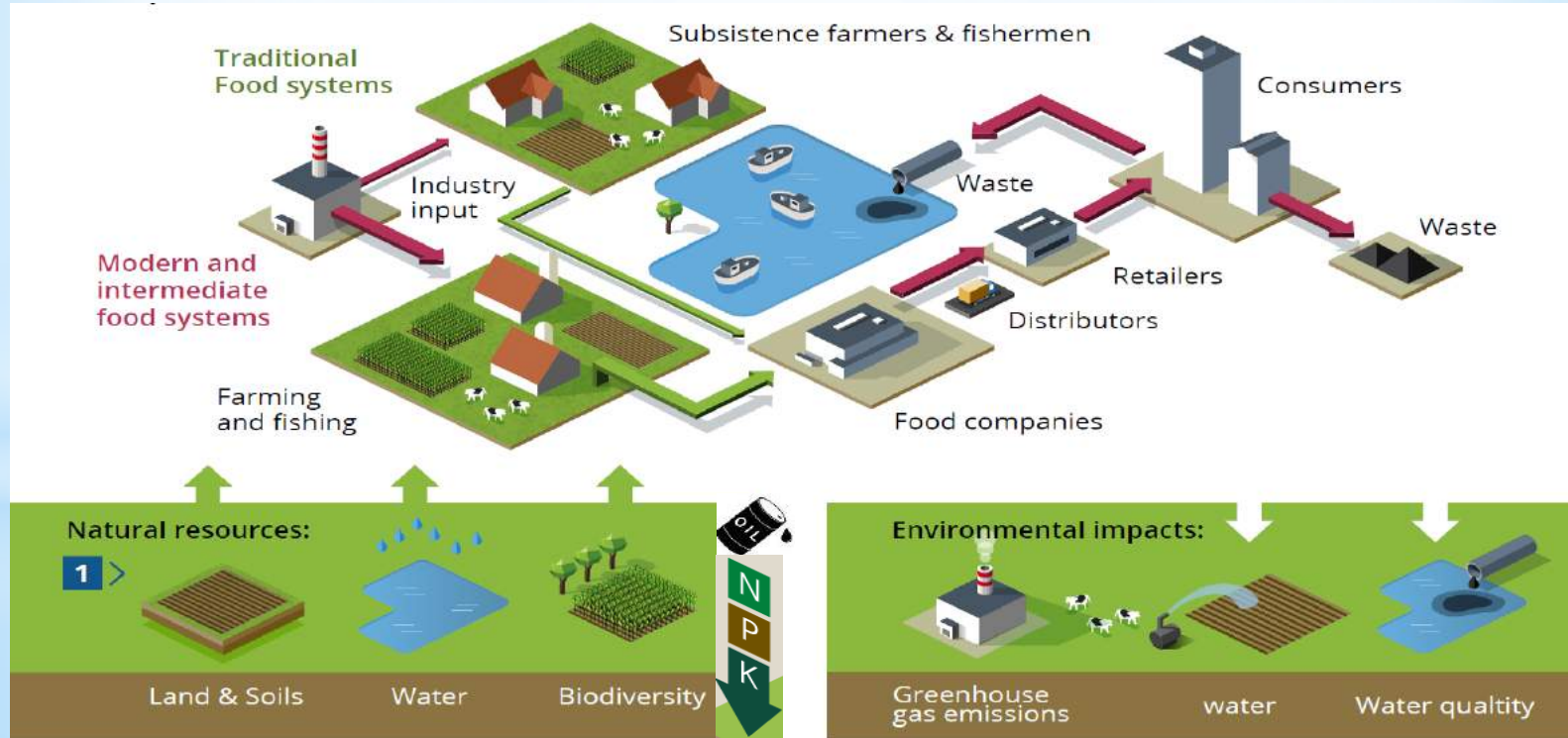


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# FOOD SYSTEMS DIFFER WIDELY GLOBALLY



