Policy lessons and recommendations from the PEGASUS project

Deliverable 5.4

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TRANSFORMING APPROACHES TO RURAL LAND MANAGEMENT
Stimulating long-lasting improvements in the delivery of social, economic and environmental benefits from EU agricultural and forest land

28/02/2018

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Executive summary

This report focuses on the policy lessons and recommendations from the PEGASUS project. It is an Horizon 2020 study that has investigated the best ways to try to stimulate long-lasting improvements in the delivery of social, economic and environmental benefits from agricultural and forestry land in the EU and the engagement of different actors in this process. It draws on evidence from the previous deliverables from the project, detailed information from the 34 PEGASUS case studies, discussions from a series of local, national and European workshops held as part of the project and from the wider literature.

The report sets out the current state of play in the EU’s rural areas from an environmental, climate and socio-economic perspective and highlights the key challenges that are faced in improving this situation from a policy and governance perspective (Chapter 2). This highlights that current regulations and CAP funded incentives provide an essential foundation for the provision of environmental and social benefits by agriculture and forestry in the EU. However, they have not been used so far in a way that sufficiently delivers the wide-ranging, long-lasting changes that are required to meet the objectives set out in EU legislation (such as those under the Birds and Habitats directives, the Water Framework Directive and the EU targets for climate change) as well as the growing societal demand for a more sustainable approach (as expressed through, for example the Paris Agreement on climate change or the global Sustainable Development Goals).

Some of the reasons for the limited policy response are identified. While certain of the issues stem from policy design, others relate more to the way that policy measures of different kinds are applied. For example, how they are communicated to farmers and foresters, the extent to which they are sensitive to local conditions, their ease of access, their compatibility with other policy measures and the culture within which they operate (i.e. more often than not focussed on adherence to rules and penalties for non-compliance, rather than flexible and supportive). The report highlights that to date the main way in which land managers engage with policy to deliver environmental and social benefits is through farm level agreements under particular CAP policy measures. Despite more emphasis on cooperation at a territorial level in recent years and attempts to generate innovation, these opportunities have not been taken up significantly by Member States.

The PEGASUS project sought to understand how policy might evolve to help overcome some of these limitations in the current pattern of response. It explores some of the insights that can be drawn from the research (Chapter 3). The report highlights that the provision of environmental and social benefits from agriculture and forest management are the product of the interplay among three main drivers. These are: private market mechanisms; the policy mix available; and the way that multiple actors collaborate and cooperate to determine priorities for action in a particular area or within a supply chain. The way in which these three types of drivers interact in each specific
setting determines the nature of the environmental and social benefits which are generated. From this it becomes clear that social processes are important: it is not sufficient to set out the actions that farmers and forest managers need to put in place to deliver the outcomes desired. The processes of communication and dialogue that lead to the activities being carried out are key to achieving a successful outcome.

The report looks at the findings from PEGASUS in relation to the three key drivers, focussing on: encouraging collective and multi-actor approaches; harnessing opportunities via the market; and getting the right policy mix and governance/institutional structures in place. Multi-actor approaches were found to have a lot of potential in terms of consolidating these social processes and building a greater commitment by key actors (e.g. better identification of synergies and trade-offs locally, greater sense of ownership, etc.). They can also increase the scale of impact.

To enable these types of approaches, PEGASUS showed that there is a need to better understand the structure and dynamics of related local social processes, as they are critical for securing buy-in and then action on the provision of environmental and social benefits on the ground. As part of a multi-actor approach, strengthening the links within the supply chain e.g. for food products, was found to have significant potential in many conditions. It can lead to more sustained actions and more robust business models. Potentially the extent of environmental and social benefits can be increased if they are internalised within the value chain. In relation to the policy mix available, the research indicated that more innovative and locally tailored policy mixes could produce better results and that support and capacity building should play a more central role in the policy mix in the future.

The final chapter (Chapter 4) draws out some of the implications for future policy if more widespread adoption of new approaches is to be supported at different levels, stretching from the local to the European. In summary, the chapter concludes that to deliver more environmental and social benefits from agriculture and forestry, there is a need for a policy framework that:

- Brings people to the centre stage;
- Promotes cooperative ways of working (i.e. through more multi-actor groups, or ‘collective’ action) to enable greater scale, longevity and coherence of the action, including increased engagement and commitment of farmers and foresters; strengthening the links with the supply chain; and encouraging more synergies with the private sector;
- Builds trust with local actors and embeds dialogue with stakeholders at all stages of the policy cycle;
- Allows for a more flexible and joined up use of the policy mix, better adapted to local needs; and
- Mainstreams the combined use of facilitation and capacity building with other measures so that it becomes the norm rather than the exception.
In practice, this requires:

- An increase in the focus on capacity building, facilitation and multi-actor engagement;
- Policies that are designed to support empowerment and innovation (for example ensuring that funding rules enable rather than constrain new ideas and approaches to be trialled, piloted and rolled out; a greater focus on outcomes and results; and thinking about new ways of encouraging engagement in schemes);
- Encouraging more cooperation / collective approaches, including being proactive about setting up appropriate local governance arrangements; providing higher payment rates for those involved in group agreements; embedding environmental and climate objectives into the role of producer groups; and promoting networking and sharing of experiences between Member States.

Putting in place such an approach would be a significant change. The opportunity to do so should not be delayed and should be given serious consideration during the debate on the future CAP that is now getting underway.
1 Introduction

The PEGASUS project – ‘Public Ecosystem Goods and Services from land management: Unlocking the synergies’ (http://pegasus.ieep.eu/) – is a pan-European Horizon 2020 project running over three years to February 2018. It has looked for the best ways to try to stimulate long-lasting improvements in the delivery of social, economic and environmental benefits from agricultural and forestry land in the EU and the engagement of different actors in this process. Different approaches have been explored, particularly those involving multi-actor initiatives, primarily at a local level. At the heart of the project was a set of 34 case studies of diverse initiatives concerned with different aspects of agriculture, forestry and environmental management in ten countries.

This report is one of a set of final papers arising from the project; it focuses on the potential policy conclusions and recommendations. It draws on evidence from the case studies, a series of local, national and European workshops held as part of the project and from the wider literature.

Key to the original rationale for the project was an assessment that current policy frameworks and their implementation in Europe have not been sufficient to counter the ongoing trends of environmental degradation in many localities and to achieve the changes required to ensure the long-term, sustainable provision of public goods and ecosystem services from EU agriculture and forestry. Some of the key trends underlying this concern are set out in Annex 2 at the end of this report. Consequently, at an early stage of the study there was an examination of some of the main factors that currently seem to be limiting the delivery of environmentally and socially beneficial outcomes by the agriculture and forestry sectors in Europe (see Chapter 2). This drew attention to a range of questions about policy design and implementation at the local, national and EU levels that were explored later in the case studies and workshops.

The analysis in the study began with the definition of a conceptual framework (Maréchal A. et al, 2016), drawing on both the Public Goods and Ecosystem Services concepts. This in turn led to a focus on a range of specified beneficial outcomes in the environmental and social domains, set out in Annex 1 of this report. In each of the 10 EU countries, there was an analysis of the role which economic, institutional and other drivers play in influencing the provision (or otherwise) of these benefits from land management (Mantino F. et al, 2016). In parallel, there was an examination of the extent to which maps can cast light on the association of certain types of farming and forestry with the provision of specific environmental and social benefits in rural areas, using a range of data sources (JRC and Alterra, 2018).

The central case study exercise took place in two stages investigating a total of 34 case studies (IfLS, CCRI, 2016 and 2017), the results of which were brought together in a cross-cutting comparative analysis which drew out commonalities and sought to understand local or sectoral specificities (Sterly S. et al, 2017). Wider experience in Europe was considered by means of a review of literature in this field.

This report first takes stock, summarising some of the ongoing environmental and socio-economic challenges facing rural areas in the EU (Chapter 2), exploring the reasons why many policy goals and
wider societal expectations are not being met, at least at the scale required, despite a range of policy measures being in place. Chapter 3 draws out some of the lessons from the case studies and other strands of the project on the way in which the main drivers that influence the delivery of environmental and social benefits from agriculture and forest management interact and offers conclusions that can be drawn on what this means for actors trying to make initiatives on the ground work well. Ways of scaling up multi-actor initiatives are considered. Building on these insights, Chapter 4 proposes a series of related recommendations of relevance to the future of a range of policies, notably the Common Agricultural Policy.
2 Why is change required?

2.1 Environmental and social benefits from rural areas

Rural land in the EU provides a wide range of key functions and services on which society depends. As well as being a vital resource for the production of food, fibre, timber and energy, land managed for agriculture and forestry is also a source of environmental and social goods and services, including climate regulation, biodiversity, water quality, soil functionality, flood management, cultural landscapes and recreation (see Annex 1).

Rural regions\(^1\) cover 44 % of the EU territory, intermediate regions another 44 %, while predominantly urban regions only represent 12 % of the territory. In the EU-N13, rural regions cover a slightly higher share of the territory (48.4 %), while urban areas are less important (4.6 %). Predominantly rural regions represent around 80 % and more of the territory in Ireland, Finland, Estonia, Portugal, and Austria.

The way in which the land is managed in these areas has a critical influence upon the provision of both environmental and social goods and services\(^2\). Key considerations include the type of production, cropping patterns, levels of intensity, the use of labour and the particular management systems and practices employed. In some cases the degree to which very local considerations, such as specific soil conditions or traditional landscapes have been taken into account, is critical. Everywhere it is the individual and combined decisions and actions of the farmers, foresters and others concerned that has a decisive effect on outcomes.

