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Ideas for defining environmental objectives and monitoring systems for a results-oriented CAP post 2020

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1 Introduction and purpose

The European Commission published its Communication on the 'Future of Food and Farming'[1] on 29 November 2017, setting out broad proposals for the future direction and focus of the Common Agricultural Policy (CAP) from 2021.

In the document a new delivery model for the CAP is set out 'to streamline its governance, improve its delivery on EU objectives and to decrease bureaucracy and administrative burden'. This is seen as a shift towards a more 'performance based delivery model' and is described by the Commission as giving much greater subsidiarity and responsibility to Member States for determining how to achieve overarching objectives and targets. It has been described as a way of 'moving from one-size-fits-all to more tailor made solutions.'

This proposal responds to some of the ongoing criticisms of the current CAP (and its previous iterations) that:

a) objectives for both the CAP as a whole and for many of its detailed policy instruments are not sufficiently clearly defined, which leads to difficulties in measuring performance against these (European Court of Auditors, 2005, 2011a, b, 2013a, b, 2017); and
b) the design and focus of Pillar 1 and Pillar 2 instruments and measures often takes place in isolation from one another and this can apply to their implementation by Member States. Consequently, measures often are not used in complementary and synergistic ways to achieve identified objectives (Ecorys, IEEP and Wageningen University & Research, 2016).

Given the nature of the Commission's Communication, there are very few details about what is proposed. Instead the broad principles are set out, as reproduced in Box 1.

Importantly, the Communication states that the planning process underpinning this new delivery approach should be much simpler and less complex than current Rural Development programming. Marking a shift from an emphasis on compliance to one on results and performance, the Communication states that prescriptive compliance elements such as measures' details and eligibility rules would be eliminated from EU legislation. A new system of nationally generated plans would aim to favour integrated and innovative approaches and make the policy framework more adaptive and innovation friendly. Commissioner Hogan has explained that "the principle of what we are proposing is greater subsidiarity for the Member States, but with a very clearly defined role for the Commission to ensure clear alignment and coherence in the choices made by the Member States with EU priorities & objectives"[2].

[1] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, 'The Future of Food and Farming', 29 November 2017, COM(2017)713 final

[2] Agra Facts, 04-18, 19 January 2018 'Green Week: Hogan echoes Juncker's call for bigger EU budget post-Brexit'.

Box 1: Outline of the new performance based delivery system from the Communication

- The **European Union** would set the basic policy parameters (objectives of the CAP, broad types of intervention, basic requirements). the CAP objectives would fulfil the EU Treaty obligations as well as existing agreed objectives and targets, e.g. for environment, climate and SDGs;

- **Member States** should bear greater responsibility and be more accountable as to how they meet the objectives and achieve agreed targets. They would:
  - be in charge of tailoring CAP interventions to maximise their contribution to EU objectives
  - be accountable for providing credible performance monitoring and reporting, underpinning the assurance of the budget
  - have a greater say in designed the compliance and control framework applicable to beneficiaries (including controls and penalties)

To achieve this:
- Member States would have to develop CAP Strategic Plans which would cover interventions in both Pillar 1 and Pillar 2 and should focus above all on the objectives and expected results.
- The Commission would assess and approve these plans with a view to maximising the contribution of the CAP to EU priorities and the achievement of MS's climate and energy targets.
- The Commission would also oversee the delivery of results and the respect of basic EU rules and international commitments through the framework of an audit and assurance system. This needs to be adapted to the requirements of a result-driven policy design including the development and application of solid and measurable indicators and of a credible performance monitoring and reporting system.

Source: COM(2017)713 final

These proposals raise many questions about how this new delivery approach might work in practice, if taken at face value and with a genuine intention to shift all elements of the CAP towards being more performance driven. Already some questions have been raised about the extent to which Member States would have the flexibilities proposed to design measures to meet identified objectives and targets, for example statements made about Member States being required to maintain direct payments[3]. From an environmental perspective there are questions also about how to ensure that environmental considerations both remain a priority at Member State/regional level alongside economic and social priorities and that progress towards meeting environmental goals can be measured effectively so that Member States can be held accountable for how they use the offered subsidiarity.

This short paper investigates some of these questions and concerns with a focus on addressing environment and climate priorities. It recognises that to ensure the CAP's funding is used in a truly sustainable way, environmental priorities must be addressed in conjunction with economic and social priorities. However it has not been within the scope of the paper to look at delivering objectives beyond the environment. It proposes some initial ideas on how this performance based delivery model could be made to work from an environmental perspective, considering the setting of objectives, targets, indicators and the data required to monitor progress. It examines a range of specific environmental objectives in a short series of "fiches", organised by environmental priority. These outline some preliminary thinking on what the relevant objectives, targets and indicators might be, starting from the baseline of EU legislation. Finally, the paper offers some preliminary conclusions and raises some of key issues and questions that will have to be resolved for a performance based approach to be successful in practice.

[3] See footnote 2

2 Making a performance-based approach work for the environment

Reactions to the Commission's proposals to move towards a new performance based delivery approach have been cautiously welcomed, both by Member States and stakeholders. In principle, devolving far greater responsibility to Member States to decide what their specific objectives and targets will be and which measures and actions they will undertake to meet these offers the potential for a more tailored use of CAP money. It has the potential to deliver greater results and a more coherent use of measures alongside more effective and less onerous controls if the Member States rise to the challenge. However, it also brings with it considerable risks that must be minimised, particularly the need to guard against Member States using this new approach as an opportunity to downgrade the resources allocated to the environment and climate.

Some of the key areas that require further elaboration to enable the potential of the proposed new approach to be maximised and the risks to be minimised are set out below.

A. The EU framework: setting EU objectives and ex ante conditionalities:

Before the Member States start to design their Strategic Plans, a set of broad **EU objectives and associated targets** will have to be agreed to which the Strategic Plans must contribute. These should be relevant to what can be achieved through intervention in the agriculture/rural sector. The targets could be determined more or less precisely. However, if they are too vague it becomes more difficult to assess performance or EU added value. Objectives and related targets would cover the economic, social and environmental spectrum. Contemporary objectives would need to be set out rather than reverting to the original formal CAP objectives in the Treaty. Where these are relevant, they may not be suitable for target setting (farm incomes, which vary greatly between years are a case in point). Suggestions for what these objectives could be for environment and climate issues are proposed in the "fiches" set out in section 3.

Overarching and relevant objectives (and targets in some cases) for many environmental and climate issues are already set out in related EU legislation and policy, for example the:

- Birds and habitats directives and the Biodiversity Strategy (biodiversity)
- Water directives, including the Nitrates directive, the Water Framework Directive, the Groundwater Directive) (water quality and water quantity)
- Sustainable use of pesticides directive (water quality)
- National Emissions Ceiling Directive (air quality, particularly ammonia emissions)
- Effort Sharing Regulation and Land Use, Land Use Change and Forestry (LULUCF) directive (GHG emissions)

For soils, given the absence of an EU legislative framework, objectives identified via the Soil Thematic Strategy, the Seventh Environmental Action Plan and the Industrial Emissions Directive are relevant. Sustainable Development Goals and the UN Convention to combat desertification are also relevant.

The environmental and climate objectives for the CAP would then be defined and should be closely associated with these formal objectives. In effect they will be derived from and would constitute a sub-set of these objectives, focussing on the contribution of agriculture (and in some cases forestry and rural development) to meeting the goals specified in EU law or policy.

Within this EU framework, Member States must set their own objectives and targets. Some minimum level of ambition may need to be set at EU level for certain objectives or targets, including for the environment, to minimise the risks of deliberately low targets being introduced and unsatisfactory trade-offs made between different objectives. This could include a requirement for no backsliding by Member States on environmental or climate performance. At an operational level it could also include a minimum proportion of the budget to be allocated to environmental/climate actions to reinforce the importance of sufficient attention being paid to environmental and climate issues.

