After Paris: Actions supporting adaptation and mitigation of climate change in agriculture

MACSUR Project – 24 May 2016
Peter Wehrheim
DG Climate Action, Head of Unit Land Use and Finance for Innovation
European Commission
1. Policy Context

2. Mitigation and adaptation measures
The Paris Agreement

- A legally binding, universal agreement
- 189 nationally determined contributions (NDCs), 175 signatories
- Ambitious long-term goals (well-below 2°C/pursue 1.5°C/global peaking asap/climate neutrality in the second half of the century)
- Dynamic 5-year ambition cycle
- Enhanced transparency and accountability
- Greater emphasis on adaptation
- Support for poor and vulnerable countries
COP21 Paris outcome & land issues

- Contribution of agriculture/LULUCF is critical to remain below 2/1.5°C targets
- Conservation and enhancement of natural sinks is very prominent, particularly in view of carbon neutrality in second half of this century
- Existing LULUCF accounting rules acknowledged yet also scope for future improvements
- Acknowledgement of the importance of food security
2030 Climate and Energy Framework

2020
- 20% Greenhouse Gas Emissions
20% Renewable Energy
20% Energy Efficiency
10% Interconnection

2030
≤ - 40% Greenhouse Gas Emissions
≥ 27% Renewable Energy
≥ 27%* Energy Efficiency
15% Interconnection
2016 : Commission to propose implementation of EU INDC

- EU sectors outside the Emission Trading Scheme: Targets for MS (Effort Sharing Decision) and
- **Inclusion of LULUCF into EU "at least 40% reduction target"**
- Transport decarbonisation
- Energy efficiency
- Electricity market design
- Renewables (including biomass, biofuels)
- Integrated climate and energy governance
The UNFCCC includes the land use through two sectors:

**Land Use, Land Use Change and Forestry (LULUCF):** mainly $CO_2$

**AGRICULTURE:** non-$CO_2$

(CH$_4$, N$_2$O)

- Partly human induced (linked to global natural carbon cycle)
- Uncertainties?
- Additionality?
- Permanence?
- Leakage?

All human-induced
Historical trend of LULUCF emissions (+) and removals (-) in the EU

The importance of LULUCF differs among MS

- LULUCF offsets 7% of total EU emissions
- Forests offsets 10% of total EU emissions

LULUCF credits the EU in the 1st KP Commitment Period (2008-2012) were 77 MtCO$_2$/y, or 1.3% of 1990 total EU emissions

Reporting, NOT accounting!
2. Mitigation and adaptation measures
Four sources of information on measures

- **MSs' Art 10 reports**
- **MSs' RDP programmes (awaiting summary)**
- **Study: Mainstreaming climate action in RDPs**
- **Study: Meta-review of climate action in CAP**
LULUCF Decision: Art 10 Information on Actions - Technical Guidance to MSs

- Some experiences with climate measures already made in 2007 – 2013 programming period, in particular following the 2008 Health Check.

- Stimulate discussion of new and innovative types of operations which explicitly, first and foremost, address climate objectives

- Guidance and examples:
  - Mainstreaming in rural development study
  - Art 10 reporting guidance

- Kick-start an ongoing process of knowledge exchange around climate action in particular related to Rural Development Programmes
The project aimed to support the mainstreaming of climate change into Rural Development Programmes (RDPs) 2014-2020 by providing Technical Guidance for Member States’ Managing Authorities on the design and integration of new and innovative climate operations. The Technical Guidance includes 25 technical fiches for new and innovative climate actions. Moreover, the project developed suggestions and guidelines for potential combinations of rural development (RD) measures which could enhance synergies for climate objectives under Priority 4 and Priority 5 of RDPs.
**List of measures assessed in project**