At present the overall trends in agri-environmental indicators, such as farmland bird populations and levels of soil organic matter, are not particularly encouraging, although there are variations depending on the parameters being considered and the locations involved. Some of the data for key parameters, such as biodiversity, water quality, soil health, greenhouse gas emissions and ammonia emissions is summarised in Annex 2. Even in cases where substantial progress is being made, for example in reducing water pollution, there is a considerable distance to travel before the requirements of legislation such as the Water Framework directive are being met in many rural areas. Agriculture is often highlighted as a major contributor to the under provision of environmental benefits and a key source of continued pressure on the environment. Social expectations continue to develop, as expressed in global signals such as the Paris Agreement and the UN’s Sustainable Development goals (SDGs). In time their influence on agriculture and forestry can be expected to be more pronounced. More generally, the case studies confirm that there is the potential to produce far greater environmental benefits from farmland with the right forms of

\(^1\) Rural regions are classified as NUTS 3 regions in which the rural population comprises over 50 % of the total population; intermediate regions are those in which the rural population constitutes 20-50% of the total population; predominantly urban regions are those where the rural population is less than 20 % of the total population: http://ec.europa.eu/eurostat/statistics-explained/index.php/Urban-rural_typology

\(^2\) The relationship between different public goods, ecosystem services and the diversity of land management in EU farming and forestry systems in different biogeographic, social, economic and institutional contexts is set out in Deliverable 1.2 (Maréchal et al., 2016).
management in place. Public goods supply can be expanded at the same time that ‘bads’ such as pollution are reduced.

The absence of markets for many environmental goods and services in conjunction with the drive to increase the production of food, feed, timber, energy and other marketed commodities from land over the past half century, have led to significant decline and thus undersupply in public goods associated with rural landscapes. Looking ahead, this situation compromises the resilience of rural land in being ready to meet continued or new challenges, in particular those brought about by climate change.

The potential for increased social benefits from rural land management is also very considerable, although this can be more difficult to capture in readily measured parameters. Public goods, such as ‘rural vitality’ are consistently identified in the literature as being valued by the public in the EU, (Cooper et al, 2009) and this was very much confirmed in the case studies during the project. Economic and social trends in rural areas in the EU-27 vary enormously depending on a whole range of factors but the demand for greater ‘rural vitality’ was apparent in both case studies and workshops during the project. It is a difficult concept to express with quantified indicators, given that it depends on a wide range of factors and varies enormously between locations. However, the concerns arising from the project often focussed on the level and quality of employment available in agriculture, forestry and related activities and the fragility of social capital in many areas. Box 12 in Annex 1 presents the trends in a series of generally indirect or proxy indicators which together help to depict at least some elements of the vitality of EU rural areas.

2.2 Some limitations of the current policy response

The EU has devoted considerable resources in the form of research, development, regulation, administrative time and public funding over many years to devise and put in place interventions to increase the level of environmental and social benefits from agriculture in particular, but to some degree from forestry as well. These interventions, especially the regulations and incentive measures, currently provide an essential foundation for the delivery of these benefits from rural land management.

Amongst the key instruments is a range of incentives and other payments for appropriate management, mostly originating at the EU level, mainly but not exclusively through the CAP. Within these are many of the Pillar 2 rural development measures, including agri-environment-climate measures (AECMs), organic farming payments, compensation payments for management complying with requirements of Natura 2000 and the Water Framework Directive, support for non-productive capital investments, for cooperation between farms (including the cooperation measure, CLLD under Cohesion/RDPs - Leader) and for advice, through the RDP and also the Farm Advisory Systems. Some of the present cluster of policy options has been implemented particularly effectively in certain conditions and for certain purposes, as underlined by the PEGASUS case studies.
However, having these policy measures in place has not been sufficient to meet a variety of policy objectives and wider expectations, as noted above and in Annex 2. This is illustrated both by the meta-trends and in the case studies. Some of the weaknesses relate to the design of policies, or the scale on which they have been applied in relation to need. However, many others relate to the way that policy measures of different kinds are applied, i.e. whether or not they are not well targeted or explained, attractively presented, are remote from the key factors driving the decisions of farmers on the ground or have over burdensome conditions or cannot be applied in helpful combinations. Sometimes they are insufficiently sensitive to local conditions. Indeed, the case studies strongly suggest that there are many variables that influence the effectiveness of these policies in practice.

The case studies in particular suggest that in the majority of cases policy measures are designed to apply to individual farms and their management choices. The potential advantages of more multi-actor and collective approaches, one of which is a larger scale of impact, have been more difficult to capture. To date, the focus of the majority of CAP funding instruments has been to provide Member States with a series of measures that can be used to pay for specific activities on individual farms, whether investments in infrastructure or payments for environmental land management. This creates a rather atomistic culture and approach, which is accompanied by compensation culture, either implicitly or explicitly. The sense of society rewarding the benefits of good management and the potential to blend this service with other business aspirations can be lost, although this may be more appealing to many farmers and foresters. Levels of ambition and uptake can be lower as a result.

However, the importance of achieving a critical mass of action within a defined geographical area has been promoted for some time. For example, in 2011 the European Court of Auditors stated "In certain cases it might be necessary to have in a particular geographical area a minimum number of farmers signing a contract. Such cases can be to maintain (...) local landscape, to reduce pollution (...) or protect certain species (...). Expenditure for a few individual contracts may not be effective in such cases. One way to ensure that a sufficiently large group of farmers delivers the necessary environmental benefits is through collective approaches." (ECA, 2011).

Growing acceptance of the importance of scale and multi-actor approaches led, in the 2014-2020 CAP rural development policy, to a greater emphasis being placed on collective and co-operative approaches for environmental purposes by making available a range of tools to provide funding for this purpose. These measures include in particular the cooperation measure (measure 16 (Article 35) of the EAFRD regulation), but also other options where the intended beneficiaries are groups of land managers (as opposed to single entities). For example, the agri-environment-climate measure (M10) and the organic farming measure (M11) both allow for a higher proportion of transaction costs within the payment calculation where contracts involve groups of farmers or foresters.

However, despite their potential benefits, collective/cooperative approaches to land management for environmental purposes are as yet not commonly used in the EU. Some of the barriers that emerged from the case studies and the literature are set out in Box 1.
Box 1: Factors limiting the uptake of the cooperation measure currently available in the CAP

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<th>Key barriers to collective action are commonly found to be:</th>
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<td>• The absence of a local ‘champion’, ‘facilitator’ or ‘animator’ to kick start the process;</td>
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<td>• The fact that collective action is often seen as more complicated to organise and facilitate and the legal status of the actors cooperating (and implications that this has for who can apply for payments under the RDP);</td>
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<td>• The challenges of building sufficient trust between actors and sometimes negative historical connotations of ‘collective’ approaches – this is particularly the case in many central and eastern European countries, where historical and cultural factors influence the degree to which individuals are willing to work collaboratively and where building trust between different actors is not straightforward;</td>
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<td>• Issues of accountability and who is responsible if objectives are not achieved;</td>
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<td>• A related concern that free riders may benefit from the efforts of others and arrangements will not be fair.</td>
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<td>• Issues of cost, especially concerns over higher transaction costs involved in multi-actor initiatives; it may not be clear which costs are permissible under RDP measures and the calculation of eligible costs;</td>
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<td>• The question of how to balance individual group/territorial priorities with local, regional, national and wider EU priorities to ensure that objectives agreed locally help contribute to and do not undermine broader regional or national objectives; this may be a deterrent for some public authorities;</td>
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<td>• Difficulties of accessing public funds at the right time in the cycle of a collective initiative or in accessing the best combination of measures or in complying with eligibility requirements. Matching the needs of a multi-actor initiative to the support policy cycle can be more challenging than for individual farms or foresters;</td>
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<td>• The strong emphasis on individual (i.e. farm level only) support currently offered by CAP measures in many cases limits the willingness or interest of stakeholders to engage in collective actions.</td>
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Source: based on ENRD CP, 2016; IfLS, 2016; IfLS, CCRI, 2016 and IfLS, CCRI, 2017

There are also some coherence issues to be noted (as evidenced in a number of case studies) where the combination of policy instruments being offered has not worked well for the initiatives being studied, or have been actively counterproductive in their view, with some negative consequences for the provision of environmental or social benefits. Negative effects often arise from an apparent lack of political/institutional interest and societal awareness in what is required to bring about the benefits in question. Some types of rural land management (e.g. traditional agroforestry systems such as montado) are not necessarily valued in their own right. For example, in the Alentejo case study the lack of regeneration of the traditional oak trees in the montado was a very widespread problem and had been exacerbated by measures to encourage an increase in cattle production, resulting in unsustainable grazing pressure.

There is also a tendency towards risk-averse design and implementation of payment measures, including AECMs under the CAP because of the stringent and detailed compliance rules and the way that they are operated by the European Commission. This is leading to an aggravated fear of potential penalties for Member States, in particular disallowance of funds from the CAP, which can be punitive. Newer, more innovative schemes may be discouraged as a result, and land management options that raise potentially small discrepancies in the field, such as the precise size of a natural feature being incorrectly measured, can be discouraged. Perversely, auditing requirements like this can encourage strong path dependency and therefore constrain both

See for example the following case studies: EE-2 (Grass-fed beef label in Estonia); DE-2 (Traditional orchard meadows in Hessen/Baden-Wurttemberg); PT-1 (Montado extensive silvo-pastoral system in Portugal); PT-2 (Intensive olive groves in Baixo Alentejo); SI-1 (Agro-forestry in sub-alpine Slovenia (Upper Savinja Valley)). See Deliverable 4.1 (IfLS and CCRI, 2016). Available at: [http://pegasus.ieep.eu/resources-list](http://pegasus.ieep.eu/resources-list)
innovation and more collective approaches since they often entail a higher element of risk, in the earlier stages particularly. This risk-averse behaviour can also arise at the farm level because of the same fear of non-compliance with rules that can be very narrowly interpreted.

There are clearly further issues related to the design and operation of particular policies, the levels at which they are funded and the extent to which they are in competition with other policies. However, these were not the primary focus in PEGASUS. Rather, there was a particular concern with governance and delivery questions. Some of the challenges identified in the case studies and elsewhere are set out in Box 2 below. Furthermore, the case studies explored a range of more collaborative and multi-actor initiatives, which are not very numerous in the EU, certainly compared with the uptake of CAP measures by individual farmers. The reasons for this relative lack of development were of particular interest to the study and became more apparent in the course of the case studies. Many were related to governance issues in a broad sense and are included at a very generic level in Box 2.

