



Thematic cluster of
the Evaluation
Knowledge Bank

EUROPEAN
EVALUATION
HELPDESK
FOR RURAL DEVELOPMENT



**Monitoring and evaluation
of climate change issues**

Policy evaluation context

The EU aims to be climate-neutral by 2050 an objective which is at the heart of the European Green Deal and in line with the Paris Agreement.

Climate change indicators are fundamental environmental indicator for the UN and the EU in CMEF and PMEF:

GHG emissions report obligation to the IPCC

CMEF

- Impact indicator I.07 ‘Emissions from agriculture’, (Eurostat’s Agri-Environmental Indicators 10 &18):
 - Sub-indicator I.07-1 GHG emissions from agriculture
 - Sub-indicator I.07-2 Ammonia emissions from agriculture
- Common Evaluation Questions 24 and 28

PMEF

Impact Indicator I.10 on ‘Greenhouse gas emissions from agriculture’ with 5 specific impact indicators:

1. GHG emissions from agriculture
2. Share of GHG emissions from agriculture in total GHG emissions
3. GHG emissions and removals from LULUCF
4. GHG emissions from agriculture including cropland and grassland
5. Share of GHG emissions from agriculture including cropland and grassland in total GHG emissions

Result indicator R.12 on ‘Adaptation to climate change’

Result indicator R.13^{PR} on ‘Reducing emissions in the livestock sector’

Result indicator R.14^{PR} on ‘Carbon storage in soils and biomass’

The Evaluation Knowledge Bank: The Big Picture

Data and Databases

Earth Observations

Access to existing data

Sentinels and other E.O.

Interoperability and access to databases

Collections of specialised datasets

Creating crop type, yield and production maps

Construct complex indicators

Allow access to databases or enhance their scope

Collect all existing data on dedicated topics

Create and keep experimental data and forecasts

[Sen4CAP D1](#)
[Sen4CAP D5](#)
[SENSAGRI D1](#)
[ENVISION D1](#)
[DIONE D1](#)

[SENSAGRI D2](#)
[NIVA D1](#)
[FLINT D1](#)
[DIONE D4](#)

[NIVA D3](#)
[NIVA D4](#)
[FLINT D2](#)
[MIND STEP](#)

[VERIFY D1](#)
[VERIFY D2](#)

[DiverIMPACTS](#)