### MITIGATION ACTIONS

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<thead>
<tr>
<th>M1</th>
<th>Extending the perennial phase of crop rotations</th>
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<tbody>
<tr>
<td>M2</td>
<td>Using cover/catch crops and reducing bare fallow</td>
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<tr>
<td>M3</td>
<td>Improving nitrogen fertiliser use efficiency</td>
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<td>M4</td>
<td>Applying nitrogen fertiliser more precisely</td>
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<td>M5</td>
<td>Biological nitrogen fixation (i.e. legumes) in rotations and in grass mixtures</td>
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<td>M6</td>
<td>No-tillage</td>
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<td>M7</td>
<td>Retaining crop residues on the field</td>
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<td>M8</td>
<td>Loosening compacted soils and preventing soil compaction</td>
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<td>M9</td>
<td>Avoiding the drainage of wetlands and the conversion of peatlands</td>
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<td>M10</td>
<td>Feeding a higher fat content diet to cattle</td>
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<td>M11</td>
<td>Precision and multi-phase feeding of livestock</td>
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<td>M12</td>
<td>Solar fodder dryers</td>
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<td>M13</td>
<td>Behavioural change towards better energy efficiency</td>
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<td>M14</td>
<td>Climate proofing of planned on-farm investments</td>
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<td>M15</td>
<td>Better livestock health planning</td>
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<td>M16</td>
<td>Carbon audit</td>
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### ADAPTATION ACTIONS

<table>
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<th>Using adapted crops</th>
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<tbody>
<tr>
<td>A2</td>
<td>Using cover crops and reducing bare fallow</td>
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<tr>
<td>A3</td>
<td>Soil erosion control plan</td>
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<tr>
<td>A4</td>
<td>Reduced tillage and zero tillage</td>
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<td>A5</td>
<td>Optimising adaptation benefits of shelterbelts and hedges</td>
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<tr>
<td>A6</td>
<td>Optimising the adaptation benefits of land drainage</td>
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<td>A7</td>
<td>Improving irrigation efficiency</td>
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<td>A8</td>
<td>On farm harvesting and storage of rainwater</td>
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<tr>
<td>A9</td>
<td>Optimising greenhouse cultivation</td>
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Measures under LULUCF

- improved cropland and grazing land management (e.g. agroforestry, prohibition of residue burning, or reduced tillage) are often considered as low to medium-cost mitigation options.

- Implementing land use change — which may imply changes to farm structures — is usually more complex and may lead to higher costs, while nevertheless constituting compelling opportunities for potential mitigation.
Measures under LULUCF, cont.

- Longer-term afforestation measures can produce significant carbon sequestration per hectare with variable upfront costs depending on location. Much depends on the type of land and existing vegetation being converted to forest, and on the type of forest created.
- In some Member States, reducing deforestation is reported to be a relatively cheap mitigation alternative.
- Certain forest management measures and optimised silvicultural techniques could also be listed among the low to medium-cost options for enhanced removals.
Conclusions

Policy context:
• Paris Agreement endorsed by the whole world
• Critical role of mitigation by agriculture and forestry globally
• The EU in a stepwise manner needs to integrate agriculture and LULUCF into its overall climate and energy policy framework
• As a first step, the 2030 policy architecture and accounting approach is currently under consideration
  ✓ protecting existing sinks, no backsliding in terms of environmental integrity
  ✓ incentivise additional mitigation potential

Measures: identify win-win solutions related to agriculture and land use (change)
• More efficient fertilizer management, better livestock management, ...
• Climate-friendly land use change where appropriate, reduce emissions from peatland, enhance soil organic matter, afforestation ...
Thank you!

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October 2014 European Council Conclusions on climate and energy

- “the multiple objectives of the agriculture and land use sector, with their lower mitigation potential, should be acknowledged,
- need to ensure coherence between the EU's food security and climate change objectives.
- invites the Commission to examine the best means of encouraging the sustainable intensification of food production, while optimising the sector's contribution to greenhouse gas mitigation and sequestration, including through afforestation."
EU : Decoupling growth from emissions

Source: European Commission based on data compiled by EEA
Share of agriculture GHG emission in total emissions (excl. LULUCF) in the EU-28, 2012

Source: EEA database (2015)