In addition to the overarching objectives, it will also be important to set a number of ex ante conditionalities at EU level, as minimum requirements that Member States must meet if they are to receive funding via the CAP. These may be similar to those that apply to the EAFRD currently[4], but could also require a commitment to integrate environmental protection and climate mitigation and adaptation requirements into all elements of the CAP Strategic Plan.

B. Contents of the Strategic Plan:

Member States will be required to prepare Strategic Plans to operate the CAP within their countries in suitably tailored ways. As a minimum it is assumed that the Strategic Plan will cover a set of objectives for the Member State in relation to agriculture and closely related concerns (such as forestry; questions of scope arise here). It will propose the targets as well as the indicators for measuring progress and information on the baseline and the data to be used to assess these. It is not clear whether the Commission intends that the Plan would also include information on what measures/instruments would be put in place to achieve these ends, how they would be targeted, the eligibility criteria applied, and the monitoring and control processes envisaged. However, this would be highly desirable and probably necessary; information on measures seems essential to assess the credibility of the plan and its compatibility with EU law.

Although objectives and targets should remain in place for the duration of the plan, there should be flexibilities within it to allow appropriate alteration of the way in which these are met if performance is insufficient (i.e. by reviewing and altering the type of measures used or the way they are targeted) or to update indicators, for example if improved data or techniques were to come on line over the lifetime of the Plan (presumably the financial period).

[4] For example: the establishment of cross-compliance standards, minimum requirements for fertilisers and plant protection products and other relevant national mandatory standards; and conditionalities relating to water pricing, the adequate contribution of different water uses to the recovery of the costs of water services by sector in compliance with the Water Framework Directive; putting in place measures to improve energy efficiency of new buildings or renovations; and checking that the production and distribution of renewable energy sources is being promoted in keeping with the rules set out in the Renewable Energy Directive (and recast version, once agreed).

A number of steps will be required to create this Strategic Plan. It is a significant change from the current situation to establish a robust system that more directly links the way all measures are designed and implemented in a coherent way to address specified needs and priorities (not just environmental ones). Even more so where funding is linked to the progress made towards meeting agreed targets and objectives. This will require time to get right, including time to build the necessary expertise and capacity within Member States as well as time to make sure that the baseline information is in place against which performance is to be measured. Nonetheless, it should be recognised that many of the building blocks required are already in place, for example the needs assessments already developed for rural development programmes and the monitoring processes already in place to measure progress against the CAP's Common Monitoring and Evaluation Framework (CMEF) indicators. In addition, after an initial period of change to develop this new system, once the new system is up and running the implementation process should remain stable for some time and Member States would be in a position to simplify the farm level experience significantly.

To ensure that it is balanced, this process of creating the Strategic Plan should involve environmental and climate authorities alongside the agricultural/rural authorities, supported by active stakeholder engagement and consultation. Transparency should be assured throughout the whole process from the design of the Strategic Plan, its approval process, subsequent implementation, monitoring and evaluation. Transparency is important to help build trust between the different actors and will help solutions to be found, for example when performance is not achieved as planned.

Given this, the sophistication of the Strategic Plans will have to develop in a series of systematic steps and this evolution should be planned from the start.

Clear guidance and support from the European Commission would be required to ensure that these plans are robust, with the same basic content and of a high quality in all Member States. One of many roles for the guidance would be to ensure that environmental objectives secured sufficient attention within the plans.

All plans should be subject to an ex ante evaluation to determine the coherence and intervention logic of the plan. From an environmental perspective, this should include a Strategic Environmental Assessment (SEA) of the proposals, as is currently the case for Rural Development Programmes (RDPs) as well as some form of Carbon Impact Assessment to ensure that the plan is 'Paris compliant', which means ensuring a credible pathway to net zero emissions by the sector in 2050.

The essential steps are set out below. The way that they interact, including with the EU framework, is illustrated in Figure 1:

1. First, a thorough **needs assessment** undertaken by the Member States and closely scrutinised by the Commission is an essential precursor to the process of setting objectives and targets at the national and/or regional level. This is the cornerstone of the whole approach. Only if the needs and priorities are established in a robust way and presented honestly and clearly can an assessment be made about whether the

objectives and targets are appropriate for that particular country and the subsequent design of measures appropriate to achieve the outcomes identified. The needs assessment should incorporate an assessment of the baseline situation. This is not the same as a SWOT analysis. A SWOT analysis would follow from the needs assessment to identify the strengths, weaknesses, opportunities and threats of addressing these priorities via different means under the CAP.

Needs assessments are already carried out by all Member States to inform the content and targeting of Rural Development Programmes (RDPs) and this should be broadened to cover the CAP objectives for both Pillar 1 and Pillar 2. For environment and climate issues, these needs assessments should draw on priorities already identified within other strategic plans produced at the national and regional level (unless they are known to be unsatisfactory or out of date) – for example the Prioritised Action Frameworks (PAFs) that Member States prepare in relation to Natura 2000 requirements as part of each MFF programming cycle, the River Basin Management Plans produced under the Water Framework Directive, the Nitrates Action Plans and Pesticide Action Plans.

2. Second, based on the needs assessment, specific, measurable, achievable, relevant and time-specified (i.e. SMART) **national and/or regional objectives and targets** should be identified wherever possible. Their link with the overarching objectives and targets at the EU level should be demonstrated as well as with relevant national targets. A key question here is the level of ambition and degree of specificity required in setting the targets. Targets should be quantified wherever possible. This might be to reduce emissions of GHG from the livestock sector by x % by a certain date for example. The rules for assessing performance (see below) need to be sufficiently sophisticated to guard against woolly or unambitious targets being set, largely to avoid sanctions. Although there remain gaps in existing data sets for certain environmental issues, this should not prevent targets being set. In the short term, these could be defined in more qualitative terms, e.g. 'no deterioration and/or an improvement in indicator X', while ensuring that sufficient investment is put into developing the data necessary to apply more quantified targets in the future.

   In terms of those targets that can be quantified in the short term, there are questions about whether these should be subject to some steerage by the Commission to ensure an approximate equality of effort in different Member States or a proportionate effort in relation to problems identified in the needs assessment. Or should they ignore such considerations and simply be as ambitious as possible? The system could be designed so as to encourage ambition, for example, by reserving a proportion of the CAP budget available to be distributed according to the ambition of the Strategic Plan. For both types of targets, consideration should be given to whether they should be geographically/location specific – for example are they normally generic, applicable at the national level, easing the challenge of target setting or should they relate to hot spots where environmental problems exist or where there are risks of environmental damage?

3. Third a suite of **indicators**[5] must be identified that can be used to measure progress against the targets identified in Member States and which can also be used to show progress towards meeting the EU objectives and targets identified. The relationship between the indicator and the targets will have to be set out clearly and where uncertainties remain these should be made transparent. Some of the important issues to take into account when setting indicators to measure environmental performance are set out in the box below.

Box 2: Setting performance indicators

Issues to be taken into account when setting indicators to measure environmental performance:

- Ideally the indicators should include metrics that measure actual environmental impacts (e.g. changes in the populations of biodiversity indicator species, water quality, soil health or GHG emissions). However, it is also good practice to monitor interventions through a more comprehensive and integrated framework, that assess drivers, pressures, state, impacts and responses (i.e. a DPSIR or similar framework) to enable causality to be more accurately determined between the action funded and the impacts achieved.

- It is likely that in a number of cases it will not be possible to measure performance solely using indicators measuring actual impact, both in cases where the impact is difficult to measure and/or where there is a long time lag before results are visible and measurable. In these cases proxy indicators or packages of indicators will be required to determine the causality between the CAP measures and the changes in different environmental and climate issues. For measuring environmental performance, these may take the form of 'result' indicators (using the CMEF terminology) which link outputs to results, but at a more detailed level that are currently in place under the CMEF. For example if the scientific literature shows strong causality for a particular region or location between a certain type of land management activity and an environmental outcome (e.g. certain types of green cover and reductions in soil erosion), then 'area under green cover' could be permitted as a result indicator with which to measure performance against improvements in soil quality. Baskets of these types of indicators could be used to feed into an overarching result indicator 'area under appropriate management to improve soil quality' (or other environmental priorities) for example.