**Box 2: Governance and delivery challenges relating to the provision of environmental and social benefits from farmland and forestry in the EU**

- Lack of engagement by land managers in various ways and for several possible reasons. These may include a lack of knowledge or understanding about local or more generic environmental and social challenges (i.e. lack of awareness and understanding of the issue, lack of monitoring and information) or a lack of motivation (i.e. perception of risks of getting involved, insufficient economic incentives, lack of trust, etc.). These lead to either low uptake levels of public schemes or initiatives or lack of commitment over the long term;
- A widespread disconnection of incentives for environmental land management from the market and the price that farmers may be able to obtain for their products.
- Prevailing practices in the value chains eg for food products may reduce the incentive for primary producers to deliver environmental and social benefits. For example, oligopolistic situations down the value chain may block innovation and result in an unfair distribution of the value added within the supply chain.
- Barriers to co-operation vary but in some locations can include the absence of a tradition of collective endeavour in the local culture, or the aftermath of unhappy historical experiences. In many cases the additional transaction costs involved can be a concern.
- Governance and institutional capacities can be insufficient in various ways. The relevant governance structures can be inappropriate but also there can be inadequacies in the level of skills and institutional capacity in relation to the management and governance of rural resources. This can skew local patterns of development as well as influence more specific management practices.
- In some areas it was felt that there was limited local market potential for more environmentally sustainable and possibly more expensive products and sometimes a lack of business infrastructure in the form of shops, hotels, abattoirs or even people with business skills to enable farmers to find the right local processing or marketing opportunities.
- The challenges of upskilling an industry with a predominantly older age structure (although sometimes generational change brings new practices which can result in environmental degradation as well as being a driver of innovation). The development of skills can be linked to increases in understanding of environmentally sound practices and the issues they are intended to address.
- Other structural issues such as land ownership and tenancy rights, taxation (including inheritance tax), inappropriate contractual arrangements, etc., which can impede the ability of farm businesses to address the provision of private and public goods in an optimal manner.
The PEGASUS case studies show how varied (from bio-geographical, societal and cultural perspectives) the challenges can be and the value of looking at all the issues facing an area in combination to find ways of addressing them in a holistic way, involving relevant stakeholders where this is possible. This does not mean that the current array of policy tools is without merit or that a lot of totally new instruments are required. It underlines the importance of how policies are being applied to the key challenges and the way in which they are being delivered. As noted above, nearly all the current policy instruments are being used in some combination in the case study initiatives.

The case studies do underline however the value of carefully exploring the role of policy mixes in stimulating the provision of environmental and social benefits in the managed rural environment. The added value of policy mix analysis goes beyond the effectiveness of single instruments or single strategies and aims to address the weaknesses of one instrument by evaluating other additional or complementary instruments in combination. In this case the analysis targets a wider territory/area instead of a single farm.

The role of policy and other drivers is developed further in the next section, with particular attention to the challenge of encouraging multi-actor and more co-operative approaches.
3 Addressing the challenges faced: insights from PEGASUS

The research and the examples from the 34 case studies conducted as part of the PEGASUS project have shown that the provision of environmental and social benefits from agriculture and forest management are the product of the interplay among three fundamental types of drivers (Figure 1): private market mechanisms, the policy mix (the set of policies implemented in the specific territorial context) and the way that multiple actors collaborate and cooperate to determine priorities for action in a particular area or within a supply chain and in so doing develop appropriate (and sometimes new) modes of governance. These three types of drivers mutually interact in each specific setting and this interaction determines the intensity and the type of environmental and social benefits which can be generated. A high level of cooperation and healthy governance and institutional settings generally influence positively the ability to capture the opportunities created by policies and market forces. In addition, a policy mix that is able to support effectively collective/cooperative actions can also provide positive effects on the provision of environmental and social benefits.

Figure 1: Key drivers and their potential interplay in the process of generating environmental and social benefits

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4 These findings are based on different strands of the PEGASUS research, in particular on an analysis of policy, market and institutional drivers in 10 countries (Mantino F. et al, 2016 - Deliverable 3.3); the mapping work exploring linkages between land management systems and the provision of public goods and ecosystem services (JRC and Alterra, 2018 - Deliverable 2.3); and the results of 34 case studies across the EU (IfLS, CCRI, 2016 – Deliverable 4.1; IfLS, CCRI, 2017 – Deliverable 4.3, Knickle K. et al, 2017 - Deliverable 4.4 and Sterly S. et al, 2017 – Deliverable 5.1).
From this, it can be seen that it is not simply a question of what actions farmers and forest managers put in place to deliver the outcomes desired, but the process through which these actions are put in place is a key factor determining the success in achieving the outcome. In particular, the PEGASUS findings highlight the importance of social processes in securing more widespread and longer term increases in environmental and social benefits from agriculture and forestry. Achieving these benefits relies on the actions of farmers, forest-managers and other actors. By working together within a local area and along the supply chain there is far greater potential for identifying objectives, sharing ideas, identifying opportunities for collaboration and using a variety of policies and market opportunities to develop and test different approaches to delivery. This engagement translates into greater motivation and commitment to the actions carried out and can lead to them becoming more embedded and longer-lasting.

Finding ways of harnessing and influencing the three types of drivers identified above in way that are appropriate to the local context, was found in PEGASUS to be critical for creating the right enabling environment in which stakeholders feel motivated and empowered to respond to societal demand for achieving sustained and more effective provision of environmental and social outcomes. How this can be achieved is developed in the following sections, using the evidence from PEGASUS.

### 3.1 Encouraging collective or multi-actor approaches

**Definition:** Marshall (1998) defines collective action as “the action taken by a group (either directly or on its behalf through an organisation) in pursuit of members’ perceived shared interests”.

Elaborating on Marshall’s definition, in this study ‘collective’ action is used in the broad sense of a multi-actor action which can take many forms as long as it involves some collaboration, cooperation or group action. Collective or multi-actor actions can be for instance:

- Bottom up, community-led initiatives;
- Coordinated actions between practitioners and e.g. local authorities;
- Private sector-led initiatives;
- NGO initiatives and projects involving land managers.

Through the PEGASUS case studies, we have established that a wide range of triggers can motivate the emergence of a collective initiative or inspire willingness to collaborate to enhance the environmental performance of rural areas. Often it is a combination of drivers that work together to create the impetus for taking action. The trigger to taking action very often occurs when the provision of economic, environmental and/or social outcomes is noticeably decreasing or visibly under threat. Public recognition of the issues can be a powerful trigger for motivating action and cooperation, especially where it can be translated into economic or monetary terms and
This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 633814

awareness, interest. Indeed the appreciation\(^5\) by local actors of the benefits that are at risk are key to underpin the kind of longer term engagement for environmental enhancement that is the hallmark of many successful initiatives PEGASUS has investigated.

**Box 3: Key triggers motivating the setting up of collective initiatives in PEGASUS**

- **Economic opportunities** and/or the need to address growing economic pressures. In many cases, this is related to farming or forestry systems being at risk (e.g. abandonment or intensification trends) which threatens a sector or the wider community. A common strategy is to access or create a more remunerative or premium market. Examples are the organic grass-fed beef label in Estonia; the outdoor grazing scheme for dairy herds in the Netherlands attracting a higher milk price; the demand for sustainable barley that triggered arable farmers to self-organise in the Skylark initiative in the Netherlands, or the organic bergamot production in Italy. Another is to increase viability by decreasing costs through more efficient techniques (e.g. the adoption of integrated pest management techniques in the Marche region in Italy). Often this will also contribute to brand reputation and image. This can be of a region, like the Garfagnana valley in Italy, or of a commercial entity, such as with the multi-stakeholder partnership benefiting the brand image of the Volvic water company in their source catchment in central France.

- **Societal appreciation** of certain benefits is another driver of action in many of the case studies. Growing trends in societal awareness and appreciation can drive the protection or enhancement of socio-cultural and/or environmental values in an area or in products. For instance, the initiative behind the Green Belt of Frankfurt in Germany is based on the public appreciation of green spaces, and the development of quality/origin labelled products from the UNESCO heritage designated National Park of Cévennes in France is also based on the societal appreciation of specific natural and cultural values. In fact, appreciation can sometimes be reflected in market prices and was found to be an important aspect in initiatives based on economic opportunities described above.

- **Regulation** is another powerful trigger and it can act as a driver in a number of different ways, i.e. by stimulating action to overcome shortcomings in relation to water legislation as has been the case for the tomato sector in Northern Italy in the 1990s, or by providing a geographical focus and the set of requirements which an initiative can use to develop. For instance, there is a series of case studies which benefit from being located in Natura 2000 areas (e.g. the mountain wood producers in sub-Alpine Slovenia, where regulation as a driver is combined with market opportunities) or from other designations like the Biosphere Reserve Lungau in Austria.

- **Environmental challenges** also drive the setting up of multi-stakeholder actions, e.g. in response to extreme weather events like flooding issues like with the ‘WILD’ collective initiative in the UK, which works with farmers and communities to improve water management; or declines in biodiversity and habitats as is the case in two NGO-led initiatives in the Czech Republic. In one case, RSPB’s Hope Farm in the UK, the objective and driver was to demonstrate that environmental sustainability can go hand in hand with viable farming/forestry production.

