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## ► To cite this version:

Laurence Amblard, Carsten Mann. Understanding the achievement of EU water policy objectives in agricultural landscapes: insights from the Institutional Design Principles and Integrated Landscape Management approaches.. IASC Water Commons Virtual Conference, May 2021, Clermont-Ferrand, France. hal-03421602

**HAL Id: hal-03421602**

**<https://hal.inrae.fr/hal-03421602>**

Submitted on 9 Nov 2021

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Understanding the achievement of EU water policy objectives in agricultural landscapes : insights from the Institutional Design Principles and Integrated Landscape Management approaches

Laurence Amblard & Carsten Mann

**IASC 2021 Water Commons Virtual Conference**

May 19<sup>th</sup>-21<sup>th</sup> , 2021

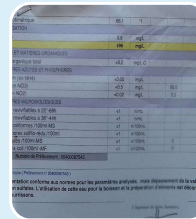
# Introduction

- Diffuse pollution from agriculture (nitrates, pesticides)
  - A major threat to the quality of surface and ground waters in the European Union and French contexts
  - Multiple environmental, economic and social impacts



## Impact on ecosystems and biodiversity

- Eutrophication



## Human health risk

- Regulatory standards for nitrate and pesticide rates (EU Drinking Water Directive)



## Extra-costs of drinking water production

- Water treatments, resource substitution/blending



# Introduction

- EU Water Framework Directive (WFD) (2000)

- Objective of good status for all water bodies in Europe
- Protection of water bodies used for drinking water production

- “Grenelle” policy in France (2009)

- Identification of 1000 priority water catchments
- Definition and implementation of action programs targeting diffuse pollution
  - Cooperation between water suppliers and agricultural stakeholders (farm organizations, farmers)



# Introduction

- “Grenelle” policy in France (2009)
  - Only half of the priority catchments covered by an action program in 2019 (MTE, 2020)
  - No significant improvement in water quality

What are the drivers and barriers to collective action for the achievement of EU water policy objectives in agricultural landscapes ?

# Conceptual framework

- Institutional Design Principles (IDP) (Ostrom, 1990; Cox et al., 2010)
  - Shared commonalities of enduring governance systems for collective action involving users of common-pool resources

1A • Clearly defined boundaries - resource system

1B • Clearly defined boundaries - users

2A • Congruence between rules and local conditions

2B • Proportional equivalence of benefits and costs

3 • Collective-choice arrangements

4A • Monitoring users

4B • Monitoring the resource

5 • Graduated sanctions

6 • Conflict-resolution mechanisms

7 • Minimal recognition of rights to organize

8 • Nested enterprises

# Conceptual framework

- Integrated Landscape Management (ILM) principles (Sayer et al., 2013; Mann et al., 2018)
  - Characteristics of management approaches leading to policy solutions to land-use conflicts at the landscape level

1

- Common landscape concern/problem understanding

2

- Multiple land-use objectives

3

- Multiple stakeholders (private/public; sectors)

4

- Multiple scales

5

- Transparency

6

- Clarity of rights and responsibilities assigned to the process

7

- Occurrence of adaptive management and learning

8

- Participatory monitoring and capacity-building activities



# Conceptual framework

- Integrated Landscape Management (ILM) principles

- No identification of conditions for the success of cooperation
- The recognition of the multiple and conflicting values and interests regarding land use/natural resource management

- Institutional Design Principles (IDP)

- The characteristics of governance systems leading to successful collective action
- Initially developed in the case of homogeneous groups of users holding similar values/interests