often interconnected - and depending on the same resources





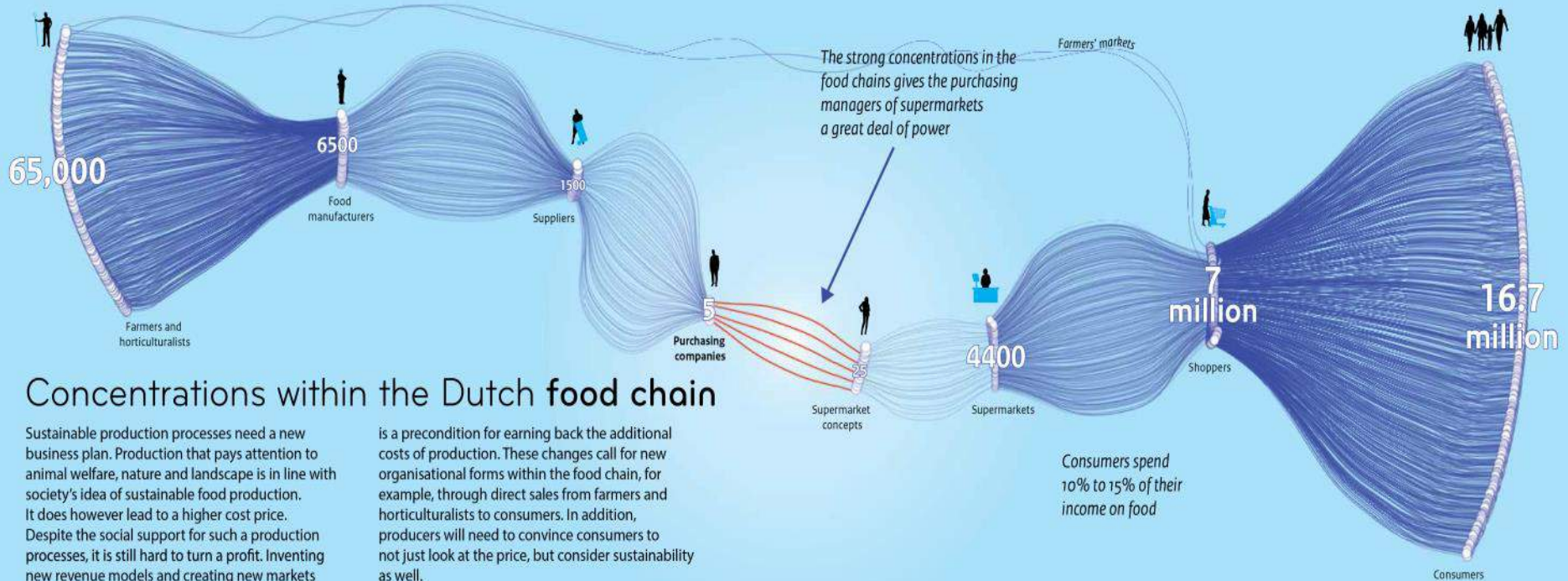
# CONSOLIDATION OF OFF-FARM ACTIVITIES



	Agricultural input industry	Farms	Food industry	Food retail	Consumers
Turn-over	US\$ 520 bln <b>4.6%</b>	US\$ 2,175 bln <b>19.3%</b>	US\$ 1,377 bln <b>12.2%</b>	US\$ 7,180 bln <b>63.8%</b>	
Top 10 market share	Animal feed: 16% Seeds: 75% Fertilizer: 55% Pesticides: 95%	450 million farms 85% < 2 ha.	Top 10: 28%	Top10: 10.5%	
Largest firms	CP Group (Thailand), Cargill (USA) Monsanto (USA), DuPont (USA), Syngenta (Switzerland), Bayer (Germany), BASF (Germany)		Nestle (Switzerland), PepsiCo (USA), Kraft (USA), ABInBev (Brazil), ADM (USA)	Walmart (USA), Carrefour (France), Schwartz Group (Germany), Tesco (UK), Aldi (Germany)	



# CONCENTRATION OF POWER IN THE WESTERN-TYPE FOOD CHAIN



## Concentrations within the Dutch food chain

Sustainable production processes need a new business plan. Production that pays attention to animal welfare, nature and landscape is in line with society's idea of sustainable food production. It does however lead to a higher cost price. Despite the social support for such a production processes, it is still hard to turn a profit. Inventing new revenue models and creating new markets

is a precondition for earning back the additional costs of production. These changes call for new organisational forms within the food chain, for example, through direct sales from farmers and horticulturalists to consumers. In addition, producers will need to convince consumers to not just look at the price, but consider sustainability as well.

Consumers spend 10% to 15% of their income on food





# CRITICAL SHIFTS TOWARDS RESOURCE-SMART FOOD SYSTEMS

- 1. Reduce food loss and waste.**
- 2. Reorient away from resource-intensive products** such as meat, ‘empty calories’ and ultra-processed food; and **rethink the ‘food environment’** (the physical and social surroundings that influence what people eat, especially relevant in urban areas) to facilitate consumers adopting more healthy and sustainable diets.
- 3. Reframe thinking by promoting ‘resource-smart food systems’** in which ‘Climate-Smart Agriculture’ (CSA) plays one part, and search for linkages to new dominant **values such as ‘wellbeing’ and ‘health’**.
- 4. Reconnect rural and urban**, especially in developing regions, where urban actors (e.g. supermarkets) could invest in regional supply chains and improve the position of smallholders.