Source: Sterly S. et al, 2017. Synthesis report on cross-cutting analysis from WP1-4. PEGASUS Deliverable 5.1

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\(^5\) See the cascading appreciation diagram in Maréchal et al., 2016 (Deliverable 1.2). Available at: http://pegasus.ieep.eu/system/resources/W1siZiIsiIjIwMTYvMTIvMDUvM3JmbzZ6aWZ2b19EM54yL9TeW50aGVzaXNfcmVwb3J0X3RoZV9QRUdBU1VTX2NvbnMlNcHR1YWxxZnJhbWV3b3IrX3Jldi81X0l1b285b190L2tcMw%3D%3D.pdf?sha=13fb8c5834fb5f1
The collective actions examined in PEGASUS have involved a diverse range of actors. Some of the benefits that have been identified of working in collaboration have been: providing the space to discuss, challenge and ultimately understand different perspectives; through this type of dialogue finding agreement on common objectives for their joint action; identifying where synergies and trade-offs lie; designing more tailored tools to address the issues identified; and the ability to foresee and resolve conflicts. In involving different actors in developing the objectives to be achieved and the tools and mechanisms to achieve these, then this can also generate a greater sense of ownership and commitment, which means the action is more likely to be sustained.

Determining local priorities and the type of actions that may be best suited locally depends on a range of factors, including geographic and cultural specificities such as historical conditions, public awareness, business culture or the capacity of the administration/institutions (see also 3.3).

In many of the PEGASUS examples, having strong local project leaders or facilitators was found to be particularly important. It often was the entrepreneurial spirit and commitment of these people which provided the necessary momentum for the successful implementation of the initiative. Facilitation and capacity building was found to be an important part of the social learning process, which helped bring individuals together even in situations that might at first seem unlikely to be conducive to collaborative working. This type of support can engage groups that are otherwise not easily engaged (for example the Skylark case study in the Netherlands, which brought together conventional, large-scale and intensive arable farmers to discuss how to improve their soil and water management, and the Czech example below). Having said this, strong project leaders may not be sufficient in the absence of the political will to support collective approaches at national/regional level, as policies and administrations are also an important factor in providing the necessary governance structures and access to funding that may be necessary (see Section 3.3).

A further common critical factor evidenced as key to motivate behaviour change is having good levels of trust between people in the circles involved, because it underpins the ability of local actors to communicate and cooperate. This is true for all actors, from farmers or land managers, to private sector companies to authorities and voluntary actors such as environmental NGOs. Trust is a key ingredient in establishing as well as maintaining effective collaborative or collective action (Ostrom, 2000, see also Dwyer et al, 2018).

Establishing trust takes time and can be challenging, particularly in some settings. For example in some parts of the EU and more prominently in Eastern and Southern EU countries, there is often a lack of social capital between the different actors which can be an important factor blocking the creation of strong and collaborative coalitions. The reasons for this are mainly cultural and historical, and can include tensions between different actors with their own agendas and cultures (see Box below).

**Box 4: Trust issues as an obstacle to collective initiatives – example from the Czech Republic**

In the Czech Republic, one of the case studies focuses on an NGO initiative to restore a traditional irrigation system to recreate a wet meadow with rich biodiversity, especially birds and amphibians. The restoration of the wet meadow required a new water regime which was agreed with key stakeholders concerned as well as a change in the grassland management to be carried out by farmers. Initiators of the project attempted to involve all stakeholders but low trust...
This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 633814

by farmers of the NGO initiative combined with a strong cultural norm of working independently led them to not engage fully when key decisions were made. This in turn led to further mistrust with respect to the final decisions, some of which related to meadow management. Ultimately trust issues (on both sides - from farmers as well as the NGO leading the project) culminated in a situation where the NGO acquired the property rights of the land concerned to ensure the long term continuation of the project, rather than relying on management by the farmers. Trust was later partly improved when a project manager from the local area was hired to oversee the project, highlighting the role local leaders can play. This case study sheds light on the importance of investing time and effort to establish trusted relationships with all actors involved.

Source: based on IfLS and CCRI, 2017 (Deliverable 4.3)

The benefits of collective action as seen in diverse situations in the PEGASUS case studies, therefore suggest that policies should do more to promote cooperative ways of working. This would involve increasing the involvement of farmers and foresters in setting objectives and determining how these should be delivered in conjunction with other stakeholders and public bodies at the local level or within supply chains. How this might be achieved is explored in Chapter 4.

3.2 Harnessing opportunities via the market

Using market mechanisms as a means of encouraging the provision of environmental and social outcomes emerges as a powerful driver in some of the case studies examined. These showed that a number of private companies are involved in promoting actions beneficial for environmental and social outcomes where there is a business opportunity for doing so. This might be to reduce their costs, for example costs for water companies associated with the cleaning of water supplies or those for the volume of water used or discharged, or to achieve a price premium through adding value to a specific food/timber product. Some of the examples found in the PEGASUS case studies are described in the Box below.

Box 5: Examples of ways in which market mechanisms can be harnessed to delivering environmental benefits

The most widespread is the provision of a premium for a certified product with environmental attributes, arranged via a labelling/accreditation process. Certification can vary in its level of formality and may be instigated by private as well as by government-run bodies as in the case of organic farming labels. The PEGASUS case studies feature a range of examples falling into this category, e.g. the Austrian ‘haymilk’ example, the grass-fed beef label in Estonia, the organic bergamot production in Italy, the outdoor grazing payment to dairy farmers in the Netherlands, etc. In some cases, certification processes are required by buyers to access certain contracts, e.g. private standards required by retailers, without necessarily involving a premium price/payment, e.g. the processed tomato supply chain in Northern Italy and the Skylark initiative in the Netherlands.

A second model involves payments or investments to land managers by private companies to protect resources in which they have a commercial interest. In the PEGASUS case studies, these occurred mainly in the field of water protection. For example, in the Volvic case study in France, a private company exploiting the valuable mineral water resource, in partnership with the local municipalities, works with the farmers in the catchment to protect water quality and management. It provides a combination of incentives (e.g. topping up the organic conversion payment), investment in infrastructure (e.g. drinking equipment so cattle do not contaminate key sections of the stream) and services (e.g. biological and mechanical control of the vole population in the catchment to limit the use of chemicals by farmers). Similar models can apply in ordinary water catchments where there is an incentive for water suppliers to reduce nitrates and other farm pollutants from reaching the groundwater and ultimately incurring treatment costs to remove them, e.g. Bowland in northern England or the “farmer, beer and water” initiative in the Netherlands involving a brewery.
Some of the PEGASUS case studies suggest that greater environmental and social benefits can be provided if the value chain is able to internalise societal demands, because of the alignment and greater coherence of the signals farmers and foresters use to make their land management decisions. Generally, a higher level of incorporation of environmental and social externalities in food and fibre prices in the market helps the transition to more environmentally sustainable production. Actors involved in the supply chain can have a wide ranging and rapid impact on these decisions which can lead to the establishment of new norms in terms of expected minimum standards or best practices to be aimed for by their primary suppliers, which in turn has the potential to shift behaviour and attitudes (see for example the example of the processed tomato supply chain in Northern Italy). Of course, for these changes in behaviour and norms to be meaningful, it requires the standards established for premium products to be sufficiently environmentally ambitious to avoid greenwashing, and to be monitored regularly so that consumers can be sure that what they are purchasing does indeed deliver the benefits claimed.

**Box 6: The processed tomato supply chain of Northern Italy**

In the Provinces of Parma and Piacenza (Emilia Romagna Region, Northern Italy) the processed tomato supply chain is organised in an Inter-branch Organisation recognised by the Region and the European Union. It accounts for 39,000 hectares of tomato plants, comprises 2,000 producers grouped in 15 Producers Organisations and 24 processing companies operating in 29 plants, processes 3 million tons of tomatoes into concentrate, pulp and paste that represent 50% of the overall Italian processing tomato, 25% of the European production and 6.5% of world production. The provision of environmental and social benefits is indirectly delivered through productive and investment choices of the supply chain actors (producers and processors), which were urged to guarantee production and processing viability by dealing with severe emergencies related to soil and water (mainly nitrate pollution, drought, floods, competition for natural resources) and to gain competitive advantage by meeting new consumers’ demand (certified quality food, environmental-friendly productions). In this case the supply chain acts as a point of convergence of all existing policies and financing (sectoral, territorial, environmental, etc.) and managed to drift them to support and implement local economic and environmental strategies over time.

More information on the approach can be accessed here: [http://pegasus.ieep.eu/case-studies/list-of-case-studies#italy](http://pegasus.ieep.eu/case-studies/list-of-case-studies#italy)

In addition, in some of the case study initiatives we investigated, the business models of farmers and foresters were found to rely on a combination both a reward via the market (e.g. a price premium) and a public/policy support component (e.g. incentives provided under an agri-environment contract). The availability of support for the environmental land management underpinning the attributes of the product for which a price premium is given is often cited as providing the incentive and financial stability to carry out the management required and which helps buffer against any fluctuations in the price premium that might occur.

**Box 7: Marketing beef from cattle kept on grassland of conservation value in Estonia**

Responding to low prices in conventional supply chains, in 2010 a group of Estonian organic beef farmers founded the NGO Liivimass Lihaveis. The organisation brings together 41 individual farmers and agricultural companies all over Estonia, managing organically about 14,000 ha of farmland (both permanent grassland and semi-natural habitats) and over 5,000 beef cattle. Beef produced on grassland supports high levels of biodiversity, enhances landscape character and cultural heritage, and helps preserve rural viability and support climate change mitigation. The management of grassland is supported via the RDP, using both the AECM and the organic farming measures.
Progressively, the project has grown to cover the whole grass-fed beef supply chain. A private limited company, Nordic Beef, was established in 2010, whose main function is to distribute meat sourced from grass-fed cattle through different retail channels, in addition to taking care of the slaughter and processing of meat. Grass-fed beef of over 40 certified producers is marketed to restaurants/cafes and schools.

This is therefore an example of successful and innovative collective action, highlighting the value of farmers’ cooperation, quality schemes, short food chains and local partnerships.