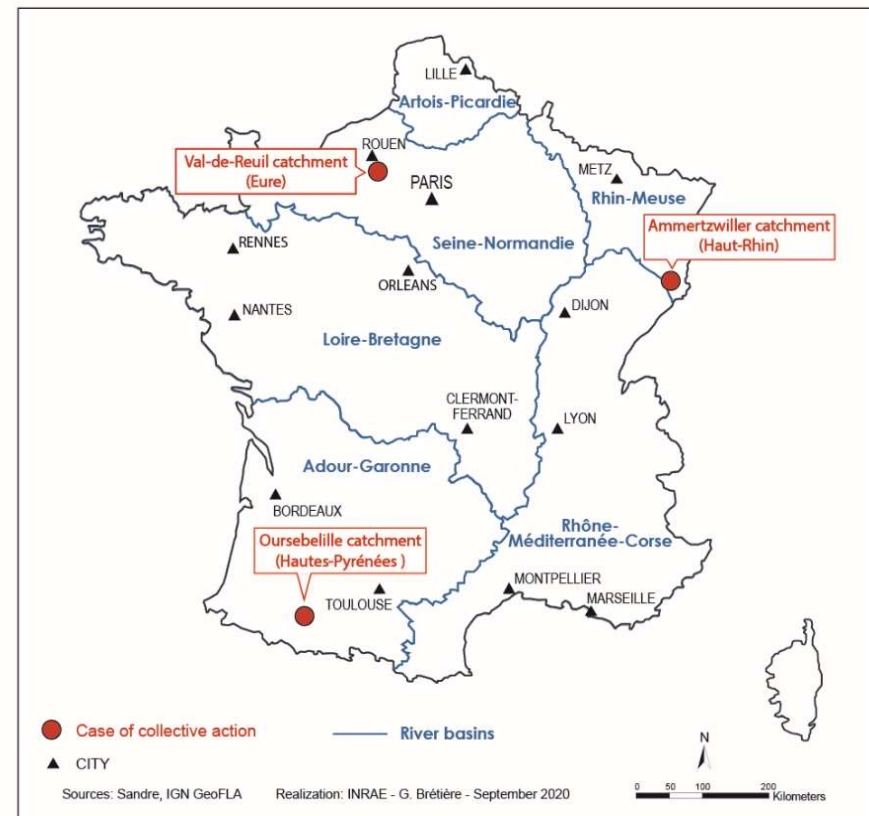


# Conceptual framework

- 1 • Common landscape concern/problem understanding
- 2 • Clearly defined boundaries (resource/users)
- 3 • Multiple land-use objectives
- 4 • Multiple stakeholders (private/public; sectors)
- 5 • Multiple scales/nested enterprises
- 6 • Collective-choice arrangements/transparency
- 7 • Clarity of rights and responsibilities assigned to the process
- 8 • Congruence between rules and local conditions
- 9 • Proportional equivalence of benefits and costs
- 10 • Occurrence of adaptive management and learning/monitoring the resource
- 11 • Participatory monitoring and capacity-building activities/monitoring users
- 12 • Graduated sanctions
- 13 • Conflict-resolution mechanisms
- 14 • Recognition of rights to organize

# Methodology

- A comparative case analysis
  - Three cases of collective action for drinking water catchment protection
- Data collection
  - Semi-structured interviews with local stakeholders involved in cooperation (18)
    - Water suppliers, farm organizations, public agencies, farmers
  - Review of documentary analysis



# Methodology

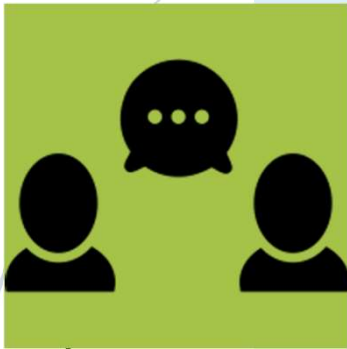
	<b>Ammertzviller</b>	<b>Oursbellile</b>	<b>Val de Reuil</b>
<b>Water resource</b>			
Type of pollution	Nitrates/pesticides	Nitrates	-
Level of contamination	High	High	Good water quality
<b>Agriculture</b>			
Catchment area	363 ha	396 ha	127 ha
Agricultural area	64,5 %	82 %	86,6 %
Number of farms	30	19	7
Farming systems	Field crops	Field crops	Field crops
Arable crops (% agricultural area)	Corn: 59% Cereals: 35%	Corn: 88% Cereals: 21%	Cereals: 91%
Grassland (% agricultural area)	6%	3%	9%

