The impact of socio-economic land-use decisions on Ecosystem Services in small catchments

TERRECO project 27
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Structure

• Scale and overall aims
  – Analysis and of land-use decision making
  – Spatially-explicit modelling of land-use impacts on Ecosystem Services

• Project integration
Research area
Overall aims

1. Analysis of local farmers’ decision making with respect to their land-use behavior

2. Spatially-explicit illustration of the impacts of land-use decisions on the provision of Ecosystem Services

3. Development of a spatially-explicit land-use model that can serve as decision-support tool
First impressions about farmers’ decision making

→ Land-use decisions are mainly economically driven, and largely determined by the concurrence of age, ownership, and provenance.
First impressions about farmers’ decision making (cont.)

→ Decision makers can roughly be distinguished by

Risk-prone
(young, outsider, tenant)

vs

Risk-averse
(old, insider, owner)
Analyzing human behavior

→ Theory of planned behavior (Ajzen, 1991)

- Behavioral beliefs
- Attitude towards the behavior
- Normative beliefs
- Subjective norm
- Control beliefs
- Perceived behavioral control

Intention

Behavior

Actual behavioral control
1. Analyzing land-use behavior

→ adapted from ‘Theory of planned behavior’ (Ajzen, 1991)
1. Analyzing land-use behavior (cont.)

→ exemplary questions

General questions:

• Do you live in Haean?
• Do you own the land you are cultivating?
• Which crops did you implement last year, which ones this year?
1. Analyzing land-use behavior

(cont.) → exemplary questions

‘Ajzen’ questions:

- When choosing my land use for the next season I try to...
  - … maximize my annual monetary return by adapting to current market prices
  - … ensure a moderate, yet stable monetary return that I can rely on
  - … make a future investment that pays off in the long run
  - … minimize the negative effects on the environment

- I think that...
  - … maximizing annual monetary returns by adapting to current market prices
  - … ensuring a moderate, yet stable monetary return that is reliable is
  - … making future investments that pay off in the long run is
  - … minimizing the negative effects on the environment is

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2. Impact of land-use decisions on Ecosystem Services
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2. Impact of land-use decisions on Ecosystem Services (cont.)
3. Spatially-explicit land-use model
Project integration

[Diagram with flowchart showing the integration of various components related to land use and ecosystem services, including data inputs, processing methods, and joint probability tables.]