More information on the approach can be accessed here: [http://pegasus.ieep.eu/case-studies/list-of-case-studies#estonia](http://pegasus.ieep.eu/case-studies/list-of-case-studies#estonia)

The governance of the food/non-food chain is also important and private actors’ engagement works only if there is a well-balanced distribution of power within the supply chain. Oligopolistic or monopolistic positions, for example, in the processing/marketing segments, usually act as blocking factors for the valorisation of public goods (see the Italian case studies on the production of organic bergamot, or processed tomato production, for example). The Veerman report for the Commission (Report of the Agricultural Markets Task Force, 2016) identifies the relatively weak position of farmers in most food chains and the challenges of securing a larger share of final retail prices for primary producers. Market pressures on producers were identified in many case studies as a key reason for needing to focus on costs and efficiency, often at the expense of the provision of more environmental and social benefits.

### 3.3 Getting the right policy mix and governance settings

The extent to which institutions, policies and their governance are supportive of cooperation and collective approaches can have a strong influence and impact on the successful establishment and development of multi-actor local initiatives. In addition, the nature of the policies that are available and accessible in a particular area or situation, and the degree to which they can be tailored to the local situation and priorities, will affect the outcomes that are able to be achieved.

The 34 PEGASUS case studies highlighted the wide range of policy mechanisms that are implemented or otherwise in play in local areas (see Sterly et al, 2017). This includes:

- regulation, both EU and national (e.g. protection of water quality, forest, spatial planning);
- payments to farmers and foresters related to land management, agri-environmental commitments and production (via the CAP Pillar 1 and 2 and Member States’ implementation of these);
- funding to facilitate community action, cooperation and the setting up of producer groups (via the CAP Pillars 1 and 2);
- funding to support advice, awareness raising and to support marketing and promotion via CAP Pillar 2;
- investment support for capital costs via the EU Structural Funds or the CAP; funding for research and innovation via Operational Groups, LIFE projects, as well as regional/national funding;
- funding for broader rural development related initiatives (infrastructure, cultural and social capital, job diversification, etc.) for the vitality of rural areas (through Structural Funds and LEADER approaches); and
other national or local funding sources, e.g. small conservation grants.

The role that the range of policies play in the case studies is very varied, but nearly all the local and regional initiatives examined in the case studies drew to some degree on public funding, usually from measures within the CAP framework. The influence of regulation and other policy instruments, such as aid for producer groups, was also quite apparent. Generally the policies used worked as an enabler and in some cases as drivers of a private actor-led initiative. Regulation is often highlighted as a driver for action, for example to encourage compliance with the Water Framework Directive, or to use the designation of a protected area (e.g. Natura 2000) provide a territorial focus for action. National regulation, such as in relation to forest management or spatial planning also provide a framing for activities in some area – sometimes offering opportunities (e.g. the protection of green areas around cities; the requirements for the sustainable management of forests) and in other situations challenges to be overcome (e.g. rules relating to public access to forests irrespective of ownership in some areas has led to mistrust of public authorities). On the other hand funding instruments are generally used to provide incentives to farmers/foresters become involved in the initiative and carry out the activities that are required to meet its objectives – e.g. organic farming for the haymilk label in Austria, environmental management in many of the case studies, the marketing of products in Estonian supermarkets, or the funding of agro-tourism type activities. Funding instruments are also important as a means of enabling the initiative to take place (e.g. use of the Leader approach or the cooperative measure for agriculture within the RDPs).

The case studies also underline the diverse impacts on the provision of environmental and social benefits of applying individual policies and policy packages in different contexts and the importance of tailoring measures to the local context. Some case studies also highlighted the conflicts between policy measures and the fact that sometimes certain CAP payments are seen as part of the problem rather than part of the solution. This was mainly the case where direct payments intended to support farm incomes effectively encourage the expansion of cropped areas with knock on effects on landscape character, the restructuring of parcels into larger units, and also adverse environmental effects (this was particularly highlighted in the Portuguese case study on intensive olive production, although also flagged elsewhere too). Of course the cessation of direct payments would not necessarily prevent such changes from occurring in future, however this demonstrates the importance of considering all policies in the round, looking at how they can be designed to operate coherently to deliver sustainable outcomes economically, environmentally and socially.

It is not just the availability and design of the policy mix, but also the institutional and governance settings that are important to enable cooperation and collective actions to flourish as well as to encourage innovation in achieving environmental and social benefits. One of the issues that the case studies highlighted in particular was the need to build more trust into relationships between local/national institutions and practitioners, where both sides are committed to finding ways of working towards common objectives. To achieve this, institutions responsible for agricultural and broader rural land management need to include dialogue with stakeholders at all stages of the policy cycle – from the policy design stage, into implementation and the evaluation and further policy development. PEGASUS found this is particularly important where sustainable solutions need
to be found in relation to the development of rural areas and potential conflicts or trade-offs between economic, social and environmental priorities need to be resolved. Relevant stakeholders could include a range of actors from farmers and foresters but also NGOs and public bodies beyond managing authorities, such as national parks, advisory services or regional development authorities. Ensuring effective and open channels of communication and consultation takes time however, and this should not be underestimated if the value of partnerships and collaborative working is to be maximised.

One of the areas that often gives rise to a lot of tension between government institutions and those working on the ground relates to the control culture that exists where there is the fear that the slightest error, however unintentional will be picked up and fines imposed accordingly. This can lead to risk averse decision making both on the ground, as well as at Member State level. Changing the culture around monitoring and controls to create a safe environment in which local actors feel empowered and encouraged to innovate, pilot new approaches and/or take action collectively would be a good step in developing more collaborative relationships (see Box 8).

**Box 8: An example of trusting relationships between local institutions and practitioners - the Water and Integrated Local Delivery (WILD) project (UK)**

The Water and Integrated Local Delivery (WILD) project is a three-year project covering about 26,000 ha within the Cotswold Water Park, in England, UK. The area contains a wide variety of habitats and landscapes and provides high quality game and coarse angling in both rivers and still waters.

The central objective of WILD is to improve the water environment to meet the requirements of the Water Framework Directive (WFD) with regards to water quality and flow, biodiversity and flood protection. In particular, the project aims at finding solutions to minimise the impacts of potential floods in the area, achieve good ecological status of surface water as well as good chemical status of groundwater to counter the effects of long-term trends towards more intensive arable production in the area. RDP funding, alongside many other funding sources, is used to support some of the solutions with respect to land management and investments.

In order to do so, the project has built a lasting multi-stakeholder partnership, bringing farmers and local communities together to provide economic and social benefits. Coordinated by the Farming and Wildlife Advisory Group (FWAG), the partnership brings together farmers and landowners, 3 local NGOs, 4 regional wildlife groups, water trusts and partnerships, 18 local communities, local councils, the University of Gloucestershire and the Thames Water company. Critical to the success of the partnership is the presence of a specialist facilitator, provided by the FWAG, who has enabled the application of a similar process to each water body linked to WFD failures.

The partnership is developed through local meetings in which businesses and communities can reconnect and engage with national organisations, like Natural England, on common issues. Central to the involvement of local communities is the involvement of the Gloucestershire Rural Community Council, which help rural communities in developing and delivering cross cutting environmentally sustainable parish and local plans. The project connects up the landscape through contact with local authorities, those with statutory responsibilities, such as the Environment Agency (responsible for controls relating to water issues) and farmers and communities across the catchment.

More information on the project can be accessed here: [http://www.fwagsw.org.uk/projects/wild-project/](http://www.fwagsw.org.uk/projects/wild-project/)

Other factors identified that would help institutions build trust with local practitioners, include ensuring that policies were more coherent and aligned to avoid sending conflicting signals to land managers. In particular, having more cross-institutional cooperation was identified as having a lot of potential in terms of ensuring a more coherent design, timing and implementation of different
policy tools. Making sure that the rules surrounding policy tools enable them to be used flexibly and in combination is an important factor too. The way policies are designed should allow actors at the local level to be able to choose and adapt the policy mix to address their needs and the objectives they are seeking to achieve.

The policy implications of these insights from PEGASUS are discussed further in the next chapter.
4 Implications for policy

The kinds of approaches outlined in the previous chapter, based on more engagement and co-operative action, can be supported systematically through public policy as well as developed by actors on the ground. This concluding section draws out some of the implications for future policy if more widespread adoption of new approaches is to be supported at different levels, stretching from the local to the European. The focus is rather more on the EU than the Member State level, as this provides so much of the framework and so many of the rules that guide national measures currently. However, the various levels of policy support and regulation are closely inter-linked and need to be considered as a whole. Synchronisation is essential. This is widely recognised, but can be difficult to achieve in practice.

4.1 Policy context

In considering the policy implications, the concern is not only with the specific types of intervention, such as the RDP measures for example, but also with the ways in which they are combined, implemented and delivered to farmers and other stakeholders, as well as the associated information and support, the compliance and enforcement regime and the overall culture in which the measures are embedded. Indeed, the current toolkit of policy interventions available to national and regional authorities within the ambit of the CAP is already large and can be adapted to most purposes. Most of our recommendations below are concerned more with the deployment and delivery of existing policy instruments than with the addition of new ones.

The experience in the case studies runs up to about 2017 in most of the initiatives examined, which was still in the early days of the implementation of some relevant measures (such as the cooperation measure and the support for the establishment and implementation of operational groups of the EIP-Agri in particular). The deployment of these measures was seen as clearly helpful by stakeholders in the regional meetings conducted in the final six months of PEGASUS.

However, changes in the architecture of the CAP for the period after 2020 are now on the horizon, although it is unclear how significant these will be in relation to the types of measures that are implemented by Member States in practice. In late November 2017, the European Commission published a Communication on the ‘Future of Food and Farming’ setting out broad proposals for the future direction and substance of the CAP in the next programming period. An important strand of the proposals is a new CAP delivery model intended to ‘streamline its governance, improve its delivery on EU objectives and to decrease bureaucracy and administrative burden’ (EC, 2017). There is an emphasis on a more performance based delivery model, which has been elaborated a little further by the Commission in subsequent meetings and presentations6 (including at the concluding PEGASUS conference in February 2018).

