



From technology transfer to a network society

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Historical background

- Central Europe, Bulgaria
- Western Europe, old EU, Netherlands

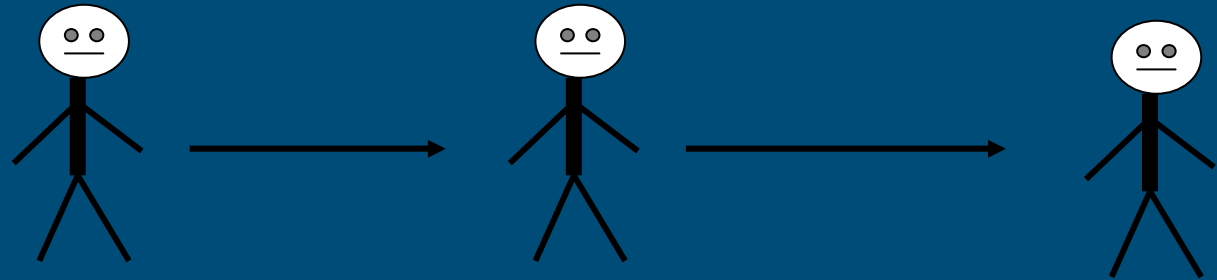


Agriculture Western Europe after 1945

- Objectives
 1. Food production
 2. (Basic) income, labour
- Coordination Mechanism
 1. Hierarchy,
 2. Market
- Methods
 - Technology Transfer
- Tools
 - Pesticides, fertilisers, mechanisation, varieties



Linear Model



Research

Extension, education

Farmer

A Technology Transfer System





Coordination mechanisms

	HIERARCHIE	MARKET
<i>Driving force</i>	Power	Rational choice
<i>Means</i>	Regulation Intervention	Supply/demand
<i>Enhanced by</i>	Strengthen intervention power	Liberalise market
<i>Pre condition</i>	Obedience	Driven by preferences

Courtesy: Niels Röhling



Adverse effects modern agriculture

- Agricultural treadmill
- Pollution
- Depletion, accumulation
- Decrease biodiversity and landscape
- Ending resources
- Climate change
(partly caused by agriculture)



