Agricultural systems by design

8th International Farming System Design Conference

Palaiseau – 25-29 August 2025

AgroParisTech

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ideas INITIATIVE FOR DESIGN IN AGRIFOOD SYSTEMS

Agricultural systems by design

Key-Note

Accelerating the transition: a multi-scale approach

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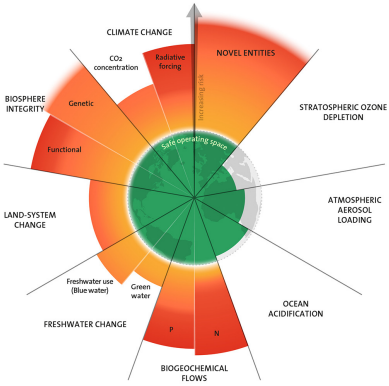
The rythms of food systems

The tango of urgency and status quo



The rythms of food systems

- Structural constraints
  - It takes a generation to redesign a farm
  - The seven year cycle of Common Agricultural Policy
  - Twenty years to get rid of most of the neonicotinoids in EU

- An ambiguous socio-technical landscape
  - If we consider the challenges, we are too slow
  - If we consider acceptability by most of the society, we are too quick

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- But ..
  - Farm2Fork was killed in two weeks
  - French agriculture was back to 2011 in several months
  - World trade paradigm is upside down in six months

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First challenge
Balancing impact and consensus

Defining impact

The carbon dictatorship

Conflicts between biodiversity and carbon sequestration programs: economic and legal implications

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[b] *Environmental Law Research Centre (ELRC), Institut für Offentliches Recht, Johann Wolfgang Goethe-Universität, Seckenberganlage 31, Postfach 11 19 32, 60054 Frankfurt am Main, Germany*

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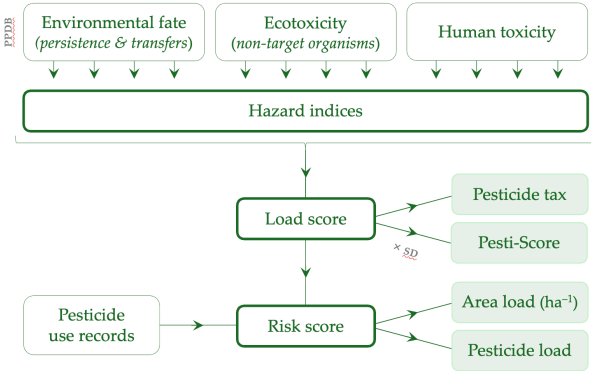
Monitoring impact

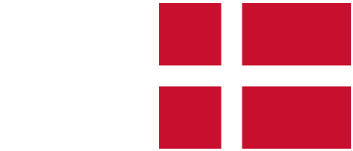
Transition is highly dependent on indicators

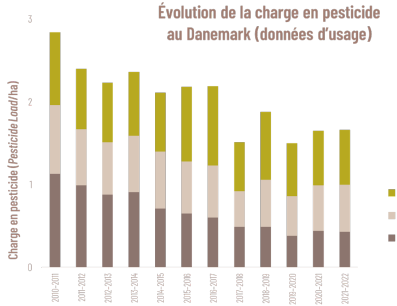
A first step to impede transition is no indicator or irrelevant indicator