6 See for example the presentations made at the ENRD Workshop on 'The Future CAP: towards a Performance-based Delivery Model', held on 30 January 2018.
These proposals suggest that more powers and responsibilities would shift to the Member States, facilitating the expanded use of tailor-made solutions and of national/regional routes to pursuing EU objectives in effective ways. There would be fewer EU prescriptions, such as detailed eligibility rules for RDP measures. Member States would have to develop ‘Strategic Plans’ to cover interventions in both Pillars 1 and 2. These should include a set of objectives and an elaboration of results to be achieved. The Commission would assess and approve these plans with the aim of maximising the contribution of the CAP to meeting EU as well as related Member State priorities, which of course would have to include environmental and social benefits linked to agriculture and forestry.

While it is far too early to say whether such a new model actually will be adopted or precisely what form it will take, the prospect that this may well be the direction of travel has informed some of the recommendations in this report.

We first set out the policy recommendations that derive from the set of PEGASUS findings and lessons drawn in the previous chapters, and then describe what these would imply more concretely if the CAP is to become more flexible and performance based as proposed by the CAP Communication.

4.2 Setting the framework – programming, participation and policy mixes

Evidence from the research in PEGASUS suggests the need for a policy framework which should:

- Bring people to the centre stage, building on their interests and motivations.
- Promote cooperative ways of working (i.e. through more multi-actor groups, or ‘collective’ action) to increase engagement and commitment of farmers and foresters.
- Build trust with local actors by embedding dialogue with stakeholders at all stages of the policy cycle.
- Allow for a more flexible and joined up use of the policy mix, better adapted to local needs.
- Make more of market related opportunities, including greater interaction between public and private initiatives.
- Mainstream the combined use of facilitation and capacity building with other measures so that it becomes the norm rather than the exception.
This is illustrated in Figure 2.

**Figure 2: A new approach building on people’s interests and motivations**

Currently the real risk of fines and of payments being disallowed can lead to risk averse policy making and discourage national and regional governments from adopting higher risk and more innovative approaches, experimenting with pilot schemes and launching more ambitious collective schemes. While the current Pillar 2 legislation does provide opportunities for funding cooperation and the piloting of new approaches for delivering environmental and climate objectives, more conventional schemes tend to dominate. This was confirmed in all the case study countries.

One of the larger scale exceptions⁷ is the collective approach to the implementation of the agri-environment-climate measure in the Netherlands, which also includes a results-based payment element. It was possible to put this in place within the frame of the current rural development regulation and associated administrative processes. However, this entailed a long period of development and negotiation with the European Commission, navigating potentially fatal objections, for example in relation to clear accountability at farm level for expenditure from the

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⁷ There are other examples as well, such as pilots in Austrian mountain areas and the ERA-Net RURAGRI scheme on “merit-based payments” (see http://www.umweltbuero-klagenfurt.at/merit/).
CAP (an entirely legitimate concern but an area where the specificity of EU rules could be reduced). This example suggests that much more flexible models are possible but the current legal framework can be a barrier to their adoption even where there is support from both the Member State and the Commission.

A new framework of this kind would be in keeping with the Cork 2.0 declaration\(^8\), which agreed that ‘The architecture of the CAP must be based on a common strategic and programming framework that provides for targeting all interventions to well-defined economic, social, and environmental objectives’ (Point 8). The question of how programmes, interventions and delivery mechanisms could be developed within this framework is considered in the following sections.

### 4.3 Increasing the focus on capacity building, facilitation and multi-stakeholder engagement

PEGASUS has demonstrated the importance of working with all relevant actors, including land managers at the territorial level or through the supply chain, to determine key objectives, clarify the actions that can deliver these and then mobilise the necessary support and funding from a variety of sources to make this a reality. The process of building dialogue, networks and operational forms of cooperation and governance, increasing trust between actors, takes time and resources to achieve. Often progress can be made possible or accelerated by financial or practical support from public sources. It should be seen as essential to incorporate sufficient funding for capacity building when constructing new policy mixes. More broadly and just as importantly, awareness and an understanding of the importance of capacity building for effective policy implementation must be raised amongst decision-makers.

Greater resources should be made available to fund focussed extension services, facilitators or initiators, bringing multiple actors together, new information sources and other forms of support for capacity building. Box 9 provides a useful example of the benefits of capacity building in the Netherlands, in this case for issues around water and soil management.

**Box 9: The value of social learning in the Skylark initiative, Netherlands**

The members of regional groups of Skylark participants, all arable farmers, meet regularly to discuss their plans and actions for improving the sustainability of their farming practices. This way, they learn from each other and challenge each other to improve. In addition, they invite experts to inform them on issues that interest them, such as soil health and water management. The groups are supported by facilitators. The network structure gives them access to other groups, to knowledge partners and partners in the chain. Also, being organised as groups makes them an interesting partner for local and regional authorities.

Public funding can be sourced from the CAP and Structural Funds as well as national/regional funds. This is already possible via the Leader approach, but currently, Leader / CLLD activities are often not sufficiently focussed on the opportunities for enhancing environmental performance related to

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agriculture and forestry management. One possibility could be to devote earmarked resources to contracting and training facilitators in each collective application/project.

**Box 10: Agri-environmental facilitators in Marche region, Italy**

An interesting model has been adopted by the Marche region (IT) to support agro-environmental initiatives. Farmers have been directly involved in translating their local knowledge and willingness to increase the sustainability of their production systems into operational projects with environmental targets to be reached within a territorial scale. Advisory and support services are crucial, both with regard to the technical environmental and agronomic issues and also to stimulating the interaction between farmers. Member States could be encouraged to develop ways to finance the role of such "agri-environmental facilitators", who could organise and deliver training and provide advice alongside their animation role.

Other ideas to increase the focus on capacity building, facilitation and multi-stakeholder engagement include:

- Encouraging an even greater role for the agricultural European Innovation Partnership (EIP)\(^9\) in relation to innovation surrounding the provision of environmental and social benefits in the next generation of policy. A dedicated platform for supporting collective/cooperative approaches in particular could be established, within the EIP or following a similar model. Member States could be encouraged to share experience at the European level.

- The performance of the current EAFRD cooperation measure should be reviewed, to gather and then assess experience in different parts of Europe, building on the initial work carried out by the European Network for Rural Development Contact Point\(^10\). The lessons learnt and success stories should be widely shared and disseminated. The reasons for its limited use by certain Member States to date could be investigated and ways found to overcome these.

- A “facilitators’ network” or a virtual space for facilitators to come together and share their experiences and ideas could be created and linked to the ENRD-CP and/or the EIP-Agri. The network could for instance organise an annual face to face event/conference for an EU-wide sharing of experiences in relation to facilitation and could provide guidelines and technical assistance at the local level, on demand, to foster innovative projects with strong impacts on the provision of environmental and social benefits.

- Guidance could be produced and disseminated to demonstrate the benefits of building social capital and putting in place territorial and supply chain initiatives to encourage greater use of these types of joined up approaches. The online toolkit produced by the

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\(^9\) See [https://ec.europa.eu/eip/agriculture/](https://ec.europa.eu/eip/agriculture/). The agricultural European Innovation Partnership (EIP-AGRI) works to foster competitive and sustainable farming and forestry that 'achieves more and better from less'. It contributes to ensuring a steady supply of food, feed and biomaterials, developing its work in harmony with the essential natural resources on which farming depends.

PEGASUS team based on experience of building social processes and institutional adaptation is one example\textsuperscript{11}.

4.4 Rules to support empowerment and innovation

One of the benefits of dialogue and stakeholder engagement at the local level is that this can inspire innovative solutions to problems faced and can encourage greater buy-in and commitment to the solutions found. Policies should enable local (level) innovation to flourish, rather than constrain it, as is often currently the case. This means that the rules and controls associated with current EU funding streams should be reviewed, simplified to enable new ideas and approaches to be tested, piloted and rolled out. This implies:

- **Controls to be made proportionate to the scale of the funding received** and meshed with Member State requirements rather than being dominated by requirements based on EU legislation.

- **Controls to be focussed more on outcomes** than detailed adherence to specific actions. In respect of the environment, controlling the precise width of specific features, like hedges or buffer strips (to the last centimetre) is not relevant to the benefit, rather it is making sure the feature is wide enough and getting the details of the management techniques right that is more important. Focussing on unnecessary details creates the risk of penalties for unimportant “infringements”. This in turn creates a culture focussed on applying the rules, rather than thinking about the objective and acts as a disincentive for farmers to engage in activities or schemes with environmental goals. In extreme cases, this can also create an incentive to remove existing landscape features, for example, that could give rise to an infringement hazard. Focussing on the longer term objectives is not always easy, especially if the results of management only become apparent after a period of several years. An effective new approach will require a change in mindset of all those involved, from policy makers to stakeholders and farmers and foresters and may also require more research/thinking about the measurable indicators to be used for this purpose, additional training for both land managers and public administrations and the use of more expert judgement.

- **Encourage Member States to make use of the opportunities to pilot new approaches** to explore and demonstrate what is feasible. EU rules should make it easier to carry out pilot projects, or small scale innovative projects, recognising that sometimes pilots may be ‘new’ locally even if they are not new regionally or nationally. Details of pilot projects and their results should be shared at the EU level (similar to the way in which LIFE projects and their outcomes are shared) to enable learning from experiences in different parts of Europe.

- **Undertake a detailed analysis of where existing RDP or other EU-driven rules, and national rules associated with them, are an impediment to more collective action** and more

\textsuperscript{11} http://pegasus.ieep.eu/resources/toolkit
innovative approaches, e.g. if the demands of the Paying Agencies are unreasonably restrictive or the treatment of accountability under CAP rules creates excessive bureaucracy.