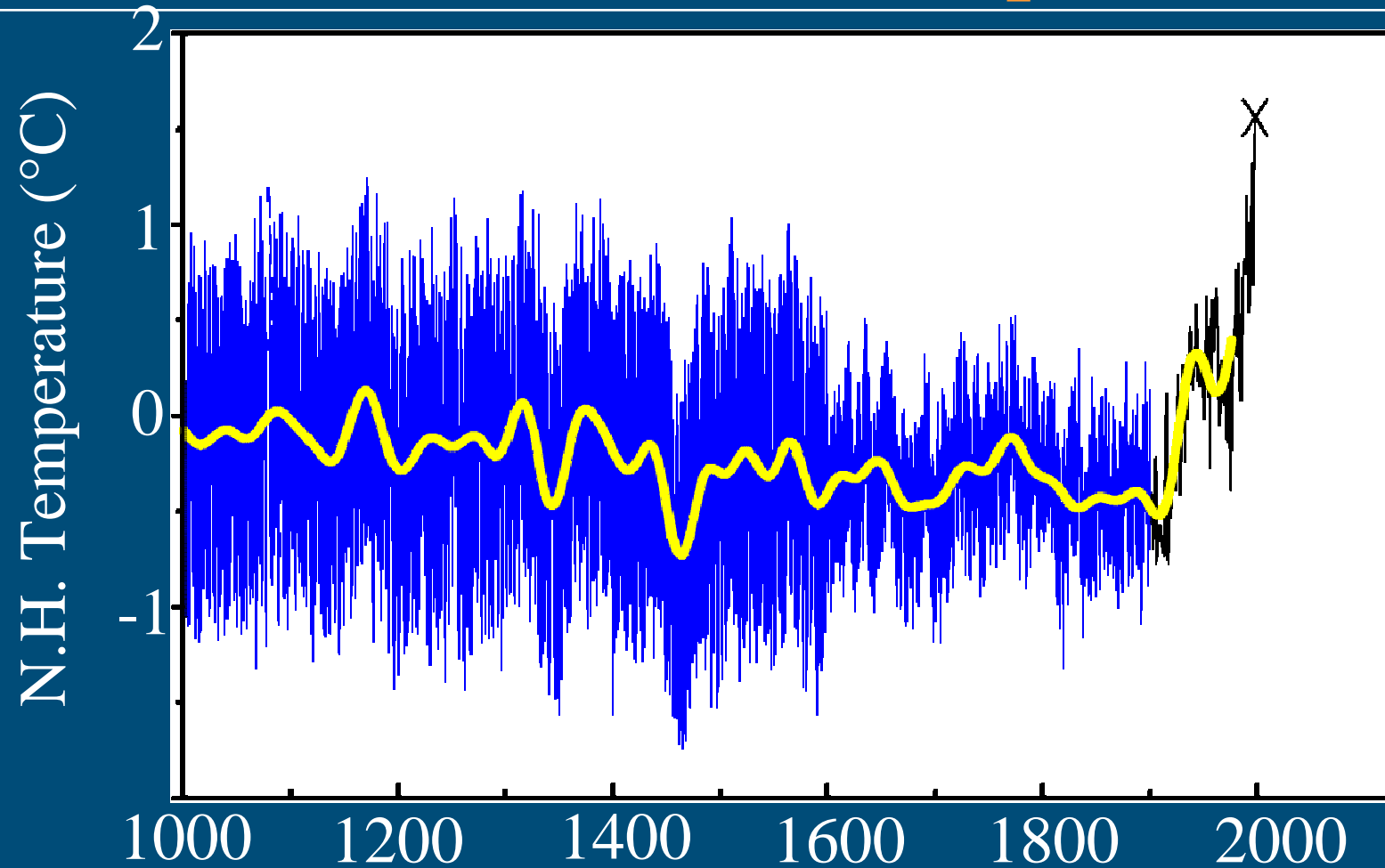


The Agricultural Treadmill (Cochrane)

- Many farms all produce the same product
- None can influence price so everybody produces as much as possible for the going price
- New technology gives innovators windfall profits
- After some time others follow
- Increase of production and efficiency and decrease of price
- Who hasn't yet adopted the new technology has to follow otherwise he loses income
- Who cannot follow will stop. Their resources are absorbed by the innovators, scale enlargement