- To ensure that these indicators are robust, it would be beneficial to develop a central database setting out the legitimacy of such indicators for measuring the results intended, broken down ideally by agro-climatic / bio-geographic zones. This could be overseen by the JRC or the EEA and should be kept up to date with the latest research available.

- A number of factors will influence the types of indicators chosen. These include:
    - the availability of data (current or potential);
    - the timing requirements for data collection (when during the year and frequency);
    - the time lag for the results to be seen;
    - the reliability of the indicators, for example the extent to which distorting factors are likely to influence its measurement (e.g. weather etc).

- Technological advances means that there are increasing opportunities afforded by remote sensing (e.g. Sentinel satellites) for collecting data for monitoring. In particular the types of data that can be collected in this way include visible or observable data such as land use changes, linear features (hedges, buffer strips), crop types and hence crop rotation practices, presence or absence of vegetative cover which can be linked to potential environmental outcomes or more direct environmental effects, such as algal blooms, flooding, particulate levels in the air. In addition, for issues such as water or air quality, there are opportunities to gather data remotely

[5] Indicators should conform to RACER criteria: Relevance, Acceptability; Clarity, Easiness, Robustness

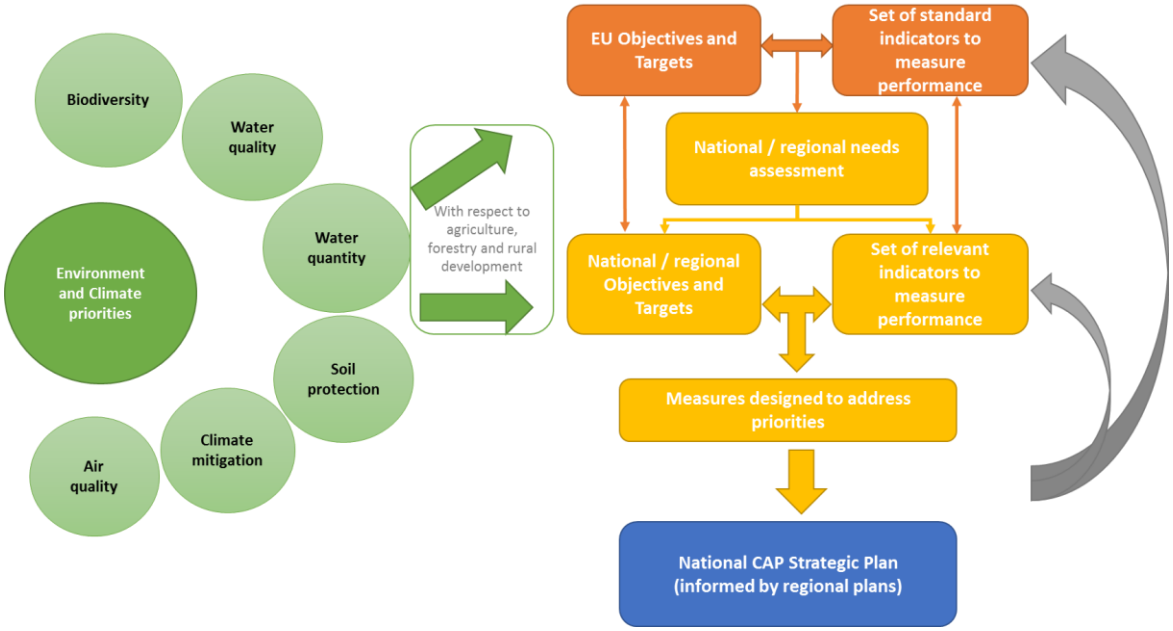
from particular locations, for example using in situ monitoring devices from which data can be uploaded remotely on a regular basis.

- The data currently collected by Member States via IACS and LPIS, if processed, aggregated and made accessible in a suitable way, could also provide useful information to inform monitoring processes, particularly to understand changes in land use and land management, which can be linked to environmental outcomes (see above). Finally, adding an environmental component to the Farm Structure Survey would help provide comparable data on a range of variables for all Member States. This would make it more feasible to have indicators that can work at the EU level and allow progress in different Member States to be compared.

4. Fourth a set of measures/intervention types would be set out, identifying which measures/intervention types would be used to address which objectives and targets (economic, social and environmental) and how they would be targeted to do so. Evidence of the relationship between the measures, the farming practices they promote and the economic, social and environmental outcomes that ensue (the intervention logic) should be made clear. This can build on existing experience with agri-environment-climate and other environmental schemes and a knowledge of what has worked well in the past. Synergistic measures and those where there is potential for conflicts would be highlighted and the process/criteria for avoiding conflict would be set out. The use of these measures could vary between regions within a country and they could be used in different combinations, depending on what a Member State deemed the optimum mix to be to meet the stated targets.

Although the Strategic Plan is intended to guide the delivery of the CAP over a particular EU financial cycle (i.e. 2021-2027), many of the objectives to which it contributes are set within a longer term perspective. It would be useful if the plans could set out the CAP's contribution to 2027 targets within a longer term vision and priorities for agriculture, forestry and rural areas.

Figure 1: Interaction of the EU and national/regional elements of the performance based framework



Source: IEEP

C. Approval process for the Strategic Plan:

Given the flexibilities that the new delivery approach would provide to Member States, it is important that the approval and subsequent monitoring process for the Strategic Plans is thorough and makes sure that:

- the Member State/regional needs assessments are thorough and accurate;
- the objectives and targets set at the Member State/regional level are consistent with and sufficient and proportionate in relation to the needs and priorities set out in the needs assessment; and
- it demonstrates how these contribute to addressing the EU objectives and targets.

In so doing it will be important to ascertain that all objectives are given due attention, that avoidable conflicts and trade-offs between objectives do not arise (or are minimised where these are identified) and that sufficient attention / balance is applied to environment and climate needs and priorities.

The approval process should also check that the indicators proposed for assessing performance are fit for purpose, that the baseline situation for each indicator is provided and that processes are in place to collect the necessary monitoring data to measure progress. Criteria for this assessment would need to be drawn up so that minimum standards were set and negotiations with Member States led to all countries having high quality Strategic Plans that address both their needs and priorities and those set at EU level. This is important because, while targets should not be unrealistic, there is a risk that because funding would be linked in some way to the achievement of these targets, that these would be set by Member States at a limited level of ambition.

It is not clear at this stage whether Member States would be required to set out the measures they intend to use to achieve the identified objectives and targets. However, this is important information and as a minimum should show which measures are to be used to deliver which targets and where measures were intended to be targeted in order to meet a specified need (e.g. measures to improve carbon content of soils, measures to reduce nitrate pollution of water courses, measures to protect/improve Annex 1 habitats).

Shifting the approval process away from checking adherence to eligibility criteria and rules towards one that checks that the plans are likely to achieve the identified objectives requires a change in both role and mind-set of those approving the plans within the European Commission. This will require the necessary resources to be put in place, including capacity building and training to be provided. Strong inputs from all relevant Directorates will be needed – for the environment and climate this means DG ENV and DG CLIMA alongside DG AGRI. Some form of checklist for approval criteria will have to be developed to ensure consistency in the approach to the approval process for Member States. This would need to cover substance as well as process. For example, it might include, a process to check that no backsliding on environmental/climate ambition had taken place and another to ensure that sustainability criteria were in place for assessing applications for investment and land management support.

To ensure that the overall quality of the plan is not compromised as a result of the inevitably limited and urgent timescale for approval it may be helpful to phase elements of approval. In cases where negotiations on certain elements of the plan take longer than others, then it

should be considered whether non-contentious elements of the plan could be approved first, with the more difficult issues approved at a later date once agreement is reached. This would avoid the risk that sub-optimal elements of the plan are approved simply to meet the deadlines.