- **Apply more “marketing-like” thinking and techniques** to motivate behaviours and improve policy delivery:
  
  o To improve the promotion of local policy objectives and achievements; better advertise the policy measures available to practitioners and benefits linked to a potential uptake; better advertise the role of practitioners in delivering policy objectives and achievements; attract facilitators and more entrepreneurial actors; create a sense of community and a positive image; etc.
  
  o To motivate practitioners’ behaviours to deliver policy objectives, e.g. offering early bird payment rates for the first entrants to schemes, adopting reward systems regarding controls or training attendance, bonus/malus based on the diversity of advice used, etc. This could be applied to other related objectives such as monitoring and supply of farm data, getting involved in collective action for landscape relevant outcomes, etc.

4.5 **Encouraging more collective and co-operative approaches**

In addition to the changes in approach outlined above, there is a case for a number of policy adjustments in order to increase the uptake of co-operative/collective schemes focused on environmental and social benefits. A trend in this direction is already visible but it could be accelerated with more support, accepting a reduced reliance on individual farm contracts over time. The options include:

- Enhanced rates of funding for participants in approved collective initiatives e.g. for agri-environment-climate measures, particularly for those who join early in the life of the initiative, when there may be more risks involved and it may be more time consuming.

- There could be targets for the proportion of agri-environment-climate measures to be delivered through collective approaches, although these would need to reflect local conditions and would vary considerably within the EU.

- The co-ordination and sequencing of existing measures when implemented by Member States should be improved to facilitate the formation of collective approaches. For example, experience in some of the case studies suggests that it would be helpful under the current RDP process if calls for collective projects under measure M16 were launched ahead of calls for agri-environment-climate measures under M10, rather than the other way round, as happened in this programming period. Better sequencing or even integrating of this two-step approach might be helpful in other circumstances as well.

- Generally, a more proactive approach by public administrations to setting up appropriate local governance arrangements is needed. These may include a mixture of land managers, public administrations, NGOs, companies involved in the food chain and in territorial management (including potable drinking water supply) and others. In some cases, as in the Netherlands, suppliers of agricultural inputs may be involved. Public funding will not always be needed or appropriate, but public authorities can help to create opportunities for
networks and initiatives to emerge. Flexibility for these arrangements to adjust over time is also necessary, as social capital develops within groups and initiatives (Westerink et al, 2017).

- In some case studies (e.g. tomato production in northern Italy), formalised Producer Groups were involved in environmentally focussed initiatives. Given the envisaged CAP reform, it could be an appropriate time to review the role of producer groups in the delivery of environmental benefits and to consider how this could be strengthened in future. Incorporating environmental and climate goals more systematically in the remit and objectives of these groups will be critical to ensure greater priority is given to these objectives.

- Similar to the ideas already set out in relation to facilitation and innovation above, developing the sharing of experiences in relation to collective approaches would also be very useful in promoting their merits and increasing their use. This could be particularly relevant for:
  
  o The collective implementation of results-based payment schemes for environmental purposes. One size is unlikely to fit all but there is benefit in sharing experience and joint work between different bodies, including between Member States, to gain new ideas and cut development timescales and costs and to pursue appropriate models to varying cultures and conditions;
  
  o The formation of EIP-Agri operational groups, which can be facilitated by quite practical forms of assistance. The provision of model legal contracts and assistance is one example. Currently, collective actions often need a clear contractual model and developing this from scratch can be a significant burden. There may be more flexible models which still protect public funds, for example contracting with an intermediary organisation, which itself has a looser relationship with a group of land managers.

One issue that has to be borne in mind is how to balance the delivery of national and regional environmental priorities, alongside those identified at the local level. Issues and goals identified as priorities locally may not encompass nationally identified needs (e.g. the protection of priority habitats or endangered species). It is important that more local initiatives are given the freedom to develop to address the ambitions of the multi-actor network involved. However, it is also necessary that actors are aware of the framework of national or regional environmental priorities within which they operate. As a minimum, local initiatives should not conflict with or hinder progress towards the activities required to achieve wider national objectives and targets. It is preferable if they additionally find ways of incorporating activities into their project that proactively help to achieve these wider social objectives.

4.6 Investing in policy support tools

Several tools are potentially useful in assisting the transition outlined here. Some, such as model contracts for collective schemes and guidance documents to help scheme initiators and participants, have been mentioned above. Others include:
- More work on defining and measuring social and socio-cultural indicators. This will be needed in order to operationalise the performance-based approach and to track progress towards desired outcomes. Work on indicators will need to be linked to monitoring options and technologies.
- Greater recognition of the synergies and trade-offs between the different beneficial outcomes being sought from rural land management and with stakeholder plans and aspirations is needed. Analysis helps to design incentives in a way that takes account of the importance of avoiding actions that are detrimental to the delivery of environmentally and socially beneficial outcomes in the agriculture and forestry sectors.
- Additional tools to maintain sufficient focus on the provision of environmental and social benefits should include ‘sustainability proofing’ or climate proofing of policy proposals and strategies, looking to improve the long term resilience of outcomes.
- The use of spatially explicit data and maps derived from it could also have an important role both in helping to assess policy at a European level and in understanding the relationship between production systems and various environmental parameters at the more local level..

4.7 Recommendations in the context of the proposed CAP performance-based delivery model

The proposed new CAP delivery model is an ideal opportunity to implement many of the policy recommendations developed in PEGASUS and embark on the journey towards a greater use of facilitation, more collective/multi-actor actions as well as changing the culture around monitoring and controls to encourage innovation, appropriate tailoring of measures to local contexts and a sharper focus on results in parallel. Many of the principles set out above will continue to apply, some may require even more attention given the new model proposed.

In recognition of the diversity of economic, social and environmental situations in different regions of the EU, future policy frameworks should increase the motivation and capacity of Member States and regions to tailor the policy tools available to their different historical, cultural and geographical contexts. A shifting of responsibility towards Member States for effective and coherent measure design and achievement of objectives, looking at CAP Pillar 1 and Pillar 2 support together has been signalled in the CAP Communication, although the extent to which this will be achieved in practice is yet to be determined. The new performance-based delivery model could remove some of the rigid rules that can have the effect of inhibiting Member States from using the considerable flexibility that they have and extending it further, although this will need to be balanced by a strong EU policy framework and guidance and support to Member States to help with this process.

In designing the performance-based delivery model, it will be important to include mechanisms to encourage Member States to adopt more flexible and imaginative approaches, moving on from a tendency to roll over familiar schemes from one programming period to the next. Removing some of the most rigid and inhibiting rules, as proposed, would be a very significant contribution to a new model, providing a platform in which a new culture could grow. At the same time it must be
recognised that it is important to maintain accountability for expenditure and to ensure that there are mechanisms to measure progress towards results. In getting the balance right, care will be needed not to create unintended new barriers to the adoption of more innovative and flexible approaches in the Member States, in some of which the impulse for innovation may not yet be very strong. Guidance, advice and networking to share experiences will all be essential to facilitate the shift in mindsets that will be required to move to this new approach.

The framework also needs to maintain a balanced set of objectives, especially in Strategic Plans and their subsequent implementation. This should include a strong focus on the provision of environmental and social benefits from land management and associated supply chains. Ways must be found to ensure that Member States and regions are required to demonstrate that they are addressing the environmental and social as well as the economic issues they face, exploring and implementing solutions that are truly sustainable in the long-term. Contributing to meeting the immediate and mid-term objectives of key EU environmental legislation, such as the Birds and Habitats Directives, the Water Framework Directive and developing policy on climate mitigation and adaptation, is a very concrete way of securing EU value added and should be an important dimension of the new set of objectives and targets.

In building their Strategic Plans, Member States/regions should be required to develop objectives and proposed actions against a needs-based assessment of their rural areas. This is likely to be akin to the needs-assessment and SWOT analysis currently required under the EAFRD. More detailed analysis of the issues facing rural areas would need to be provided in these documents, which are expected to be extended to cover the whole CAP, not just the EAFRD. On this foundation, the implementation proposals would be set out, including the mix of interventions to be used and the allocation of the budget, which should be proportional to the needs identified. A steer from the EU policy framework would be required to ensure sufficient priority was given to environmental and climate priorities. This would mean in particular: a) giving concrete priority to measures promoting the provision of environmental and social benefits, with a minimum financial allocation specified; and b) possibly earmarking a minimum proportion of this budget for collective applications/projects to ensure that a more co-operative/collective approach is really implemented in most cases. This would need further exploration.

The wider culture of Strategic Plan development and delivery also needs to be addressed, building on and strengthening the current process for RDPs. A wider group of stakeholders needs to be involved, including producer groups, NGOs, collective organisations, territorial organisations like National Parks, relevant private companies in the supply chains, etc. These stakeholders should be involved in discussions about policy implementation and planning for the design of new policies rather than consulted and engaged on an ad hoc and sometimes very intermittent basis as can be the case currently. There may be a role for joint groups on aspects of policy development and implementation for example.
The decision making cycle needs to allow for review and improvements to be made in the course of policy implementation rather than waiting for the end of the seven year period as is currently the case with the RDPs. A more “continuous learning-by-doing” approach should be established, with the co-operation of the Commission, which will be receiving reports on implementation and progress against targets.

Various mechanisms to promote a learning culture and incentives for reflection, review and innovation can be envisaged. One of these would be the inclusion of more pilot and experimental projects in national and regional Plans. Another will be the close attention to monitoring progress towards targets that is expected to be a feature of the new delivery model proposed by the CAP Communication. Member States could set up annual reviews of progress on the delivery of Plans, or key elements within them, engaging key stakeholders in the process both to benefit from their input and to increase their awareness of policy evolution. Independent experts could play a valuable part in these reviews.

Tailored mixes of different support measures, regulation, advice/capacity building would need to be put in place to address the objectives identified – improving the coherent use of EU, national, regional and local policies and other initiatives. Greater attention should be given in the new Strategic Plan to how to increase the coherence among these different support measures and how to improve the policy governance mechanisms. This would also make more visible the need to actively align the policy cycles and programmes from related but different sources or channels.

In determining how best to address the objectives, it should be recognised and accepted that some measures need more support, advice and facilitation to work well on the ground. Managing authorities need to recognise capacity building as core means of delivering environmental benefits rather than an administrative cost and avoid squeezing expenditure for these purposes.