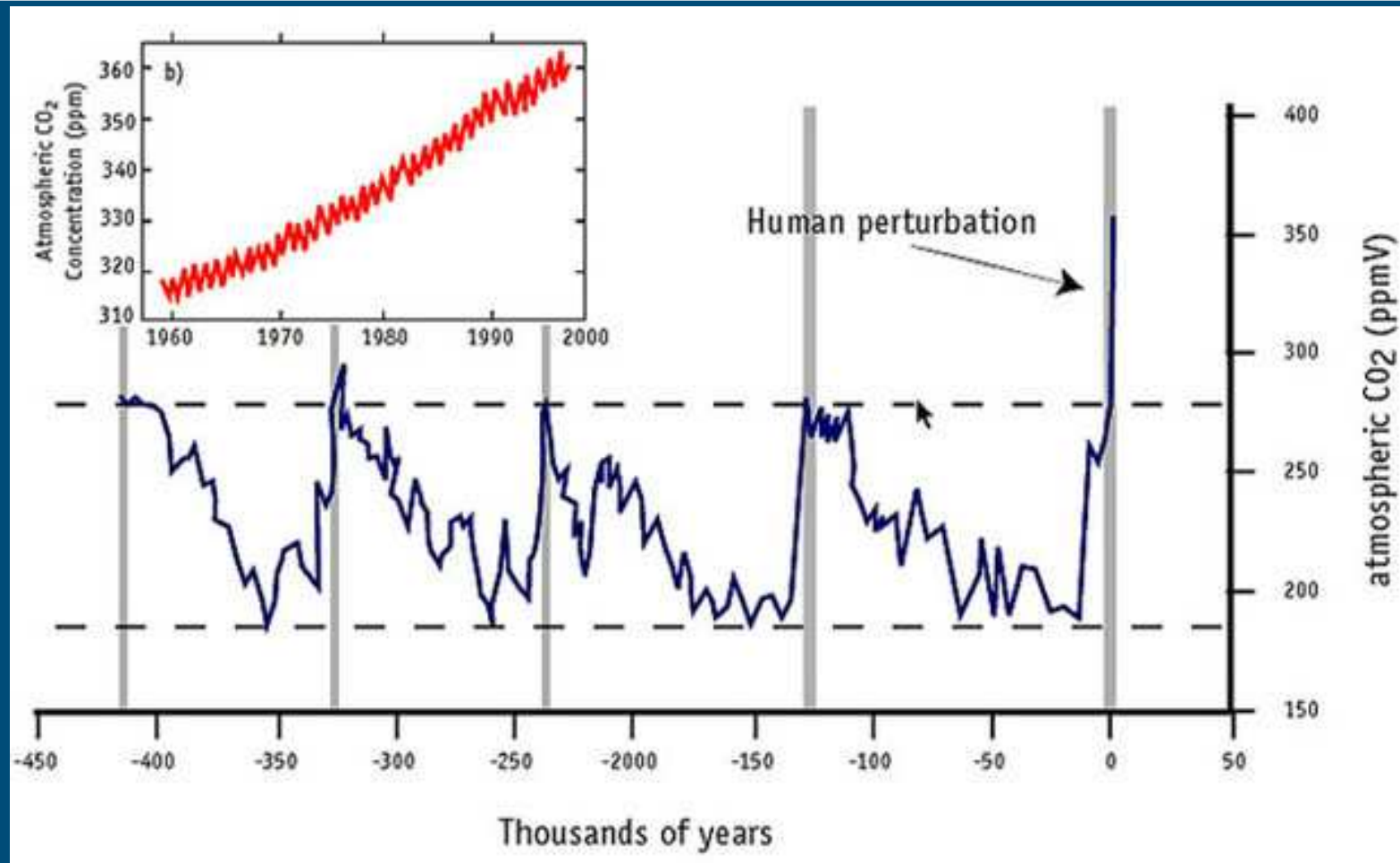


A Millennium Scale Perspective ...





The Carbon Cycle: An Earth System Perspective



Petit et al. 1999; Keeling and Whorf 2000



Something has got to change!



Multi-objective and Multi-functional Agriculture

- Objectives and functions
 - Food production, Income
 - Clean environment,
 - Biodiversity
 - Maintain/recycle scarce resources
 - CO₂ sequencing
 - Water storage
 - Energy production
 - Recreation, Tourism
 - Silence, darkness
 - Health Care
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Main search directions

- Integrated agriculture
 - Food production, income, environment, ending resources
- Organic agriculture
 - Food production, income, environment, ending resources, biodiversity, social justice, integrity



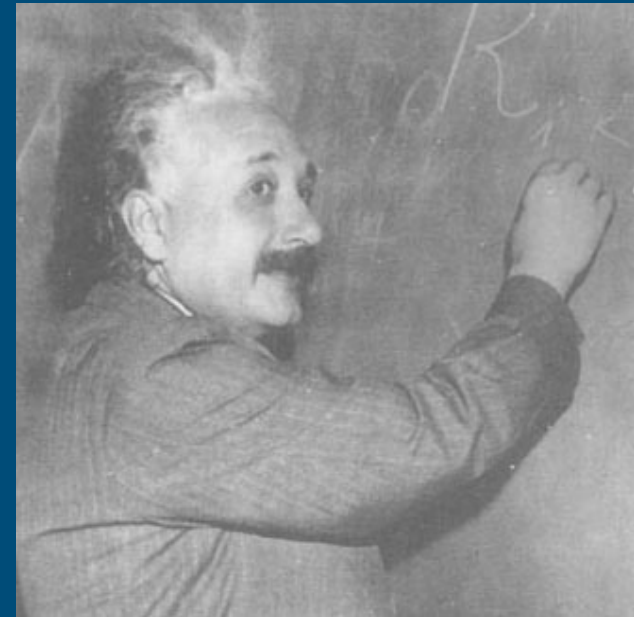
Conventional	Organic intentional
Uniformity	Diversity
Recipy	Concept
Reductionism	Holism
General	Situational
Control	Cooperation
Specialist	Universalist
Reaction	Precaution
Economy	Ecology
Global	Regional



But how can we escape from the treadmill??

We cannot solve nowadays problems with the same thinking that created those problems in the past !

(Einstein)





New coordination mechanisms (1)

- We deal with production, consumption, and everything in between
- Not only productivity, but also ecology, employment, social justice,
- Stakeholders not only farmers but also consumers, transporters, retail, environmental organisations, policy makers, etc.