D. Assessing achievement against objectives and targets:

A critical element of the new delivery approach proposed is the process of assessing how Member States have performed against the agreed targets. The first issue that requires clarification is the level at which indicators will be checked – national, regional or more local level. This may differ according to the indicator in question and the availability of data. Data availability could also mean that indicators may differ between Member States- which leads to questions about whether it is necessary to have the same indicators in different Member States. If robust indicators are in place and are fit for purpose for measuring performance, then this need not be the case. However, using different indicators in different countries will mean that there would be an absence of comparable data at the EU level and possibly greater concerns about diverse levels of effort. To overcome this issue, a common set of EU indicators could be put in place (developed from those already in place under the Common Monitoring and Evaluation Framework (CMEF), but more specific indicators would be deployed as appropriate at Member State level in addition.

In order to receive the full envelope of funding under the CAP over the programming period all indicators identified within the Strategic Plan (economic, social and environmental) should show no deterioration against the baseline or be going in the right direction of travel to meet the target specified (accepting that some indicators may fluctuate year on year due to unforeseen factors that are not policy driven – e.g. those affected by prices or the weather). This reinforces the fact that all aspects of sustainability are important, and underlines the need to support activities that are mutually reinforcing economically, socially and environmentally where possible. Some trade-offs would be inevitable in certain situations, but solutions would have to be found to demonstrate net benefits for all aspects of sustainability at the local / regional/ national level.

A persistent issue that arises in evaluating results of a funding programme like the CAP, particularly for the environment, is how to ascertain causality between the change in the indicator and the measures in place / funding provided. As the system moves towards a performance based approach, and with the strategic plans acting as a tool for guiding the dynamic handling of a suite of CAP instruments, it is unclear the extent to which this matters in practice. If the targets identified relate to the objectives, and the measures in place are chosen with a view to achieving these targets, then perhaps it is more important that the targets are met rather than demonstrating precisely what measures or actions were taken that led to that result. On the other hand, if targets are not being met, then it will be essential to consider the reasons for this and whether a different mix of measures, different targeting, eligibility or payment rates might work better. In this situation, being able to trace back causality through the measures implemented and the actions taken would be necessary.

Adequate monitoring will be required to assess performance effectively. This will require additional investment to source and analyse the data required. However the costs involved should be good value for money as, if designed properly, it will help the CAP to achieve its

objectives in a way which current monitoring does not. In addition, the same data can be used to target funding more effectively (e.g. to areas with habitats and species that are the focus of the nature directives, or to areas that are vulnerable to erosion, water pollution etc), enabling a more efficient use of limited resources. To support these costs, the technical assistance budget, (that currently falls under the EAFRD), could be made a horizontal measure applicable to both Pillars. There could be an explicit requirement that this funding should be used to improve data collection and monitoring programmes relating to CAP expenditure, if sufficient resources are not already allocated for these purposes nationally.

In establishing this system there are some important roles for the Joint Research Council (JRC), Eurostat and the European Environment Agency (EEA) to play. These include:

- To continue to manage and strengthen the collection of data via ongoing programmes (e.g. LUCAS soil survey and its analysis (e.g. satellite data provided via the Copernicus programme);
- To continue to develop more robust indicators, ideally with data available at the regional scale;
- to collate and aggregate IACS/LPIS data, to make them available for monitoring purposes;
- to review what other environmental variables could be usefully collated via IACS/LPIS, the Farm Structure Survey or via the use of remote sensing data; and
- to provide advice and guidance for Member States in relation to monitoring and data integrity.

E. Release of funding:

There is a fundamental tension between the release of a pre-determined allocation of funding to a recipient country and the integrity of a performance based approach. Member States require funding to be released on a regular basis in order for them to operate the schemes and pay beneficiaries. Ideally, funding would only be released to Member States once approval for the Strategic Plan is given. However, this may be a sensitive issue if direct payments are to continue, as Member States would either have to hold payments until the plan was approved, or spend funding 'at risk' before the plan was approved.

In any case, if funding is to be provided on the basis of performance, what happens if the targets are not achieved in the time frame identified? Different options are possible. The priority in the first instance is to incentivise performance and work jointly with Member States to improve performance where weaknesses become apparent. This would involve identifying where the issues lie and how the types of intervention put in place might be altered to deliver better. A proportion of funding could be held back to be awarded once performance has been assured (a performance reserve or performance bonus). Only where Member States are clearly not responding to issues of underperformance, should negative action be taken, for example by clawing back funding where the targets identified are not being attained. A further option could be that performance failure would lead to less funding being provided to the Member State concerned in the following financial period or that funding would be withheld until revised measures were put in place.

There are pros and cons to each of these options, not least in terms of political acceptability. However at the very least, the option chosen should work first by providing a 'carrot' to

perform so that Member States are encouraged to design ambitious plans and only rely on wielding a 'stick' once continued underperformance was not addressed.

F. Complementarity between the CAP Strategic Plan and objectives for other funding instruments:

In the past a coherent approach to what is funded under the CAP's rural development policy (EAFRD) and other European Structural and Investment Funds (ESIF) has been promoted via the requirement on Member States to draft a Partnership Agreement setting out at national level the key priorities and how these will be addressed by the different funds. However CAP Pillar 1 payments have not formed part of this process. With the introduction of a CAP Strategic Plan to cover the whole of the CAP, this raises questions about what the relationship between the CAP Strategic Plan and the current Partnership Agreement arrangement might be in the future. At the very least it will be important to find a means for Member States to demonstrate how different EU funding streams are used to deliver their priorities in a coherent and coordinated way, without recourse to numerous documents.

G. Implications for the CAP budget distribution between Member States:

If the CAP in the future is to be assessed according to its performance in achieving agreed objectives and targets, then it brings into question the current justification for distributing funding according to national allocations and area of agricultural land. Following a new logic of paying for performance, it would make sense to look at allocating budgets to Member States according to their needs and efforts required to achieve the targets identified. This would inevitably lead to some redistribution between Member States, and would require clear criteria to be identified against which budgets would be allocated, but would ensure that the funding and the objectives of the CAP followed the same logic. In the shorter term, as highlighted above, one option could be to allocate a proportion of the CAP budget to Member States according to the environmental/climate ambition of their Strategic Plans, thereby recognising the efforts made by those which are prepared to do more to address their environmental and climate priorities.

3 Fiches by environmental issue

This section looks in greater detail into specific environmental priorities related to agriculture that would be expected to be addressed in Strategic Plans. It is structured as a series of fiches, arranged by environmental issue, which provide information on the following parameters:

- Existing EU level objectives and targets;
- The sources that can be used and related process for setting national/regional objectives and targets;
- Some illustrative indicators that could be used for measuring performance, using as a basis those indicators already developed for use at the EU level, either in the CAP CMEF or the Eurostat Agri-Environmental Indicators (AEIs). In some cases, e.g. biodiversity, new indicators are proposed.
- Issues around measurability and data availability, where this information is available.

These fiches are intended as a starting point for discussion, rather than a comprehensive review of all possible objectives, targets and indicators.

