

CAP Civil Dialogue Group

“From specific objectives to concrete interventions”

Result indicator R.14

Carbon storage in soils and biomass

Tuesday 15th October 2019

Soils and Soil Carbon Storage : overview

- A significant amount of soil organic matter has been lost from the system due to land degradation and mismanagement
- Around 45% of the mineral soils in Europe have **low or very low organic carbon content** (0,2%) and 45% have a medium content (2,6%) (Rusco et al., 2001).
- The (re)storation of soil C in agro-ecosystems can remove CO₂ from the atmosphere and **improve the sustainable production of agriculture**
- **Practices** that sequester a lot of carbon include the use of crop rotation; adding legumes or N-fixing crops; reduced or zero tillage; and incorporating crop residues and other organic matter.

The international initiative « 4 per 1000 »

- Launched by France on 1 December 2015 at the **COP 21**
- An annual **growth rate of 0.4% in the soil carbon stocks** in the first 30-40 cm of soil, would significantly reduce the CO2 concentration in the atmosphere related to human activities
- Invites **public and private partners to state or implement practical actions on soil carbon storage** and the type of practices to achieve this (e.g. agroforestry, conservation agriculture, landscape management, etc.)
- Encourage stakeholders to transition towards a productive, highly resilient agriculture, based on the appropriate management of lands and soils, creating jobs and incomes hence ensuring sustainable development.



Annex I : Result indicator R.14

EU Specific objectives	Impact indicators	Result indicators (only based on interventions supported by the CAP)	Broad type of intervention	Output indicators (per intervention)
Contribute to climate change mitigation and adaptation, as well as sustainable energy		R.11 Concentration of supply: Share of value of marketed production by Producer Os with operational programmes	Payments for natural constraints and other region specific constraints	O.11 Number of ha receiving ANC top up (3 categories)
	I.9 Improving farm resilience: Index	R.12 Adaptation to climate change: Share of agricultural land under commitments to improve climate adaptation		O.12 Number of ha receiving support under Natura 2000 or the Water Framework Directive
	I.10 Contribute to climate change mitigation: Reducing GHG emissions from agriculture I.11 Enhancing carbon sequestration: Increase the soil organic carbon I.12 Increase sustainable energy in	R.13 Reducing emissions in the livestock sector: Share of livestock units under support to reduce GHG emissions and/or ammonia, including manure management R.14 Carbon storage in soils and biomass: Share of agricultural land under commitments to reducing emissions, maintaining and/or enhancing carbon storage (permanent grassland, agricultural land in peatland, forest, etc.)	Payments for management commitments (environment-climate, genetic resources, animal welfare)	O.13 Number of ha (agricultural) covered by environment/climate commitments going beyond mandatory requirements

Indicators need to offer new possibilities for payments for delivering public goods : it is the case for payments interventions restoring CO2 in the soils

IFOAM's vision for the future CAP

- An agricultural policy that **incentivises & rewards the provision of public goods** which benefit both farmers and citizens
- **Agroecological practices applied at farm level** = a key lever for transitioning towards more sustainable systems

1 pillar, 1 budget

Value of Public goods mainstreamed
Targeted at reaching EU environment & climate outcomes
Overall public good performance of entire farm considered