New coordination mechanisms (2)

	HIERARCHIE	MARKET	NETWORK
<i>Driving force</i>	Power	Rational choice	Agreement
<i>Means</i>	Regulation Intervention	Supply/demand	Collective action
<i>Enhanced by</i>	Strengthen intervention power	Liberalise market	Facilitate Participate
<i>Pre condition</i>	Obedience	Driven by preferences	Inter-dependance

Courtesy: Niels Röhling



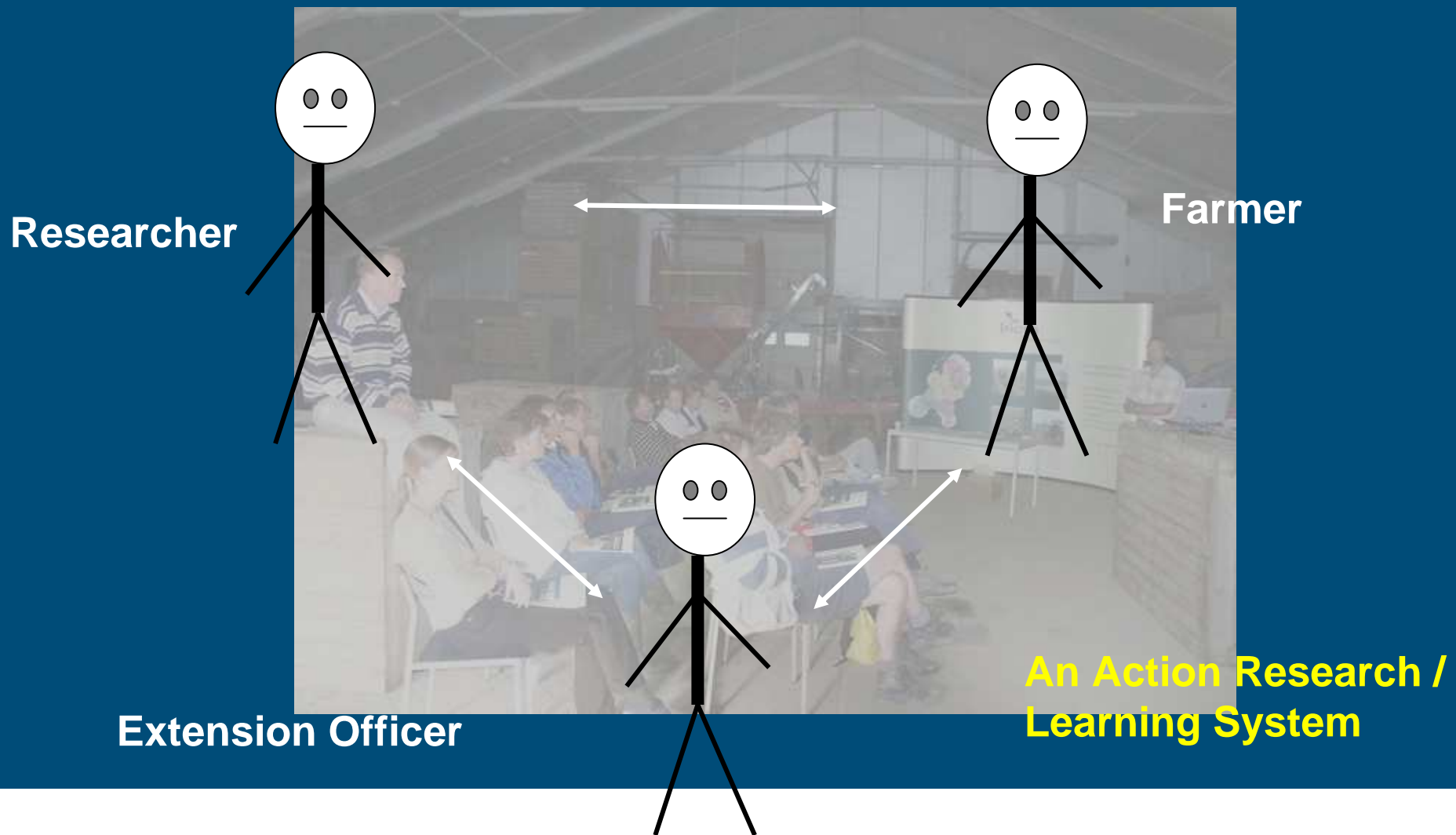
Networks

- The potential added value of a network is in the synergy through diversity
- Innovation comes forth from the interaction between the stakeholders in the network
- Therefore success is dependant of investing and managing of interaction





Participatory Approach





Conclusions

- From agriculture to ecological services
- Hierarchy and Market are not providing the currently desired functions of agriculture
- Also Organic agriculture cannot make true its intentions under the 'old' coordination mechanisms
- Escape from the treadmill needs a different coordination mechanism
- New coalitions, partnerships and forms of cooperation have to be developed



Challenges

How can we defeat the negative aspects of our historical background?

- Gain and earn trust (towards each other, towards authorities and institutions)
- Awareness: Knowledge is power, sharing knowledge is gaining new knowledge
- Stimulation and support of cooperation





Thank you for your attention



Questions?