3.1 Biodiversity

Environmental Issue:	**Biodiversity**
EU Objectives:	Habitats Directive (92/43/EEC): '*maintenance or restoration, at favourable conservation status, of the natural habitats and species of wild fauna and flora of Community Interest (article 2)*. Birds Directive (2009/147/EC): '*maintain the population of the species referred to in Article 1'* [all species of naturally occurring birds in the wild state in the EU] *'at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or to adapt the population of these species to that level'.*
EU Targets:	Headline Biodiversity Strategy target: *'Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss*.[6]' Current targets in relation to Birds Directive and Habitats Directives are identified to 2020 under Target 1 of the EU Biodiversity Strategy to 2020. These are expected to be updated in relation to the foreseen post-2020 EU Biodiversity Strategy. It is these new targets would be the ones that would be relevant for the CAP at EU level. Target 1: By 2020, the assessments of species and habitats protected by EU nature law show better conservation or a secure status for 100 % more habitats and 50 % more species. Target 2: By 2020, ecosystems and their services are maintained and enhanced by establishing green infrastructure and restoring at least 15 % of degraded ecosystems. Target 3: By 2020, the conservation of species and habitats depending on or affected by agriculture and forestry, and the provision of their ecosystem services show measurable improvements A) Agriculture: By 2020, maximise areas under agriculture across grasslands, arable land and permanent crops that are covered by biodiversity-related

[6] The target was endorsed by the European Council on 26 March 2010.

	measures under the CAP so as to ensure the conservation of biodiversity and to bring about a measurable improvement in the conservation status of species and habitats that depend on or are affected by agriculture and in the provision of ecosystem services as compared to the EU2010 Baseline, thus contributing to enhance sustainable management. B) Forests: By 2020, Forest Management Plans or equivalent instruments, in line with Sustainable Forest Management (SFM), are in place for all forests that are publicly owned and for forest holdings above a certain size (to be defined by the Member States or regions and communicated in their Rural Development Programmes) that receive funding under the EU Rural Development Policy so as to bring about a measurable improvement in the conservation status of species and habitats that depend on or are affected by forestry and in the provision of related ecosystem services as compared to the EU 2010 Baseline.
Setting national objectives and targets:	Member States should, as part of their needs assessment, identify all Habitats Directive Annex I habitats and Annex II species, and all species of wild birds that are dependent on agriculture or forest management that are most important or most at risk – for example those in unfavourable conservation status or in favourable conservation status but at risk (e.g. through agricultural abandonment or changes in management). These should include all Annex 1 habitats dependent on agriculture as identified in European Commission guidance[7]. Where robust information on High Nature Value farmland (HNV) exists, this should feed into the needs assessment. National and sub-national biogeographical targets should then be set in relation to the area of each agricultural habitat and the % of it in good condition with respect to its structure and function. Similarly national and, for species other than birds, sub-national biogeographical targets should be set in relation to the area of each agricultural species' habitat, and its range (plants) or population size. These targets should be set for the habitat and species population as a whole within the country / biogeographical area, and separately for within the Natura 2000 network. The targets should as a minimum seek to halt declines, and where feasible lead to improvements. The targets should also reflect the conservation status and importance of the habitats and species, e.g. giving greatest priority to those that are threatened in Europe (according to IUCN Red List assessments), have an unfavourable status and/or are declining (according to Member States reporting under the BHD), are listed as priority habitats or species in the Habitats Directive, and for which the country has a particularly large proportion of the EU range or population of the habitats or species. Objectives and targets should also be set for semi-natural / semi-improved agricultural habitats not listed in Annex 1 that are declining, or at risk of declining, and their associated farmland species. This should include objectives for common and widespread species (not targeted by the Birds and Habitats Directives) including common farmland bird populations, grassland butterflies and other species (e.g. pollinators) as robust monitoring data become available. SMART objectives linked to robust indicators are also required for monitoring genetic diversity.
Proposed Indicators:	For habitats not listed on Annex I, and their associated farmland species the Farmland Bird Population Indicator continues to be relevant as an impact indicator. However, indicators for other species groups should be included as monitoring schemes are developed and data become available – e.g. butterflies and pollinators. Other indicators that would be relevant here include those relating to green infrastructure and genetic diversity (plants and animals). For Annex 1 habitats and Annex II species, two types of indicators could be used:

7 http://ec.europa.eu/environment/nature/natura2000/management/docs/FARMING%20FOR%20NATURA%202000-final%20guidance.pdf

	Output/result indicators: - % agricultural land (and each Annex I habitat type*) within N2K areas being managed according to site conservation objectives to prevent deterioration or achieve an improvement in their conservation status - % agricultural land (and each Annex I habitat type*) outside N2K areas being managed according to site conservation objectives to prevent deterioration or achieve an improvement in their conservation status - % forest land (and each Annex I habitat type*) within N2K areas being managed according to site conservation objectives to prevent deterioration or achieve an improvement in their conservation status - % forest land (and each Annex I habitat type*) outside N2K areas being managed according to site conservation objectives to prevent deterioration or achieve an improvement in their conservation status *NB: This should be carried out in cases where there is a significant area of this habitat in the Member State (e.g. over 100 ha) **Impact indicators:** For each Annex I agricultural habitat within each biogeographical area within each Member State (or region if targets are set regionally): - % of target area of habitat, within and outside N2K. - Short-term trend in area (i.e. rolling period of 12 years), within and outside N2K. - % of target area in good condition with respect to structure and function, across the habitat as a whole (as data are not available separately for within and outside the N2K network). - Short-term trend in area in good condition, within and outside N2K For each agricultural indicator species (excluding those that are not good indicators of agricultural impacts, e.g.. because they are sensitive to other factors) within each biogeographical area (except for birds) within each Member State (or region if targets are set regionally): - % of target area of species' habitat, within and outside N2K. - Short-term trend in area (i.e. rolling period of 12 years), within and outside N2K. - % of target range/population area of species' habitat compared to target area of habitat, within and outside N2K. - Short-term trend in area (i.e. rolling period of 12 years), within and outside N2K. NB: It is important NOT to use as an indicator the % of habitats/species in favourable conservation status as this indicator is insensitive to change as it includes future prospects within the assessment. - As a complementary measure to the Birds and Habitats Directives related measures (which should be obligatory) and other species indicators, the HNV impact indicator could be valuable. Although there are no EU-level objectives for HNV, it is a CMEF indicator and therefore could build on experiences and data where Member States have developed robust ways of mapping, targeting and monitoring the location/extent of HNV that is of certain high biodiversity value associated with appropriate agricultural/forest management
Measurability and data availability (including timing of data collection & time lag for results to show)	**Output indicator data** on the areas of habitat that are being managed according to site conservation objectives will be available to some extent via Natura 2000 management plans and/or the Prioritised Action Frameworks (PAFs). However the data are likely to be incomplete and vary in type across the EU, despite their relevance to Target 3 of the Biodiversity Strategy. Such data would therefore need to be compiled using a standard methodology, but some information should be available

	The **impact indicators** listed above relating to habitats and species covered by the BHD are currently available as a result of the standardised monitoring being carried out in accordance with Article 12 or the Birds Directive and Article 17 of the Habitats Directive. A standardised monitoring and reporting system has been established[8] and data are compiled and publicly available online via the European environment information and observation network (Eionet)[9]. However, the assessments on which they are based are only carried out every 6 years, with the current assessment covering the period 2013-2018. Farmland Bird Populations are monitored annually and the indicator data are compiled, analysed and made available by the European Bird Census Council (EBCC). Some monitoring data for other species groups are available (e.g. grassland butterflies) but are less complete (e.g. relating only to certain habitat types), regular and standardised. However, the European Commission has a study underway that is attempting to develop monitoring systems for some selected species groups that will complement the data available for birds. Maps predicting the presence of HNV have been developed at the EU level (e.g. using remote sensing land use data and some species distribution maps), and these are currently being refined by the EEA & JRC. However, these are too coarse grained and unreliable to be suitable for monitoring CAP impacts. Although some MS have developed more detailed, fine-grained and reliable maps of HNV, their suitability for measuring CAP performance (as a complementary indicator to the BHD indicators etc) would need to be carefully evaluated on a case by case basis. Particular care would need to be taken to ensure that HNV definitions only capture high biodiversity agricultural and forest land (i.e. are not too broad) and associated maintenance and restoration targets are SMART and ambitious.