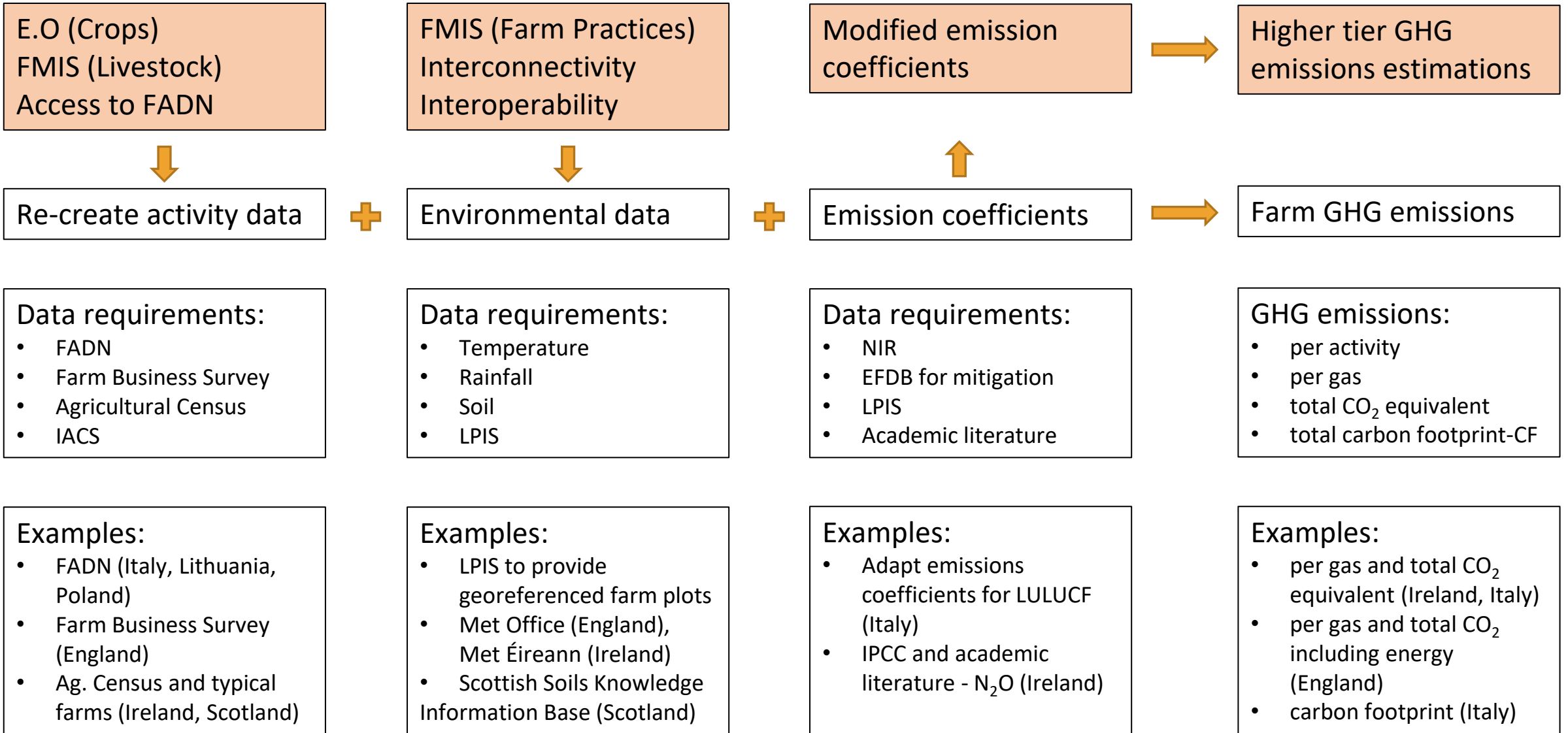
Potential Use:
Estimation of N₂O from crop residues (IPCC estimation)
Activity Data to models
Complementary data to models

Potential Use:
CO₂ flux
Carbon storage
GHG Emissions per product and per area
GHG emissions indicator

Potential Use:
Access to FMIS for use of fertilizer, manure, pesticides (IPCC Tables)
Modelling GHG from livestock

GHG reference estimates from various models

GHG of Diversification Activities



Potential uses in climate change evaluation



Tools that record land cover and crop type maps offer access to activity data that can be used for the estimation of GHG emissions from agricultural soils management using Tier 1 coefficients or as an input to GHG emission models.



FLINT shows a way to match activity data from FADN with farm practices data for the estimation of GHG emissions with higher precision or using tier 2 coefficients.



Carbon storage and CO₂ flux estimation from agricultural lands and carbon budget approximation.



Some tools offer access to FMIS and thus to the use of fertilisers, manure and pesticides and to manure management practice.



Modelling GHG emissions from the dairy sector using FARMDYN.