The pesticide reduction policy is a good illustration of this challenge

The Pesticide load index

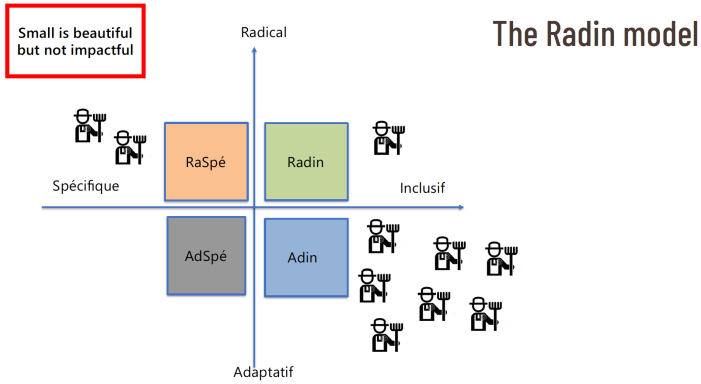






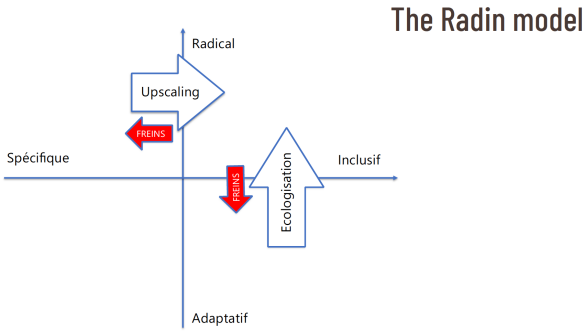
2013-2023 : - 40 %

Defining ambition



The Radin model

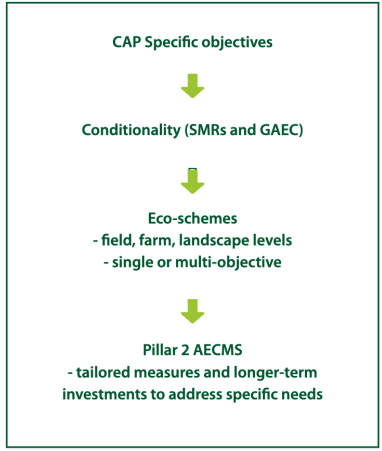
A double movement



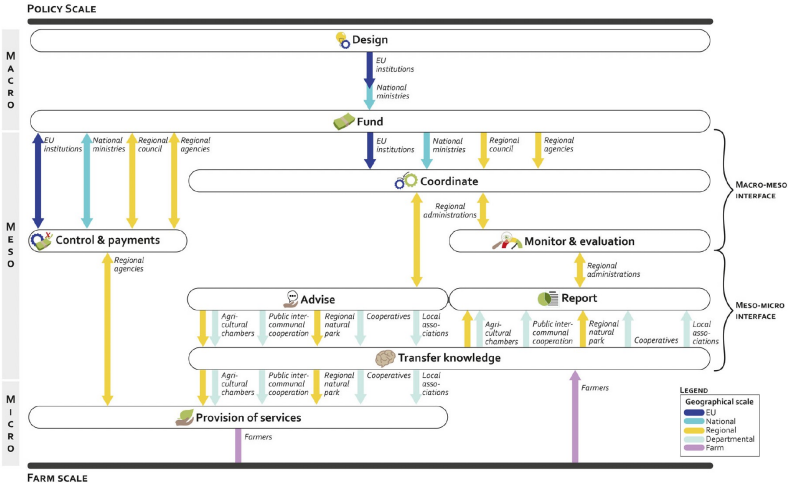
Second challenge
Interfacing micro and meso level

Agricultural systems by design

Agri-environmental measure is a key component of green architecture



AECM gouvernance is multiscale



Barriers to the AECM implementation are numerous

Ambio

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Barriers to the AECM are mainly at macro/meso level

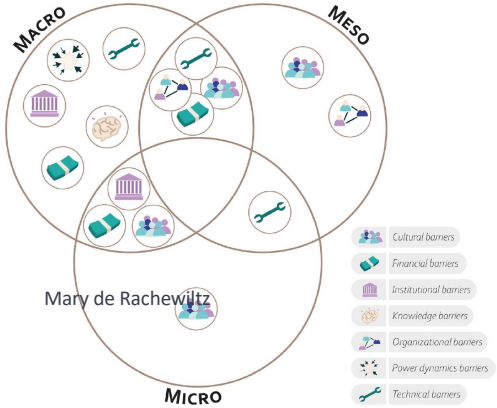


Fig. 6 Barriers from a multilevel governance perspective, categories of barriers present per governance level in Hauts-de-France

A governance perspective on agri-environmental schemes: Actors, roles, and barriers

Taking into account the upper levels

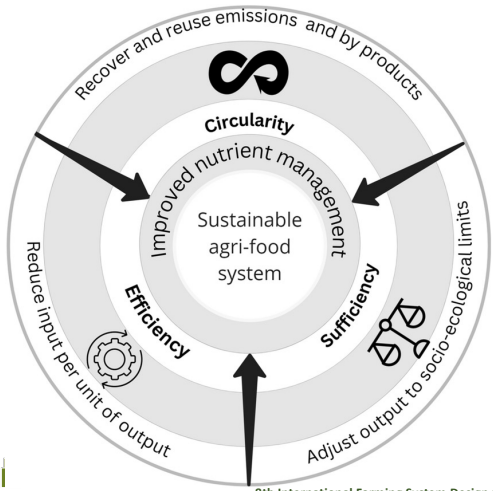
- Most of the studies on adoption of practices are focus on farmers
- Most of the policies failures are asigned to lack of farmer's commitment

- More attention to the interfaces are required
  - In terms of actors
  - In terms of topics
  - In terms of processes

Protein transition

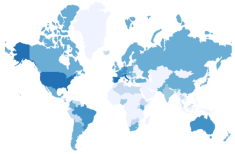
The objective of protein transition is to diminish impacts of livestock

From more with less to less is more


Recover and reuse emissions and by products
Circularity
Improved nutrient management
Sustainable agri-food system
Efficiency
Sufficiency
Reduce input per unit of output
Adjust output to socio-ecological limits


MANIFESTO
A RESILIENT AND RESOURCE-WISE EUROPE:
SUFFICIENCY AT THE HEART OF THE EU'S FUTURE
MARCH 2024

The Dublin declaration



Livestock systems must progress on the basis of the highest scientific standards.