3.2 Water Quality

Environmental Issue:	**Water Quality**
EU Objectives / targets:	• To reduce the pollution of water caused or induced by the application and storage of inorganic fertiliser and manure on farmland and prevent further such pollution to safeguard drinking water supplies and to prevent wider ecological damage through the eutrophication of freshwater and marine waters. (Nitrates Directive 91/676/EC). • To reduce risks and impacts of pesticide use on human health and the environment and encourage the development and introduction of integrated pest management and of alternative approaches or techniques in order to reduce dependency on the use of pesticides (Sustainable Use of Pesticides Directive 2009/128/EC). Other EU objectives relating to water are also relevant, but since they apply also to sectors beyond the reach of the CAP, the link to agriculture (and forests and rural areas) would need to be specified: • By 2030, improve [agriculture's contribution to] water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally (SDG 6.3) • To enhance the status and prevent further deterioration of aquatic ecosystems

[8] http://cdr.eionet.europa.eu/help/habitats_art17
[9] http://www.eionet.europa.eu/

	and associated wetlands, promote the sustainable use of water and reduce water pollution [in sectors funded via the CAP] (Water Framework Directive 2000/60/EC). • To [improve agriculture's contribution to] achieve good status of all water bodies by 2027 (Water Framework Directive 2000/60/EC). • In order to protect the environment as a whole, and human health in particular, [agriculture's contribution to] detrimental concentrations of harmful pollutants in groundwater must be avoided, prevented or reduced (Groundwater Directive 2006/118/EC). • To contribute to the objectives of the Marine Strategy Framework Directive to protect, preserve and, where practicable, restore the marine environment, with the ultimate aim of maintaining biodiversity and providing diverse and dynamic oceans and seas which are clean, healthy and productive (Marine Strategy Framework Directive 2008/56/EC).
Setting national objectives and targets:	Member States should, as part of their needs assessment, identify those water bodies where agriculture is a cause of pollution or is at risk of causing pollution (with respect to nitrates, phosphorous, pesticides) of surface water and ground water. This should be informed by the River Basin Management Plans developed under the WFD, as well as Nitrate Action Plans and Action Plans for the Sustainable Use of Pesticides. These vulnerable areas should be mapped (NB: Nitrate Vulnerable Zones are already mapped). On the basis of this information appropriate targets should be set to minimise the impact of farming practices on water quality so that they do not prevent the attainment or maintenance of good ecological status of water bodies affected by agriculture. The sorts of targets that would be anticipated would involve reductions in nitrogen and phosphorous run off from agricultural land and the negative effects of pesticide use. It would be helpful if the target for the Plan also included intermediary targets so that progress towards the final target could be assessed periodically and in line with the RBMP 6 year assessment cycle.
Indicators:	To achieve the targets set out above, the following impact indicators should all be moving in a positive direction. - Proportion of water bodies in good ecological status (EEA) - Gross nutrient balance (part of CMEF Impact Indicator 11). It estimates potential water pollution by measuring the total potential threat to the environment of nitrogen and phosphorus surplus in agricultural soils, using the following 2 indicators: Gross nitrogen balance (AEI 15, SEBI 19) and Gross phosphorous balance (AEI16) - Nitrates in freshwater (part of CMEF Impact Indicator 11 / AEI 27.1) which is based on sampling data. It comprises the following 2 indicators: Groundwater quality and Surface Water quality (% sites in 3 different quality classes – high, moderate, poor) - Groundwater and rivers with pesticide concentrations above Environmental Quality Standards (EQS) (AEI 27) – but data on pesticides is considered less robust than that on nitrates and therefore has not been proposed as a CAP impact indicator to date. Improvements in the monitoring of these substances should lead to being able to use such an indicator in the future. Possible output/result indicators: - Proportion and hectares of agricultural land subject to Integrated Pest Management practices (does not currently exist). Some definition of qualifying practices would be required; - Presence of buffer strips alongside water courses.

Measurability and data availability (including timing of data collection & time lag for results to show)	Data on gross nutrient balance are reported every 2 years – available at national level only, although there are plans (JRC & Eurostat) to develop this at regional (NUTS2) level Data on nitrates from freshwater is provided via the EEA every year (with 1.5 year delay for processing) – available at national level only. Of the existing indicators, only the Gross Nutrient Balance is directly linked to agriculture. However it is an indirect indicator showing potential risks, not actual water quality. Data on the status of water bodies are updated every six years, maximum. For the other indicators it is not possible to determine agriculture's contribution, although it is generally likely to be a main contributor (See indicator fiche for Impact Indicator I.11) Data on buffer strips should be available via remote sensing data.

3.3 Water Quantity

Environmental Issue:	**Water Quantity**
EU Objectives:	To promote the sustainable use of water and to mitigate the effects of droughts and floods (Water Framework Directive 2000/60/EC).
EU Targets:	By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity (SDG 6.4)
Setting national objectives and targets:	Member States should, as part of their needs assessment, identify those water bodies where agriculture is a cause of risk of water scarcity (with respect to water ecological needs) of surface and ground water bodies. This should be informed by the River Basin Management Plans developed under the WFD. These vulnerable quantity areas should be mapped On the basis of this information appropriate targets should be set to improve water quantity within those water bodies affected by agriculture, both to maintain those in good condition and improve those that are not. This will include limiting the abstraction rate of water for agricultural purposes to the replenishment rate of water from rivers and groundwater aquifers. In cases where these resources are being overused, abstraction rates should be significantly reduced to allow for a recovery. It would be helpful if the target for the Plan also included intermediary targets so that progress towards the final target could be assessed periodically and in line with the RBMP 6 year assessment cycle.
Potential Indicators:	- Water abstraction in agriculture (CMEF Impact Indicator 10) – refers to the volume of water which is applied to soils for irrigation purposes from surface and ground water sources. - Share of water abstraction in agriculture (for irrigation purposes) as a percentage of total gross (freshwater) abstraction. - Change in water-use efficiency over time (SDG indicator 6.4.1) - For any investment in water efficiency, % of saved water allocated to ensure good status of water bodies - Proportion of groundwater bodies in good quantitative status (EEA) - Proportion of water bodies in good hydro-morphological status (EEA)
Measurability and	Water abstraction in agriculture – data comes from the Eurostat Survey on Agricultural

data availability (including timing of data collection & time lag for results to show)	Production Methods (SAPM) which was carried out as part of the FSS only once in 2010. Estimations of the volume of water used for irrigation were collected. The availability of this data source in the future is uncertain. For the share of water abstraction in agriculture for irrigation purposes, these data are provided voluntarily by Member States and via the Joint OECD/Eurostat Questionnaire, Section Inland Water – latest data is from 2011 and only covers 11 Member States. However, data for both these indicators could be collected by Member States. Some Member States have developed models for estimating the volume of water used in agriculture. These could be developed into an EU wide model, for example using FSS data combined with annual crop statistics and meteorological data. See Indicator fiche for CMEF Impact Indicator I.10

3.4 Climate mitigation

Environmental Issue:	**Climate mitigation**
EU Objectives:	Agriculture to contribute to the EU level targets set out in the 2030 climate and energy framework*: • At least 40% cuts in greenhouse gas emissions (from 1990 levels) • At least 27% share for renewable energy • At least 27% improvement in energy efficiency
EU Targets:	• For Member States to ensure that for each 5-year compliance period (2021-25, 2026-30), the amount of carbon absorbed in the LULUCF sector is at least equivalent to that emitted, in accordance with the accounting rules (provisional agreement reached on the future LULUCF regulation) • There are no quantified objectives for agriculture at the EU level for CH_4 or N_2O. • An EU target could be developed that required a target of 'net-zero emissions' for the agricultural sector as a whole (excluding forest areas not on agricultural land).
Setting national objectives and targets:	Member States should, as part of their needs assessment, set out the baseline for GHG emission reductions from the ESR and LULUCF sectors (which both cover agriculture and forestry), broken down by agricultural sector (livestock, arable etc.) and land use type (cropland, grassland, forest land etc.). On the basis of this information, appropriate targets should be set to achieve reductions in the main GHGs from these sectors, notably CH_4, N_2O and CO_2. These would be broken down by agricultural sector and land use type wherever possible. Alternatively a net-zero emission target could be set for the whole sector nationally (including woodland on farms but excluding off-farm forests). It is expected that there are some unavoidable emissions from the productive sectors such as agriculture, and that to reach the ambition of the Paris Agreement and EU targets, negative emissions will need to be considered. Therefore it may be appropriate for emission reduction targets for the sector to include sequestration targets to promote the increase removal of carbon from the atmosphere.
Potential Indicators:	• GHG Emissions from agriculture (CAP CMEF Context indicator C.45 and Impact Indicator I.07) – this includes <u>both</u> aggregated annual emissions of methane (CH_4) and nitrous oxide (N_2O) from agriculture reported by Member States under the 'Agriculture' sector of the national greenhouse gas inventory submitted to the UNFCC <u>AND</u> aggregated annual emissions and removals of carbon dioxide (CO_2), and (where these are not reported

