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Snapshot of the Handbook:

The Role and Key Issues from the Factsheets

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Role of the Factsheets in the Handbook

- **Support the Handbook**
  - Practical illustrations of applications of methods and indicators
  - Highlight key issues arising in case studies
  - Clarifying specific conditions for case studies


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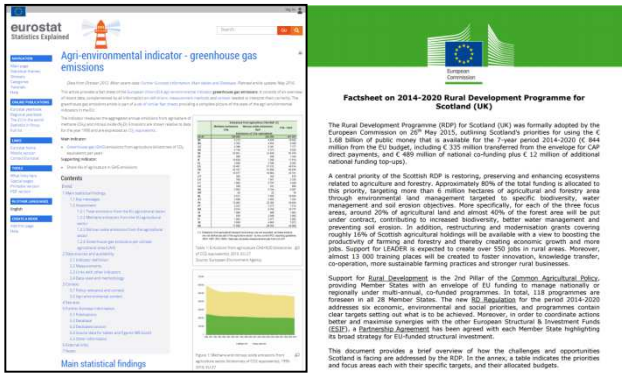
Development and application of new methodological frameworks for the evaluation of environmental impacts of rural development programmes in the EU

(Project Reference: 312071)

Fact Sheets

- **Level of Detail**
  - Structured summaries of experiences of application of methods, indicators, and use of data in case studies
  - Fact sheets are primarily non-CMES indicators, so complement other information available


eurostat Statistics Explained

Agri-environmental indicator - greenhouse gas emissions

Main statistical findings

Factsheet on 2014-2020 Rural Development Programme for Scotland (UK)

Structure of Factsheets

- **Indicator / method**
  - Definition of indicator
  - Description of method
  - Data requirements, existing data
  - Scientific background (e.g. publications)
- **Experiences**
  - Context of case studies
  - SWOT analysis
- **Recommendations**
  - Usability of method or indicator
  - Approaches to resolving weaknesses

Indicator: GNB for the assessment of effects of advisory services (Greece)

1. Definition / description of the method, including:
   - Type of method (linking to classifications used in review):
   - Biophysical model
   - Environmental public good: Water quality
   - Micro/ macro level: Land parcel, Nitrate Vulnerable Zone (NVZ) [Karditsa, Greece]
2. General requirements
   - Data requirements: Water use, fertiliser input, monitoring data at farm level
   - Skill requirements: Spatial analytical /GIS skills
3. Context of the case study testing
   - Case study area: Karditsa regional department, Greece
   - Policy context: AE action for the reduction of nitrate pollution caused by agriculture in NVZs
   - Used data: IACS geo-referenced data of 2011 for participants and non-participants including the type of crop, a soil map of Karditsa Plain

Evaluation challenges (relevant for indicators)	Strengths	Weaknesses	Key contribution to evaluation benefits
Compatibility with local environmental and farm structural characteristics	The biophysical model uses existing available data taking into account important crop types, soil conditions of the case study area in relation to the applied different farming practices of the AE action	Actual information on fertiliser application and water use is missing.	The impact of the AE action is estimated within each soil class taking into account the different farming practices applied.
Timing of environmental impacts captured	Use of a static biophysical model that is based on existing data.	The impact of the AE action cannot be captured within the timeframe of the evaluation.	
Establishment of robust causal relationships	The method is based on a well-documented theoretically-sound model linking the farming practices and environmental outcomes.	The obtained results were not verified with monitoring water quality and quantity data (Lack of time).	The biophysical model calculated the GNB in the form of nitrogen losses per ha and the water use/ha between participants and non-participants.
Establishment of	Macro-level analysis can	Farm level which is the	Micro and macro linkages

Recommendations

Indicator: Mineral nitrogen content in the soil in autumn (Nmin indicator)

- Autumn Nmin value used as additional impact indicator for evaluation of sub-measures at parcel level.
- Application with indicators such as gross nutrient balance (GNB) increases the validity and robustness of the analysis further

Key issues – Methods

- **Modelling approaches**
  - **Background to the methods, not methods themselves**
    - **Theoretical basis, scientific papers, databases**
  - **Example Strengths**
    - **High acceptance by stakeholders and scientists**
    - **Cost-effective application in combination with resource and management-based**
  - **Example Weaknesses**
    - **Evaluation limited by comparison groups**
    - **Suitable data**
    - **Suitable specialists skills**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Our Visual Landscape: analysis, modeling, visualization and protection

A method for estimating changes in the visibility of land cover

David Miller

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Abstract

An inventory of resources that includes the contribution made by land cover to the visual landscape can be used in monitoring and assessing the impacts of change in land cover on the visual landscape of an area. A method is presented for assessing the visual resources of the landscape as applied to a case study area in the western part of the proposed Cairngorm National Park in Scotland. The method is based upon measuring the extent of the land from which different land cover types may be visible, on a cell-by-cell basis, using high resolution Digital Elevation Models combined with interpreted land cover data as inputs. The results show a reduction in the overall contribution of scattered, natural woodland to the visual landscape, and an increase in the visual contribution of plantation woodland at the expense of heather moorland. The geographical distribution of the changes in visibility of land cover types is shown and the potential of the method for providing a spatial context for expressing the results of landscape preference modelling is discussed.