# CRITICAL SHIFTS TOWARDS RESOURCE-SMART FOOD SYSTEMS

5. **Revalue the pricing of environmental externalities, reinforce legislation** to prevent pollution and other forms of environmental degradation and **remove subsidies** that provide disincentives for better resource efficiency.
6. **Reconnect urban consumers with how their food is produced** and how it reaches their plates, and **inform them** about both the **health and environmental consequences of dietary choices, protect peri-urban zones** around cities and use them for local food production.
7. **Research the current functioning of the local, national or regional food systems** and their impact on national resources.
8. **Reconnect mineral flows between urban areas and rural areas, as well as between crop and livestock production.**





# CRITICAL SHIFTS TOWARDS RESOURCE-SMART FOOD SYSTEMS



9. **Reform policies on land and water rights, develop and implement policies at all levels of governments** (multilateral, national and local) to enable better resource management and **encourage synergistic 'adaptive governance'** by the wide range of non-state actors (i.e. businesses and civil society) within the food system.
10. **Reinvigorate investment in rural infrastructure, education, training, technology, knowledge transfer and payments of environmental services.**
11. **Research and innovate**, to decouple food production from resource use and environmental impacts, and to replace certain inputs (such as pesticides) with ecosystem services.
12. **Rebuild feedback loops by functional and informative monitoring and reporting**, at various levels, such as countries, cities and companies.

# FUTURE CAP REFORM

## SOME INITIAL THOUGHTS

- **Sustainability of the food system** is not responsibility limited to the agriculture. It can only be reached if all actors in the food chain are playing active role. It can only be reached if we integrate various policies and search for solutions beyond the agricultural remit.
- **Agricultural and environmental community**: the trust has been broken and needs to be re-established. The interest of both sides should be the same - sustainable agriculture. Strong partnership (honest!) Is needed to realize the goals of both communities!
- Strategic choice to be done: adjustment within the **current structure or restructuring of the cap to a more integrated policy**? Is this choice real or just theoretical? Can the problems be addressed with adaptation of the current policy, would the public be willing to accept that?
- Strong pressure to **downscale the level of EU budget funding** will likely exist.

# FUTURE CAP REFORM

## SOME INITIAL THOUGHTS

- Agriculture community should **recognise the seriousness of the problems** and **actively engage in necessary transition**. Environmental community should recognise farmers as **partners for change**.
- Farmers were in the past **acting in good faith**. They need and deserve **public support for transition**. Recognition of the need for transition would **enable the necessity for financial support** in the future.
- Part of the funding could be devoted to the **public support for transition** (temporary funding support), while the bulk of the support should go to **provision of the public goods** (permanent funding support).
- **CAP adoption process** needs to be re-thought in a way that the partnership among agricultural and environmental community would be strengthened.
- All policies should be **consistent with critical shifts towards resource-smart food system embedded in SDGs**.



**TO CONCLUDE ...**

**WE HAVE TO FIX A BROKEN  
COMPASS  
(PAVAN SUKHDEV)**

**NEW ECONOMIC MODEL BASED ON  
SUSTAINABLE CONSUMPTION AND  
PRODUCTION IS**

**NECESSARY AND  
UNAVOIDABLE**



**SCIENCE**





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# PEOPLE...

*who directly or indirectly manage our food systems are also the largest group of natural resource managers in the world and could become critical agents of change in the transformation of current consumption and production systems.*





# LOW CARBON RESOURCE EFFICIENT ECONOMY

CLIMATE

**DECARBONISATION**

LAND

WATER

**GHG**

MATERIALS

**DECOUPLING**

RESOURCES

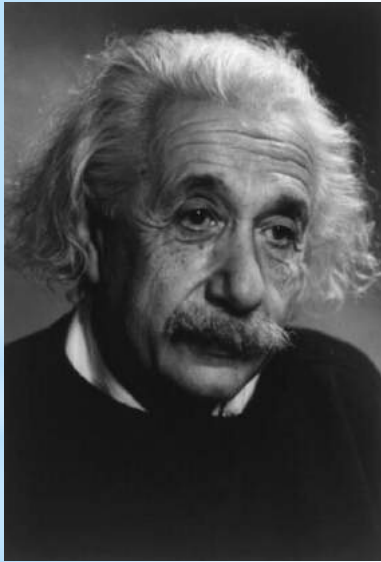
# 21<sup>st</sup> CENTURY



FROM **FRAGILITY** TO **SUSTAINABILITY**  
INCREASED **RESPONSIBILITY**

# ABOUT OUR TIME ...

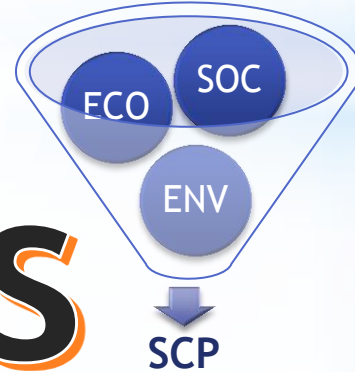
**ALBERT EINSTEIN**



**WE CAN NOT SOLVE OUR PROBLEMS WITH THE SAME THINKING WE USED WHEN WE HAVE CREATED THEM**

**INSANITY – DOING THE SAME THINGS OVER AND OVER AGAIN AND EXPECTING DIFFERENT RESULTS**

**SDGs**



**GIUSEPPE TOMASI DI LAMPEDUSA**



**EVERYTHING HAS TO CHANGE TO REMAIN THE SAME**



\***THANK YOU**