	under the agriculture inventory) emissions of methane (CH_4) and nitrous oxide (N_2O) from agricultural land uses (grassland and cropland), as reported by Member States under the LULUCF sector of the national GHG inventory to the UNFCCC. (see Indicator Fiche for I.07) • Soil organic matter in arable land – kg/ha (CAP CMEF Context Indicator C.41) – data currently available for 2012 • Topsoil Organic Carbon content (for all agricultural land) derived from the LUCAS top soil survey (not a current indicator). The following output indicators would also act as proxies: • Length of hedgerows maintained • Length of hedgerows created • Area under agro-forestry • Area of agricultural land afforested • Area of bogs, wetlands and peatlands drained for agricultural purposes • Area of permanent grassland ploughed for arable use • Area of permanent grassland ploughed and reseeded to grassland. • Change in area under permanent grassland (does not currently exist). • Permanent cover on peat soils. Water content of peat soils.
Measurability and data availability (including timing of data collection & time lag for results to show)	For GHG emissions from agriculture, the data is available from the Annual European Union GHG inventory (with a two-year time lag), which in turn is based on national submissions to the UNFCCC and to the EU Monitoring Mechanism of CO_2 and other GHG emissions. It is compiled and held by the European Environment Agency (EEA) and the European Topic Centre on Air and Climate Change (ETC/ACC). Member States calculate sectoral emissions using standard methodologies (2006 guidelines of the Intergovernmental Panel on Climate Change - IPCC) according to a common reporting framework agreed under the UNFCCC. The data are updated annually. For soil organic matter in arable land see Soil Protection below. Output indicator data should be available via LPIS or satellite data over time.

Note: * whilst these remain the overarching targets of the EU, negotiations on the legislative files, e.g. the recast of the renewable energy Directive, may lead to changes in specific targets.

3.5 Soil Protection

Environmental Issue:	**Soil**
EU Objectives:	• To protect, conserve and enhance the Union's natural capital: …. land is managed sustainably in the Union, soil is adequately protected… [through]… increasing efforts to reduce soil erosion and increase soil organic matter (Seventh Environmental Action Programme - Decision No 1386/2013/EU. • To protect and ensure the sustainable use of soil by preventing further soil degradation and restoring degraded soils (Thematic Strategy for Soil Protection COM(2006) 231 final. [Note: soil degradation in relation to agriculture refers to erosion, loss of organic matter, compaction, salinisation) • To prevent or, where that is not practicable, to reduce emissions into air, water and land and to prevent the generation of waste, in order to achieve a high level of protection of the environment taken as a whole (Industrial Emissions Directive - 2010/75/EU. • To establish a framework of environmental liability based on the 'polluter-pays' principle, to prevent and remedy environmental damage. ……. Including in environmental damage 'land damage, which is any land contamination that

	creates a significant risk of human health being adversely affected as a result of the direct or indirect introduction, in, on or under land, of substances, preparations, organisms or micro-organisms' (Environmental Liability Directive – 2004/35/EC.
EU Targets:	• By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world (SDG 15.3) • Soil sealing often affects fertile agricultural land, and The Roadmap to a Resource Efficient Europe (COM(2011) 571) proposes that by 2020, EU policies take into account their impacts on land use with the aim to achieve no net land take by 2050 (not formally adopted as EU policy though).
Setting national objectives and targets:	Member States should, as part of their needs assessment, set out what the key soil degradation threats are facing agricultural and forest land. For each of these a target should be identified that should require no further deterioration and some improvement towards the target.
Potential Indicators:	Impact indicators: • Proportion of land that is degraded over total land area (SDG indicator 15.3.1) • Soil erosion by water (AEI21, CAP CMEF context indicator C.42, Impact Indicator I.13) • Soil organic matter in arable land – kg/ha (CAP CMEF Context Indicator C.41 and impact indicator I.12) – an estimate of the total Soil Organic Carbon stocks in topsoil (0-20cm) of EU Member States. • Topsoil Organic Carbon content (for all agricultural land) derived from the LUCAS top soil survey (not a current indicator). Output indicators: • Soil cover (share of the year where the arable area is covered by plants or plant residues) (AEI 11.1) – this indicator is not yet mature, although some information exists for 2010 – could be collected via the Farm Structure Survey and/or via the Member States' IACS/LPIS system. This could be improved to make the indicators the 'total area of arable land with soil cover' and 'proportion of arable land with soil cover' and could be broken down to cover the proportion of farmland on a slope of more than x degrees under soil conservation measures (e.g., permanent grass cover, no tillage, contour vegetation) • Topsoil organic carbon content derived from the LUCAS top soil survey (does not currently exist). • Permanent cover on peat soils (does not currently exist). • Water content of peat soils (does not currently exist). • Change in area under permanent grassland (does not currently exist).
Measurability and data availability (including timing of data collection & time lag for results to show)	Currently, the data to measure soils indicators limited. The values for the two indicators currently used formally within the CAP's CMEF are calculated based on estimates. For example: Soil organic matter in arable land – this is based on the map of topsoil organic carbon content at the European scale elaborated by the Joint Research Centre of the European Commission. The map is based on estimates calculated by applying digital soil mapping techniques to the first European harmonized geo-references topsoil (0-20 cm) database, which arises from the Land Use/Cover Area frame statistical Survey(LUCAS), 2009. The current baseline is based on the 2009-12 survey results – although LUCAS is carried out every 3 years, the soil survey is not carried out each time. The delay between soil sampling and results is approx. 2 years. Soil erosion by water – calculated using estimates based on an empirical computer

	model - the Revised Universal Soil Loss Equation model (named RUSLE2015) (JRC-Ispra. Information on land management practices that are linked to soil protection / degradation processes are not collected as a matter of course via the Farm Structure Survey, although these could be incorporated in the future. These data could also be collected via the Member States' IACS/LPIS system. It should be possible to gather some information, e.g. permanent cover on peat soils, water content of peat soils, and area under permanent grassland via remote sensing. Different Member States have different monitoring processes already in place to measure soil health. In the absence of standard EU level rules on soil monitoring a process by which national assessments of soil health are put forward and accepted based on standard parameters for quality data collection would be useful.

3.6 Air quality

Environmental Issue:	**Air quality**
EU Objectives:	• to achieve levels of air quality that do not give rise to significant negative impacts on, and risks to, human health and the environment (Seventh Environmental Action Programme - DECISION No 1386/2013/EU). • Member States shall, as a minimum, limit their annual anthropogenic emissions of …. ammonia … in accordance with the national emission reduction commitments applicable from 2020 to 2029 and from 2030 onwards, as laid down in Annex II. (Directive (EU) 2016/2284.
Setting national objectives and targets:	Member States should, as part of their needs assessment, set out their national emission reduction commitments with respect primarily to ammonia emissions. They should identify the contribution made by the agriculture sector to ammonia emissions, broken down by sector and the planned trajectory for reducing ammonia emissions with a view to meeting these targets, specifying milestones to be achieved.
Potential Indicators:	Result/impact indicator: • Ammonia emissions from agriculture - Kilotonnes of NH3 (part of CMEF impact indicator I.07)
Measurability and data availability (including timing of data collection & time lag for results to show)	Current data are available through the existing reporting requirements under the National Emission Ceilings Directive (2001/81 EC) and would become available under new reporting requirements under the 2016 regulation. The European Environment Agency collates this information (see Impact Indicator fiche I.07)

4 Conclusions and issues requiring further elaboration

This rapid appraisal of the framework and machinery that might be required to put in place a performance based approach, creating a strong link between payments under the CAP and meeting environmental objectives, is unavoidably preliminary. However it does highlight a number of issues and questions that arise and require serious attention. It also underlines the scale of change that would be required to install and operate a fully effective system, recognising that this could be introduced in a series of planned steps. Most, perhaps all, of these steps are required if agriculture payments are to be aligned seriously with the delivery of public goods. Consequently, embarking on this process has value whether or not a performance based approach to CAP delivery can be agreed as part of the next CAP.