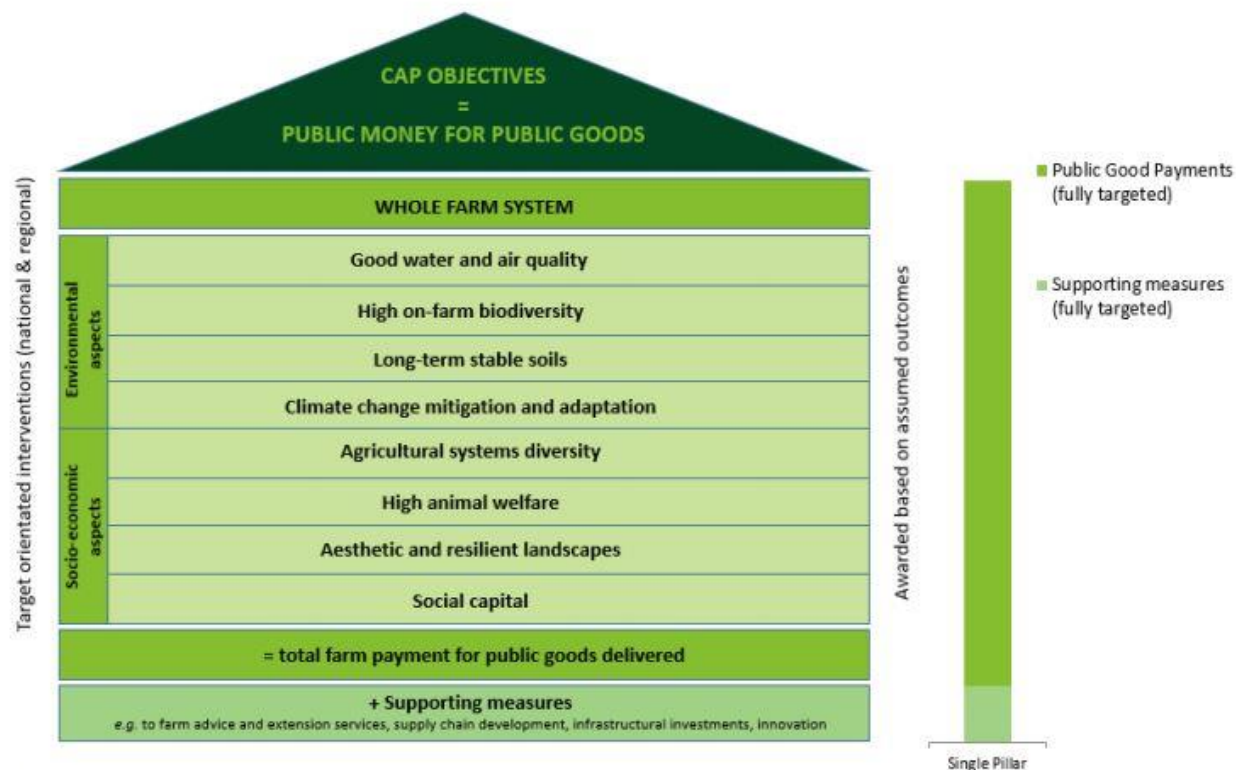


Figure 1: New payment model for implementing the principle of public money for public goods

A multi-tier payment system based on 3 elements

1. Entry Level Schemes
2. Advanced Voluntary Schemes (possibly through Eco-schemes)
3. Complementary Measures

- Promoting a common approach for all Agri-Environment-Climate (AEC) spending
- Enabling a graduated approach to AEC commitments