# Methodology

	<b>Ammertzviller</b>	<b>Oursbellile</b>	<b>Val de Reuil</b>
<b>Governance</b>			
Main stakeholders involved	Public water supplier- Agricultural Chamber- Farmers	Public/private water suppliers – Agricultural Chamber-Regional Development Agency	Metropolitan water service department – Organic farming associations - Farmers
Operational rules (contracts)	EU AES Supply contracts	EU AES	Environmental land leases
Measures	Reduction in input use Low-input energy crop	Reduction in input use	Organic farming
<b>Outcomes</b>			
Farm participation	16/30	7/19	4/7
Area covered	34 %	18 %	87 %
Water quality trend	Improvement	No improvement	Maintenance of good quality

# Results

- Common landscape concern/problem understanding



- In two cases, different perceptions of stakeholders (water suppliers vs. farmers) regarding the water quality problem

- Oursbellile : agricultural versus non-agricultural source of pollution
- Val-de-Reuil : the maintenance of good water quality as an issue

- Clearly defined boundaries



- Uncertainty regarding the boundaries of the drinking water catchment (Oursbellile)

- Low predictability of resource dynamics/lack of knowledge

# Results

- Multiple land-use objectives

- In all cases, integration of multiple land-use objectives

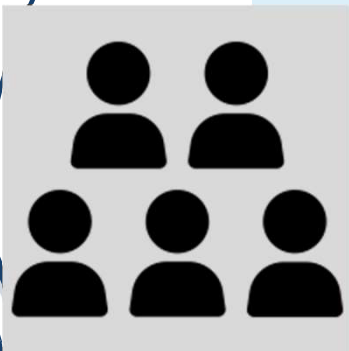
- Maintenance of agricultural incomes (Oursbellile)
- Development of sustainable energy production (Ammertzwiller)
- Creation of local food supply chains (Val-de-Reuil)



- Multiple stakeholders/scales

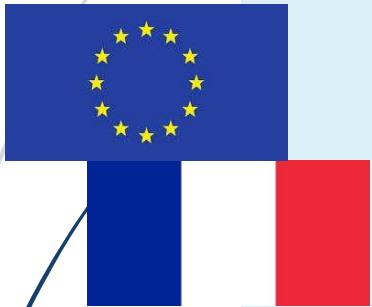
- In all cases, involvement of public/private actors from different sectors at different scales (local, departmental, regional, water basin)

- Trade-off resource pooling/transaction costs



# Results

- Recognition of rights to organize
  - Autonomy of local stakeholders
    - EU agri-environmental policy tools and their implementation in France
      - ✓ Measures and financial compensations pre-defined at the national and regional levels
    - Impact on proportional equivalence between benefits and costs/congruence between rules and local conditions



# Results

- Collective-choice arrangements/transparency

- A positive effect of farmers' participation to the decision-making process

## Clarity of rights and responsibilities

- The role of the formal basis of cooperation (Ammertzwiler, Oursbellile versus Val-de-Reuil)

- Conflict-resolution mechanisms

- Collective-choice forums (steering committees) (Oursbellile)
- Trust/social capital (Ammertzwiler)





# Results

- Occurrence of adaptive management/monitoring the resource
  - The adaptation of actions/long-term involvement of farmers

## Participatory monitoring-capacity building activities/monitoring the users

- Technical advice and follow up of farming practices
- Formal monitoring/sanctioning systems (EU AES; organic label)





# Conclusion

- ILM/IDP as a frame for understanding collective action for drinking water management in agricultural landscapes
- Interdependency of principles in their effect on collective action
- Effect of principles contingent upon other variables
  - The characteristics of the water resource (predictability of the resource dynamics)
  - Actors (perception of the problem, knowledge, trust and social capital)
  - Policy context (EU and French rural development policy)



# Conclusion

- The factors influencing the implementation of EU water policy at the landscape level

- Interactions between variables at the local, national and EU levels
- Role played by the materiality and the representations of ecosystems
- Hybrid modes of governance combining regulatory and participatory instruments

# Thanks for your attention



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This work was supported by the  
Office Français de la Biodiversité  
(OFB)