Keywords

Visual resources; Visual impacts; Inventory; Spatial analysis; Land cover

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Example issues – Indicators

- **Landscape**
  - **Land-cover change (Scotland)**
  - **Land-cover change (Greece)**
  - **Visibility of change (Scotland)**
- **Biodiversity**
  - **HNV (Lithuania)**
  - **Wildlife**
    - **Number of farmland bird species (Hungary)**
    - **Number of singing corncrake males (Lithuania)**
- **Animal welfare**
  - **Lameness (Germany)**

Example issues

- Transferable across countries
- Exploit agreed geographic datasets
- Improvable with new data and tools

- e.g. farmland birds -

Two-tier approach enables investigation of differences of local contexts at micro level and overall picture at macro level

- Improves coverage of animal welfare impacts, contributes to conceptually sound multi-criteria assessment of animal welfare

Example lessons learnt: Modelling and Sampling - Soil Quality

Modelled solutions, issues of :

- Scale / level
- Technical approach

Cost of sampling vs modelling

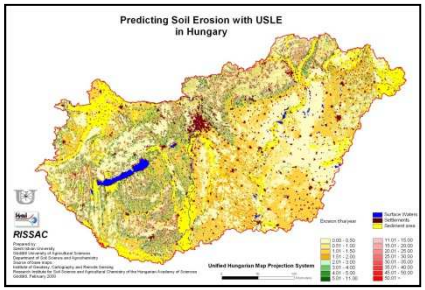
- Reliability of sampling v modelled output

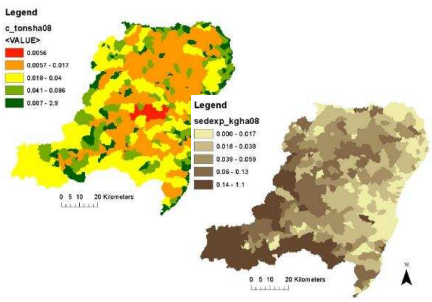
Macro/micro
Problems / solutions

Method

	SQ-HU macro Problems encountered	SQ-HU macro Solutions applied	SQ-HU micro Problems encountered	SQ-HU micro Solutions applied
Sampling method	Lack of data on non-participant farms' other, related activities that effects the performance of the indicator.	The big amount of data for the statistical analyses was expected to reveal real differences between the participant and the non-participant groups.	There were lack of national monitoring data for Agri-environmental payments at the macro level testing area.	Former measurements of soil thickness was used for the analyses of the tested indicator (thickness of layers with soil organic matter)
Modelling USLE	Cannot be used for a higher than one year resolution (theoretically).	In the present case there is no need for more detailed analyses as the programs are compared at a yearly base.	Cannot be used for a higher than one year resolution (theoretically).	In the present case there is no need for more detailed analyses as the programs are compared at a yearly base.
Modelling SENSOR	The SENSOR model was chosen for comparison of countries, e.g. Scotland and Hungary. So its weaknesses applies only at national level.	NA	NA	NA

- What is required?
  - Support pairwise comparisons of participant / non-participant
  - Reflect heterogeneity of soils (polygons as mapped, within polygon variation)





- E.g. Stratify by:
  - mapped soil types
  - land use (e.g. Netherlands)

Types of Recommendations

- Time intensive
  - Improvements
    - Multi-purpose surveys on farming practices
    - The design of software tools

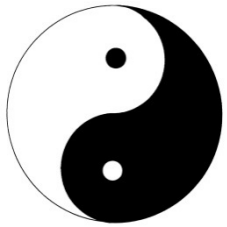
Climate stability – carbon footprint

- Limitations of sector models for comparison groups
  - Improvements
    - Training programmes
    - Model maintenance schedules

Climate stability – Sector model

- Sample design issues
  - Improvements
    - Use of complimentary indictors to increase robustness

Water quality - Nmin indicator



Conclusions

- **Factsheets are to provide summaries of:**
  - **Experience and practicalities**
  - **Strengths, Weakness, Opportunities and Threats**
  - **Development activities (e.g. data, training, etc.)**

- **Your views?**
  - **Is it useful to have Fact sheets on the Case Studies themselves?**
  - **Should they be in addition to summaries of method and indicators or replace them?**
  - **Appropriate level of detail?**
  - **How best to access these?**
    - **Hyperlinked into Handbook contents**
    - **Online *.pdf**
    - **Other ideas?**