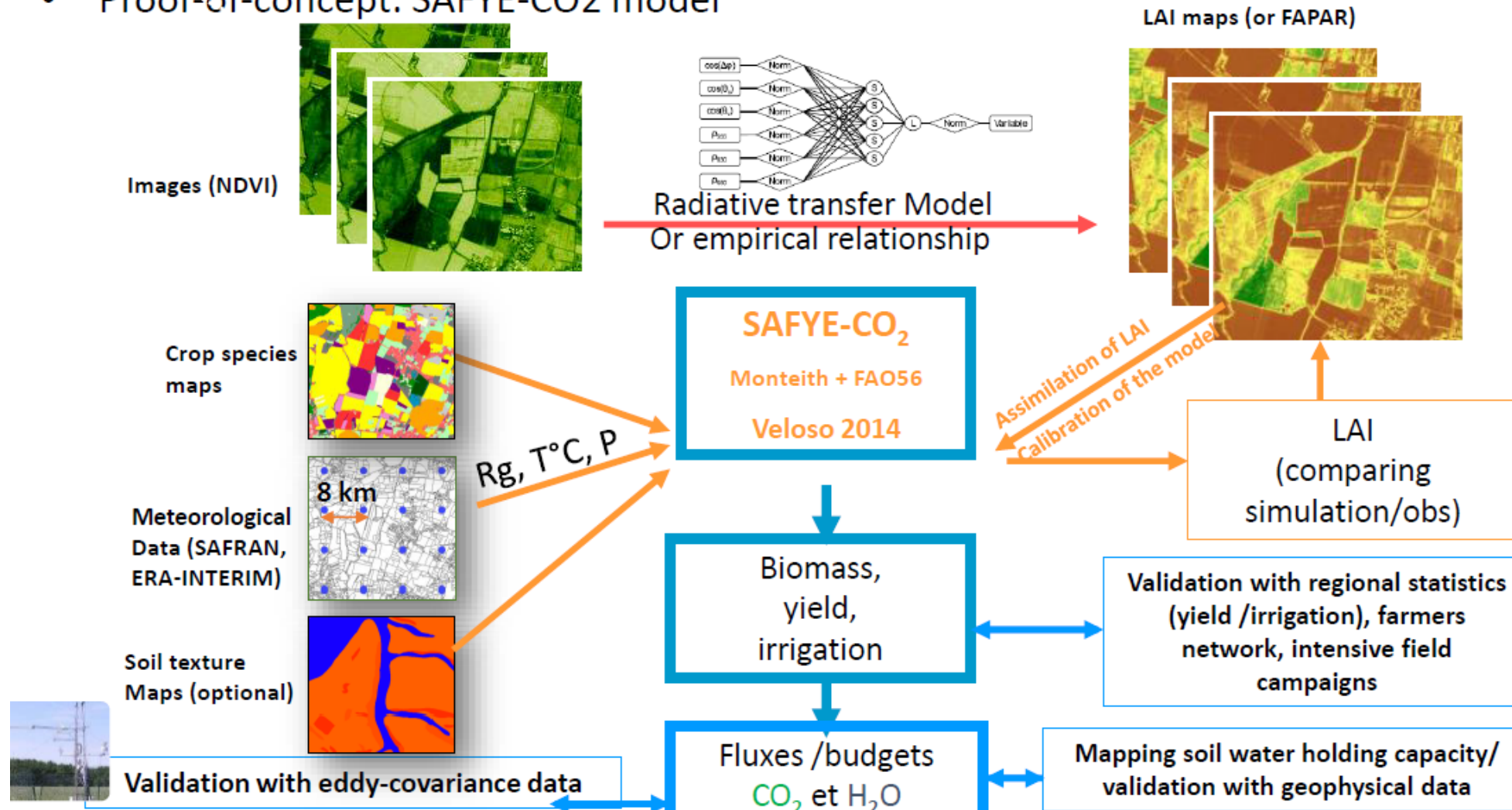
Databank of GHG emission estimates from most of the known models. Databank of diversification impacts on GHG emissions.