At the same time this initial appraisal suggests that there must be clarity about the fundamental role and scope of the performance based element of the CAP. A genuine change in the rate of progress against objectives is required and this has to be seen as a baseline condition for funding -as opposed to a new set of hoops that must be jumped through in order to continue with measures and payments much as they are now. For example, if Member States are free to continue with current Direct Payments at close to or even above the current level, have no need to apply Pillar 2 type measures and have an expectation that this will be acceptable in political terms, it will be difficult to persuade them to take a performance based approach seriously. Rooting a performance based logic in the CAP implies adjustment to the policy in a more fundamental sense.

For the potential opportunities offered by a performance based delivery approach to be realised in practice, requires the following:

- A capacity to set meaningful objectives that are relevant to the timescale in question. These should correspond to national/regional priorities established through a thorough needs assessment, whilst also contributing to meeting EU level objectives in a concrete way. This is possible in relation to the environment but, with current data, knowledge and legal reporting requirements, is easier in some fields than in others. A process of development would therefore be required relatively rapidly. Questions of synergy/conflict with other objectives e.g. socio-economic ones, require close attention.
- An obligation on Member States to give significant weight to environmental objectives/targets in relation to other objectives so that progress would be required in this area, rather than allowing economic objectives to dominate, for example.
- Although in certain areas, such as climate mitigation and soil management, there are no quantified objectives for agriculture at the EU level (leaving aside LULUCF requirements) these would need to be developed within Member States on the basis of coherence with EU goals and the appropriate direction of travel.
- A robust overall process to be established and refined over time to allow the production, implementation and assessment of sufficiently robust Strategic Plans on which to set and reward performance. Four essential steps can be identified, i.e. (a) thorough Needs Assessments at Member State level; (b) subsequent setting of national/regional objectives and targets (as SMART as possible); (c) the agreement of a suite of appropriate indicators; (d) a programme of measures specified that was credible to meet

the targets. Questions of flexibility arise: for example it would be acceptable to change measures part way through the programme if effectiveness could be improved.

- That objectives are expressed in appropriate ways and at a sufficient level of ambition at Member State level. They should be stretching, even if they require maintenance rather than improvement e.g. the maintenance of species rich grassland. Where possible they should be expressed in quantitative terms e.g. a % reduction in GHG or ammonia emissions from a baseline. In many cases suitable indicators are available. Others can be developed. In some Member States targets might take the form of meeting a certain milestone e.g. 90% of agricultural catchments meet WFD requirements by year X.
- Trade-offs between the different objectives and targets may be necessary in certain respects but should be avoided wherever possible. This requires some discretion and justification should be required where trade-offs are proposed and transparency provided on what the trade-offs are and why they are proposed.
- There would need to be a sufficient range of environmental objectives/targets relevant to agriculture, not simply two for example. Rules or guidance on this point would be required. Legitimate differences between Member States would need to be accommodated.
- The process of setting objectives/ targets would need to be robust and subject to transparent rules. Guidelines for Member State strategic plans would need to be developed early to provide sufficient time for these plans to be meaningful. Constraints on Member States setting deliberately low targets would be needed and would be in the interest of other Member States as well as the environment and so as not to undermine the legitimacy of the payments. A strong EU database as well as greater investment in data collection and analysis in the Member States will be key for this purpose. Robust needs assessments following clear guidelines would be a second key tool and this would need to be scrutinised carefully by the Commission services, potentially through several drafts. The first such assessment would set the tone for subsequent ones.
- Scrutiny and assessment of the objective setting and the wider process of Plan approval and monitoring by the Commission would need to be thorough, credible, and carried out over a realistic timetable. This probably implies a series of steps and iterations and potentially the approval of parts rather than the whole of the plan at the outset. This would help to prevent irresistible pressure for approval of the whole Plan building up before more technically and politically challenging issues can be resolved. The Commission would need sufficient resources to be able to do this in a credible way whilst treating Member States even-handedly (principles such as equality of effort may be relevant). Technical support from the JRC and others would be needed and a period of investment and suitable organisation is likely to be necessary.
- Assuming that appropriate objectives are set, the measures proposed by Member States need to be credible in relation to meeting them and an appropriate monitoring system put in place. To justify the measures, evidence from different sources would be possible, including experience in different parts of the EU. Whilst Member States would need to show they had a credible Plan, questions arise as to what, if any, penalties would apply if credible, agreed measures did not result in predicted outcomes. What would be the criteria here? It would be useful to have a centralised and continuously updated pan-EU database of the environmental performance of a full suite of management actions implemented in different conditions in Europe as a reference point.

- Both established and new indicators would need to be deployed to measure progress. In some cases these would be sufficiently robust to allow performance to be assessed, in others this might not be possible without further development or proxies would be required. However the implementation of measures known to be effective (and in demonstrable good faith, independently evaluated), could be an acceptable proxy for meeting quantified targets. Over time such proxies would be replaced by measurable targets.
- Even where indicators already exist, the data for measuring them is only collected infrequently and not always able to be analysed below national level. The introduction of this type of approach will necessitate increases in the frequency of data collection and analysis and ensuring that this is available at a level that is meaningful for assessing environmental performance.
- Monitoring could be a combination of EU level consistent data capture e.g. by remote sensing and Member State determined regimes, which would need to be presented as part of Strategic Plans. Existing databases are not currently sufficient. There would need to be mechanisms to balance the unavoidable incentives for Member States to focus on parameters that were relatively easy and lower cost to monitor. There would need to be a process of aligning technical and policy driven monitoring timescales and cycles. This would not happen overnight. Use of the technical assistance budget to improve the depth and quality of data and monitoring systems in Member States would help here. This budget could be extended into the Pillar I element of the CAP as well.
- Some increase in costs arising from setting, monitoring and assessing performance could be expected, especially during transition. Some Member State level costs could be met through an enhanced Technical Assistance budget within the CAP. Exact costs are difficult to estimate.

This paper shows that it is possible to see how a performance based system could operate and some of the issues that could arise. A significant period of preparation would be required to establish a robust system, starting relatively soon if it were to be operational by the early 2020s. Clearly, the design of the system and the relationship between performance and payments would raise political as well as technical issues; only some of these have been addressed here. The danger of creating complex mechanism that ultimately serves only to legitimise a continuation of current support systems is ever present, as past experience of the CAP underlines. As one commentator put it, "There is the dangerous and very real option that Member States will use the façade of strategic planning to keep current suboptimal mechanisms in both pillars. This almost seems to be an inevitable fact given the current political-economic situation. Is 'greenwashing' to be followed by 'strategy faking'?"[10]

There are clearly tensions between a real performance based approach and a practice of maintaining a certain fixed distribution of the CAP budgetary envelope between Member States. Rewarding performance implies flexibility to direct funding at high performers and away from others. If a pre-determined budgetary allocation had to be maintained and not adjusted in the course of performance, the actual rather than the apparent expectations of Member States would be more difficult for everyone to judge.

[10] Emil Erjavec 'The CAP Communication: Paradigmatic change or empty rhetoric?, 21 December 2017, www.capreform.eu

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