They are too precious to society to become the victim of simplification, reductionism or zealotry.

These systems must continue to be embedded in and have broad approval of society.

For that, scientists are asked to provide reliable evidence of their nutrition and health benefits, environmental sustainability, socio-cultural and economic values, as well as for solutions for the many improvements that are needed.

This declaration aims to give voice to the many scientists around the world who research diligently, honestly and successfully in the various disciplines in order to achieve a balanced view of the future of animal agriculture.

Comment

https://doi.org/10.1038/s43016-024-01054-2

The Dublin Declaration fails to recognize the need to reduce industrial animal agriculture

Chris Bryant, Harry Aiking, Roberta Alessandrini, Paul Behrens, Felix Creutzig, Gidon Eshel, Rosemary Green, Nicholas Hutchings, Adrian Leip, Ron Milo, Pete Smit Hannah van Zanten

The framework presented in the Dublin Declaration has generated controversy by advocating for maintaining or increasing livestock numbers. The serious and acute harms associated with global livestock production today bring the goals of the declaration into dispute.

animal products are essential to
is true that animal-sourced food
dietary needs vary across the hu
are not always necessary for good
ents can be obtained from plants,
with a lower environmental impa
health drawbacks of animal prod

The argument that increase
nutrition in low-income countri
access to animal products in th
production. However, the world a

The Dublin Declaration: Gain for the Meat Industry, Loss for Science

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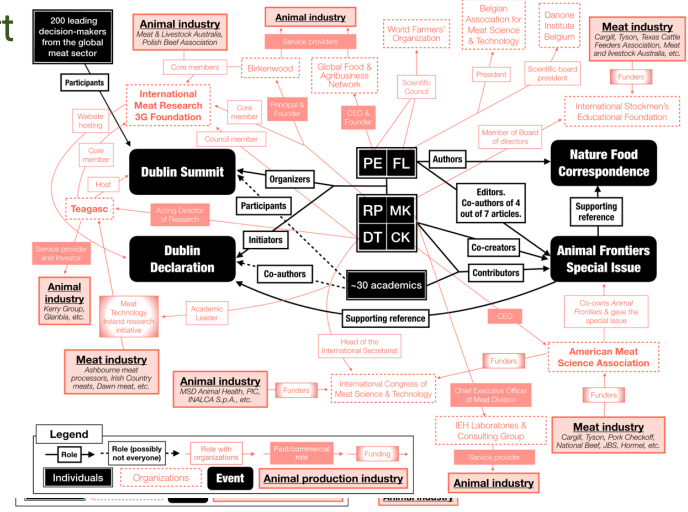
ARTICLE INFO

ABSTRACT

The DD declaration is unscientific despite the support



Overlooking the interface

Knowledge issue

Most of the micro-level specialists (plot and farm levels) lack of knowledge about the meso level dynamics

Justification issue

Justification on some local and specific research is assigned to loosely characterized issues

Lobbies issues

Use by lobbies of specific nice results to justify irrelevant (ugly) policies

A way forward ?

An issue of coexistence

The future of agri-food systems is not a battle between the good, the bad and the ugly

Agri-food systems are made of coexisting models

The future of food systems implies

- deciding the share of each model
- organising the coexistence

All scientists are policy makers

Science is never neutral

- Contribution to specific models
- Competition for ressources

How to understand impacts and contribute to transition ?

- Ask the question
- Work together
- Be part of the societal debate

A learning process

Environ. Res. Lett. **20** (2025) 084042 https://doi.org/10.1088/1748-9326/ade86f

ENVIRONMENTAL RESEARCH
LETTERS

LETTER

A restatement of the protein transition

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Keywords: protein transition, narratives, sustainability, animal production, dietary changes, food systems transformation, interdisciplinarity

Supplementary material for this article is available online

9 authors
176 pages
68 statements
552 references

A disaster is not the sudden occurrence of the unexpected, but rather the continuation of the worst possible scenario when no one can find a way to prevent it.

Patrick Boucheron, Le temps qui reste

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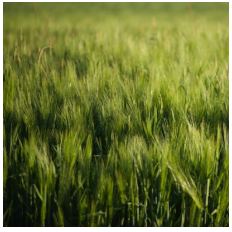


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transition of food systems

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