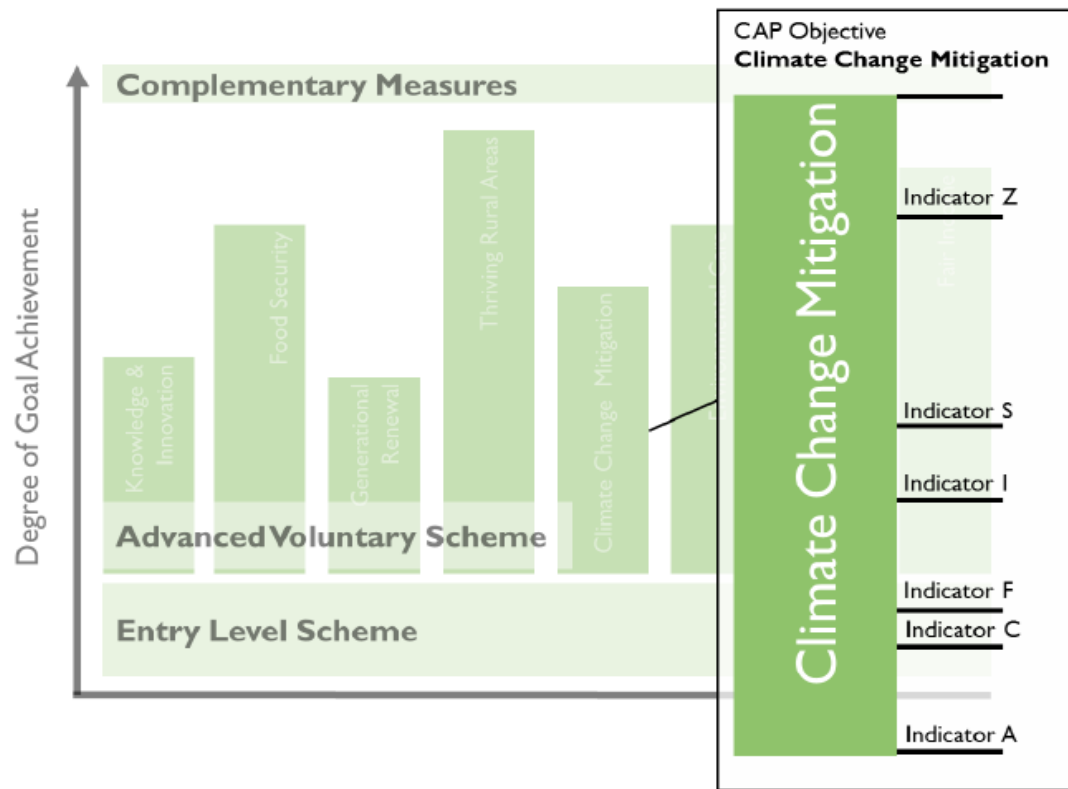


Figure 3: Multi-Criteria Sustainability Assessment, example from the SMART-Farm Tool

Source: Own presentation.

1. Entry Level Scheme

Incentivise cropland management practices which improve soil C storage through 1st and 2nd pillar

Optimize the efficiency of C sequestration in agriculture with crop rotation and intercropping

Pay farmers a per hectare payment in return for following farm practices (above conditionality baseline) which can help to sequester soil carbon. Example : more than one cover crop/year that brings a positive balance in terms of humus content



An example from the SOLMACC Project :

- Introduction and/or increasing percentage of grain and/or forage legumes:
 - Stabilisation of soil fertility, N-fixation (Leithold et al., 2015)
 - Better carbon sequestration : average C-sequestration of $0.32 \text{ Mg ha}^{-1} \text{ a}^{-1}$ by cover crops (Poeplau & Don, 2015)

2. Advanced Voluntary Scheme

- Could be used through eco-schemes (1st pillar) or AECM (2nd pillar)
- Member States can decide which practices they want to give priority to
- Possible measures :
 - Adding organic matter like manure or compost to increase biomass residues
 - Technical measures improving the impact for permanent humus (preparation of slurry, using mineral or plant material for compost)
 - Agroforestry / Mixed Cropping Systems





3. Complementary Measures

- Eco-schemes and/or AECM : results-based payments that go beyond the income foregone approach
- Rewetting degraded peatlands
- Pay farmers on the basis of each additional tonne of carbon sequestered above an agreed baseline
- Attribution of carbon credits
- Synergies with carbon compensation certification systems (open to organic and non-organic farmers) e.g. Humus certificates

NB : results-based payments also possible on biodiversity

START

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Carbon market certificates : German example



CO2 Certificates in the Kaindorf ecoregion, Austria

„Modus zur Berechnung der CO₂ Bindung“

Berechnung Humusgehalt:

Kohlenstoffgehalt (C) in % / 0,58 = Humusgehalt in %

Berechnung CO₂ Bindung:

Fläche des Schlages in m² x 0,25 (Probenahmetiefe in m) x 1,3 (spezifisches Gewicht der trockenen Erde = Variable aus Labor) = Trockensubstanz in Tonnen x Prozentanteil Feinboden = Trockensubstanz Feinboden x Kohlenstoffgehalt (C) in % = Kohlenstoff in Tonnen x 3,67 = CO₂ Bindung in Tonnen je Schlag

Berechnung Zertifikatwert:

CO₂ Bindung in Tonnen x Preis in Euro/Tonne CO₂ = Zertifikatwert in Euro

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EC Definition

Carbon storage in soils and biomass:

Share of agricultural land under commitments to reducing emissions, maintaining and/or enhancing carbon storage (permanent grassland, agricultural land in peatland, forest, etc.)

