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DEVELOPMENT AND APPLICATION OF NEW METHODOLOGICAL FRAMEWORKS FOR THE EVALUATION OF ENVIRONMENTAL IMPACTS OF RURAL DEVELOPMENT PROGRAMMES IN THE EU

Key aspects and evaluation challanges of the case studies

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Structure of the presentation

- Introduction explaining approach used to develop draft case studies
- Results of the case study area selection and shortlist of key policy measures
- Expected results of case studies
- Overview of evaluation challenges and innovative aspects of case studies by public good
- Synthesis of case study design

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Case study area selection I. – the process

RDP measures

- The total set of rural development measures

Key policy measures

- Activity: Selection of key policy measures based on experts opinion and discussion with SRGs
- Result: List of relevant measures for public goods under consideration

Shortlist of measures

- Activity: Validation of key policy measures based on regional relevance (measure focus, uptake, etc) and expected environmental impact
- Result: List of regionally relevant measures having potential environmental impacts

Spatial focus

- Activity: Evaluation of main attributes for spatial focusing: coverage of contracted areas; data availabilty; data needs of counterfactuals; requirements of the micro- and macro level methods
- **Results: Case study areas selected**

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Case study area selection II. – The results

Public good	Country	Case study areas	Shortlist of key policy measures
Animal welfare	Germany	North-Rhine Westphalia	121, 215
Biodiversity HNV	Lithuania	Lithuania (whole country)	213, 214, 222, 224
	Italy	Veneto Region	211, 212, 214, 216
Biodiversity Wildlife	Hungary	Heves-plain	212, 213, 214, 216,
	Lithuania	Šilutė region	212, 213, 214, 221, 223, 224, 225, 226, 227
Climate stability	Finland	Finland (whole country)	211, 212, 214
	Italy	Veneto Region	214, 216, 221
Landscape	Greece	Island of Santorini	214, landscape specific measure (vineyards)
	Scotland	Aberdeenshire	212, 214, 221
Soil functionality	Hungary	Hungary	212, 213, 214
	Scotland	Aberdeenshire	212, 214, 221
Water quality	Finland	Southern Finland	211, 212, 214,
	Germany	Lower Saxony	114, 121, 214, 323
	Greece	Thessaly	214

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Case study area selection III. – Lessons learned

- Area-based rural development measures expected to have the highest environmental impacts (investment measures play a significant role in water, soil and climate issues)

- Data availibilty gaps are expected regarding descriptive environmental data
  - ➢ degree and representativeness are not detailed enough for counterfactual development
  - ➢ ongoing environmental monitoring programmes not linked to RD implementation

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Expected results of case studies

1. Develop methodologies for evaluation of impacts of RD measures for the selected public goods in different environmental circumstances.
2. Test methodologies around different data circumstances.
3. Develop modelling methodologies for filling the data gaps.
4. Highlight the added value of the counterfactual development.
5. Provide guidelines for further evaluation planning (dissemination potential/pilot value).
6. Validate cost-effectiveness evaluations.

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Evaluation challenges and innovative aspects – Climate stability

Public good: Climate stability

Case study areas: Finland + Italy (Veneto region)

Indicators: GHG emissions, CO_2 equivalent measures

Evaluation challenges:

- Robust counterfactual in the case of long-term and large-scale uptake of policy measures (nearly no non-participants)
- Consideration of substitution effects during the evaluation

Innovative aspects – counterfactual development:

- Regression discontinuity design (RD) and pipeline methods (PM)
- Long run evaluation options without control groups – general equilibrium model

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Evaluation challenges and innovative aspects – Biodiversity - HNV

Public good: Biodiversity - HNV

Case study areas: Italy (Veneto Region) + Lithuania

Indicators: % of UAA, cropping patterns, share of specialised and mixed farm types

Evaluation challenges:

- a better clarification of the definition of HNV farmland, taking into account data availability
- finding a method contributing to the assessment of net impacts in case of the lack of before and after comparison groups
- establishment of consistent micro-macro linkages in evaluation results

Innovative aspects:

- Innovative methodologies and additional indicators tested:
  - → Landscape metrics
  - → Spatial analysis
  - → Composite Index

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Evaluation challenges and innovative aspects – Biodiversity - Wildlife