Example: SENSAGRI – From Crop Type Maps to CO₂ Flux Estimations

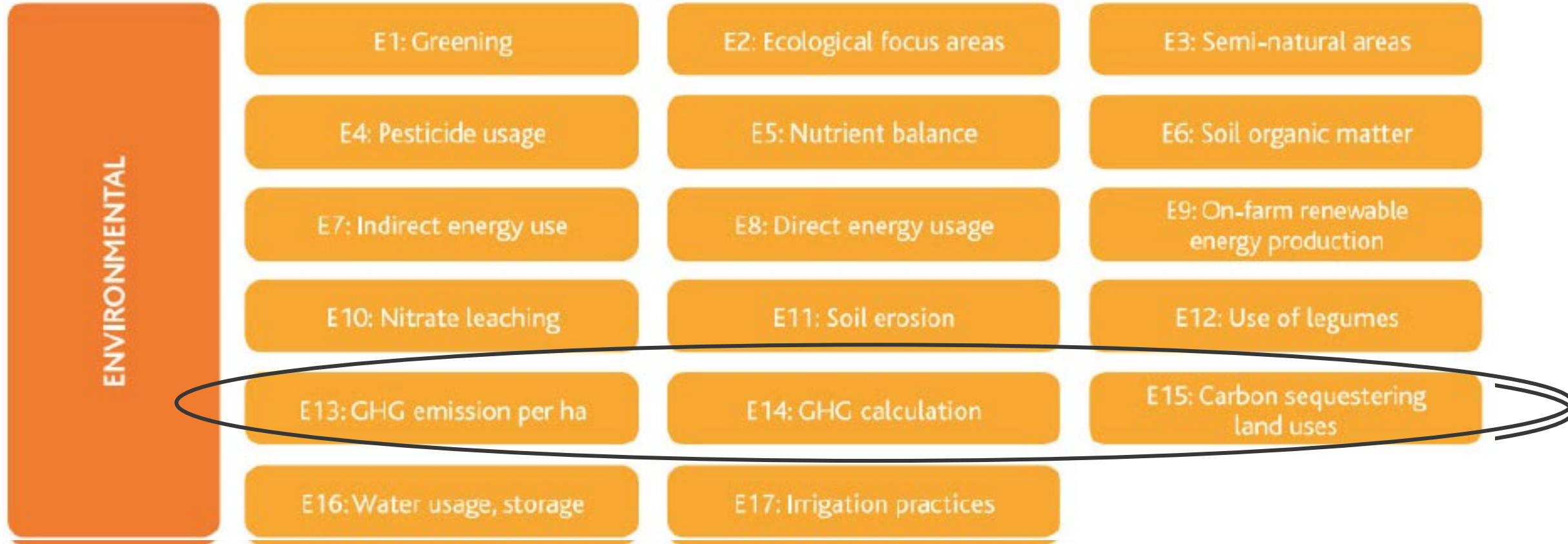
Biomass / crop yield



- Proof-of-concept. SAFYE-CO₂ model



Example: FLINT – Extend the Use of FADN with Farm Practice Data



Caveats and limitations

- Usually, the most important sources of GHG emissions and of ammonia are the various types of livestock. Data from E.O can contribute to the estimation of GHG emissions and CO₂ removals from managed soils and the Land Use and Land Use Change and Forestry (LULUCF). E.O cannot contribute to the estimation of emissions from livestock.
- For E.O, access of Managing Authorities and of evaluators to Earth Observation data raise various issues of property rights, confidentiality and interoperability of IACS and LPIS. Further issues are related to transferability of algorithms and methods.
- FLINT shows how to complement activity data collected by FADN with farm practice data to estimate GHG emissions. The FLINT Farm Return also shows how to organise your own survey and collect data in case an ad-hoc survey is planned.
- Models like FARMDYN used by MINDSTEP have limited applicability because of the data needed to set up and run them and limited transferability.
- Accessing FMIS and extracting data that can be used in evaluation is a big challenge and remains to be seen.
- VERIFY offers a variety of GHG emission estimates but at a very low resolution which may not be suitable to micro-policy evaluation at the parcel level but still extremely useful to address the evaluation question, provide additional evidence and support triangulation of results or data from other sources.





https://enrd.ec.europa.eu/evaluation/knowledge-bank_en

Evaluation Knowledge Bank

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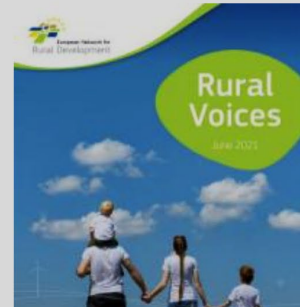
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Rural Voices report

The 'Rural Voices' report provides a qualitative analysis of the findings from stakeholder workshops contributing to the long-term vision for rural areas.



Click on a country flag to connect with rural Europe

Insights into various outputs developed in initiatives and projects at the EU and Member States levels concerning data infrastructures and data use.

A quick guide on potential use, showing how these outputs could be used for monitoring and evaluation of the CAP.

TOOLS

- Project Database
- Evaluation Knowledge Bank**
- Share your Rural Story
- LAG Database
- CLLD Partner Search