Cropping systems affecting soil organic carbon (rotations, intercropping, mixed cropping etc)

Adding legumes or N-fixing crops

Adding organic matter like manure or compost, increase biomass residues

Technical measures improving the impact for permanent humus

Agroforestry measures

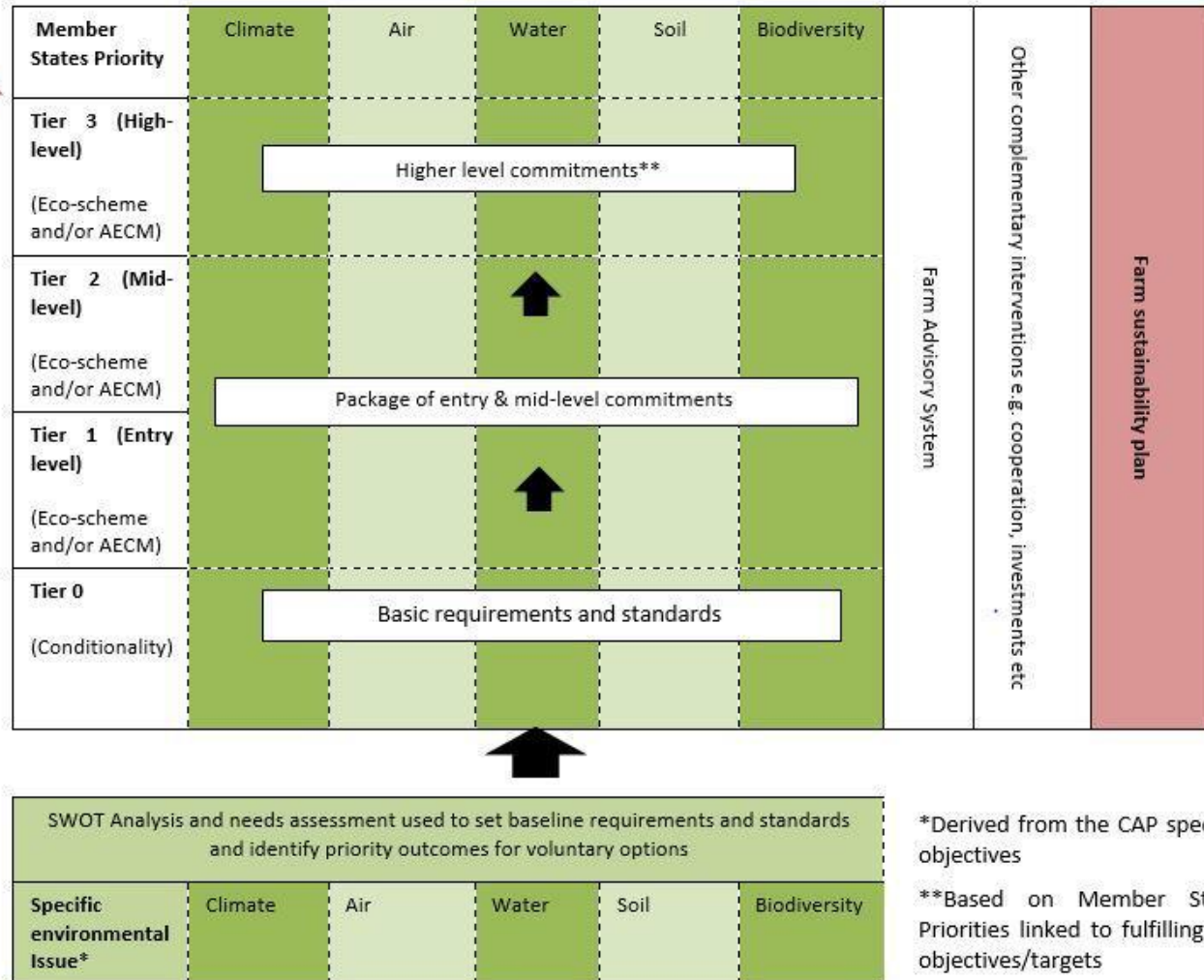
Rewetting degraded peatlands

Link to certification schemes already in place in MS

Synergies with « carbon farming » initiative



A coherent structure for implementing the new green architecture



e.g. payment per t CO₂/ha/y

e.g. using technics for compost / slurry

e.g. special crop rotations/cover crops

e.g. protection permanent grassland

*Derived from the CAP specific objectives

**Based on Member State Priorities linked to fulfilling EU objectives/targets



Thank you

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