Public good: Biodiversity - Wildlife

Case study areas: Hungary + Lithuania

Indicators: Farmland Bird Index, Key Butterfly Index (?), additional (species specific) indicators (corncrake density changes)

Evaluation challenges:

- Establishment of robust causal linkages at micro level
- Establishment of consistent micro-macro linkages in evaluation results

- **Innovative aspects:**

- Good availability of specific biodiversity data in both countries
- Establishment of a feasible evaluation model for a widely used indicator (FBI)

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Evaluation challenges and innovative aspects – Water quality

Public good: Water quality

Case study areas: Finland + Germany (Lower Saxony) + Greece

Indicators: Gross Nitrogen Balance, N run-off

Evaluation challenges:

- Robust counterfactual in the case of long-term and large-scale uptake of policy measures (nearly no non-participants Finland);
- Establishment of consistent micro-macro linkages in evaluation results

Innovative aspects:

- Testing of an alternative, non-CMEF impact indicator and the quantitative assessment of water quality impacts of advisory measures
- Combination of structural and biophysical models at micro level
- Suitability and robustness of the selected approaches will be tested under different data availabilities

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Evaluation challenges and innovative aspects – Soil functionality

Public good: Soil functionality

Case study areas: Hungary + Scotland (Aberdeenshire)

Indicators: Soil carbon, soil erosion, decrease of soil biodiversity, optional additional indicators (Physical compaction, Nitrate accumulation, Secondary salinization, Decrease of SOM),

Evaluation challenges:

- Establishment of robust causal linkages at micro level
- Establishment of consistent micro-macro linkages in evaluation results

Innovative aspects:

- Good availability of specific soil monitoring data in Hungary

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Evaluation challenges and innovative aspects – Landscape

Public good: Landscape
Case study areas: Greece (Santorini) + Scotland
Indicators: Land use change, Patchiness, Visual amenity, alternative indicators (changes of stone terraces)

Evaluation challenges:

- Lack of suitable impact indicators
- Implementation of robust counterfactual design at micro and macro level,

Innovative aspects:

- Use of innovative methodologies (multifunctional hotspots, landscape metrics, footprinting, spatial analysis with geo-statistical approach)

- Contribution to the consideration of diverse place-specific environmental characteristics in the impact assessment

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Evaluation challenges and innovative aspects – Animal welfare

Public good: Animal welfare

Case study areas: Germany

Indicators: Problem-oriented and resource-based indicators, Animal welfare index

Evaluation challenges:

- Establishment of robust causal linkages at micro level
- Integration of all relevant measures in the macro-level assessment and consideration of deadweight effects

Innovative aspects:

- Micro-level method development: Multivariate analysis of causal linkages between changes in problem-oriented and resource-based animal welfare indicators and policy measures
- Multi-criteria methods to assess multiple measures at macro level

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Synthesis of the case study design – I.

Evaluation challenges:

- Robust counterfactual in the case of long-term and large-scale uptake of policy measures (nearly no non-participants) (CS, WQ)
- Consideration of substitution effects (CS)
- Establishment of robust causal linkages at micro level (in nearly all cases)
- Establishment of consistent micro-macro linkages in evaluation results (in nearly all cases)
- Integration of all relevant measures in the macro-level assessment and consideration of deadweight effects (AW)

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Synthesis of the case study design – II.

Innovative aspects:

- Regression discontinuity design (RD) and pipeline methods (PM)

  → Climate stability

- Long run evaluation options without control groups – general equilibrium model

  → Climate stability

- Innovative methodologies tested: Landscape metrics, Spatial analysis, Composite Index

  → High Nature Value Areas

- Use of innovative methodologies at micro level (multifunctional hotspots, landscape metrics, footprinting)

  → Landscape

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Synthesis of the case study design – III.

Innovative aspects:

- Assessment of combined measures including advisory services and combination of structural and bio-physical models at micro level
  → Water quality

- Micro-level method development: Multivariate analysis of causal linkages between changes in problem-oriented and resource-based animal welfare indicators and policy measures
  → Animal welfare

- Good availability of specific soil monitoring data in Hungary, specific HNV data in Italy, Biodiversity data in Hungary and Lithuania
  → Soil quality, HNV, Biodiversity-WL

- Multi-criteria methods to assess multiple measures at macro level
  → Animal welfare

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Thank you for your attention!

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