Putting in place such an approach would be a significant change. The opportunity to do so should not be delayed and should be given serious consideration during the debate on the future CAP that is now getting underway.
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This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 633814

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Annex 1: The environmentally and socially beneficial outcomes identified in PEGASUS

Table 1: List of environmentally and socially beneficial outcomes identified in PEGASUS

<table>
<thead>
<tr>
<th>Broad categories of objectives to be achieved</th>
<th>Environmentally and/or socially beneficial outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable and sufficient production of food, timber and energy</td>
<td>1. “Food security” in the sense of achieving (or maintaining) a sustainable natural resource base to ensure a long term food supply hence security</td>
</tr>
<tr>
<td>High water quality and ensuring water availability</td>
<td>2. Water quality: Achieving (or maintaining) good ecological status of surface water and good chemical status of groundwater</td>
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<tr>
<td></td>
<td>3. Water availability: Achieving (or maintaining) a regular supply of water (i.e. avoidance of water scarcity)</td>
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<tr>
<td>High air quality</td>
<td>4. Air quality: Achieving (or maintaining) minimised levels of harmful emissions and odour levels</td>
</tr>
<tr>
<td>Climate change mitigation objectives</td>
<td>5. GHG emissions: Achieving (or maintaining) minimisation of greenhouse gas emissions</td>
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<tr>
<td></td>
<td>6. Carbon sequestration/storage: Achieving (or maintaining) maximisation of carbon sequestration and storage</td>
</tr>
<tr>
<td>Climate change adaptation</td>
<td>7. Fire protection: Achieving (or maintaining) a high level of prevention and minimisation of impacts of potential fires</td>
</tr>
<tr>
<td></td>
<td>8. Flood protection: Achieving (or maintaining) minimisation of impacts of potential floods</td>
</tr>
<tr>
<td>Healthy, functioning soils</td>
<td>9. Soil functionality: Achieving (or maintaining) good biological and geochemical condition of soils</td>
</tr>
<tr>
<td></td>
<td>10. Soil protection: Achieving (or maintaining) minimisation of soil degradation</td>
</tr>
<tr>
<td>High levels of biodiversity</td>
<td>11. Species and habitats: Achieving (or maintaining) the presence of diverse and sufficiently plentiful species and habitats (ecological diversity)</td>
</tr>
<tr>
<td></td>
<td>12. Pollination: Achieving (or maintaining) high levels of pollination</td>
</tr>
<tr>
<td></td>
<td>13. Biological pest and disease control through biodiversity: achieving (or maintaining) high levels of biological pest and disease prevention and minimisation of the impacts of potential outbreaks using biodiversity</td>
</tr>
<tr>
<td>Protecting landscape character and cultural heritage</td>
<td>14. Landscape character and cultural heritage: maintaining or restoring a high level of landscape character and cultural heritage</td>
</tr>
<tr>
<td>Public recreation, education and health</td>
<td>15. Outdoor recreation: Achieving (or maintaining) a good level of public access to the countryside to ensure public outdoor recreation and enjoyment</td>
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<tr>
<td></td>
<td>16. Educational activities: Achieving (or maintaining) a good level of educational and demonstration activities in relation to farming and forestry</td>
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<tr>
<td></td>
<td>17. Health and social inclusion: Achieving (or maintaining) an appropriate level of therapeutic/social rehabilitation activities in relation to farming and forestry</td>
</tr>
<tr>
<td>High levels of farm animal welfare</td>
<td>18. Farm animal welfare: achieving (or maintaining) the implementation of high farm animal welfare practices on farms</td>
</tr>
<tr>
<td>Preserving and enhancing rural vitality</td>
<td>19. Rural vitality: Achieving (or maintaining) active and socially resilient rural communities</td>
</tr>
</tbody>
</table>

Annex 2: Summary of trends for selected agri-environmental and socio-economic indicators

Box 11: Summary of trends for selected agri-environmental indicators

**Biodiversity:** Common farmland bird populations have decreased by 31% since 1990 in EU Member States. Despite year-to-year fluctuations, grassland butterfly numbers have decreased by 30% since 1990, although in the last 10 years there have been some signs of levelling off (regionally, the trends can still be negative). Only 12.3% of grassland habitats that are of Community interest (i.e. listed in Annex I of the Habitats Directive) had a favourable conservation status in 2012. This is one of the lowest levels of favourable condition amongst habitats. The main pressures/threats affecting these grassland habitats are from agriculture, including (in order of descending frequency of reported categories): abandonment of pastoral systems, lack of mowing, lack of fertilisation, modification of cultivation practices and agricultural intensification. For the 2007–2012 period, only 26% of forest species and 15% of forest habitats of European interest, as listed in the Habitats Directive, were in ‘favourable conservation status’\(^{12}\). Additionally, common forest bird populations have decreased by 12% between 1990 and 2014.

**Water quality:** Between 2000 and 2012, total nitrogen fertiliser consumption decreased significantly in EU-15 countries and Slovenia, but increased in BG, CZ, EE, LV, PL, HU and SK. Phosphorus fertiliser consumption also decreased over the same period in the EU-15 and Slovenia (SI), although an increasing trend was observed in SK, RO, PL and BG (the trend was less clear in other countries)\(^{13}\). Overall, an 18% reduction in nitrate pollution of rivers and groundwater has been observed between 1992-94 and 2012. However, 5 countries (EE, LT, LU, PL, FI) show an increase compared to 1992-1994. About 7% of the groundwater stations across Europe reported excessive levels for one or more pesticides. The figures vary for river stations, but for most pesticides the EQS was exceeded at <5% of the monitoring stations.

In 2009, 43% of surface water bodies were in good or high ecological status, and in 2015, 53% of water bodies were expected to reach good ecological status. Agriculture is highlighted as a key issue in many river basins not achieving good ecological status.

**Soils:** Soil erosion by water is a widespread problem throughout Europe. In 2012, the estimated average rate of soil loss by water erosion in the EU-28 amounted to 2.46 t/ha/year and was higher in the EU-15 (2.7 t/ha/year) than in the EU-N13 (1.7 t/ha/year). Soil degradation by water erosion is particularly significant in some countries of southern Europe, for example IT (8.3 t/ha/year), EL (4.2 t/ha/year), MT (5.42 t/ha/year) and ES (3.5), but also in mountainous countries such as SI (7.4 t/ha/year) and AT (7.3 t/ha/year). Low levels (below 1 t/ha/year) of water erosion were recorded in DK, EE, IE, LV, LT, NL, PL, FI and SE\(^{14}\). Overall, around 6.6% of the EU-28 total agricultural area was estimated to suffer from moderate to severe erosion (>11 t/ha/year) in 2012. This share is higher in the EU-15 (7.7%) than in the EU-N13 (4.3%). Cultivated land (arable and permanent cropland) is estimated to be more affected (7.4%) than permanent grasslands and pasture (4.2%). The share of agricultural land estimated to suffer from moderate to severe erosion is highest in SI (42.2%), IT (32.6%) and AT (20.9%)\(^{15}\).

**Greenhouse gas emissions:** The main sources of agricultural emissions in the EU include: soil management, enteric fermentation, manure management and rice cultivation. In 2014, agricultural emissions of GHG in the EU-28 (excluding GHG sources and sinks from land use, land use change and the forestry sector (LULUCF), agricultural transport and energy use) amounted to 436 million tonnes of CO\(_2\) equivalent, i.e. 10.2% of total emissions for that year. Nitrous oxide accounts for 58% of non-CO\(_2\) emissions from agriculture, with methane accounting for the remaining 42%. There are variations in the levels and types of emissions in different parts of the EU resulting from the different farming systems and management practices, and different biogeographic and climatic characteristics. The long-term trend of GHG emissions shows that over the period 1990-2014, agricultural emissions decreased by

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\(^{13}\) http://ec.europa.eu/eurostat/statistics-explained/index.php/Agri-environmental_indicator_-_mineral_fertiliser_consumption

\(^{14}\) The rates of soil loss by water erosion at Member States level represent national average values and therefore may mask higher erosion rates in many areas even for those countries that have a low mean.

\(^{15}\) JRC - ISPRA, Agri-environmental indicator draft factsheet – Soil water erosion (AEI 21), 2015
23.3 % in the EU-28, with a bigger reduction in the EU-N13 (46.7 %) than in the EU-15 (14.4 %). Comparing the last two decades, from 1990 to 2000 and from 2000 to 2014, the decreasing trend in agricultural emissions shows a general slowdown and in some cases a reversal, as for LV and EE. While the decrease registered for the EU-15 (from -0.44 % to -0.79 %) has not changed much, the decrease for the EU-N13 has slowed down significantly (from -5.8 % to -0.3 %). In relation to forests, climate change pressures are projected to increase significantly in the future. Mediterranean regions in particular are likely to experience higher rates of tree mortality and forest fires, as temperatures and the frequency of droughts increase. Forests represent a carbon sink at EU level. Around 10 % of Europe’s greenhouse gas (GHG) emissions are stored in forest ecosystems16.

Box 12: Socio-economic trends in rural areas17

**Population trends:** Over the period 2010-2014, population density remained broadly stable in the EU as a whole, but decreased in rural and intermediate regions18. Between 2005 and 2015, the proportion of people living in rural areas decreased in all countries except Belgium, Greece and Slovakia (where it increased only marginally). The greatest losses of rural population took place in Estonia and Romania.

**Employment and jobs:**
- Dependence on the primary sector19 in rural areas is very variable between Member States. Looking at the period 2010-2015, the proportion of jobs available in the primary sector decreased in all countries apart from Ireland, Greece and Sweden, although these increases are 1 % or less.
- The employment rate (the percentage of employed persons in relation to the comparable total population) is generally higher in urban regions than in rural ones, with rates in rural areas lower overall than the EU-28 average. Since 2012, the urban-rural gap in employment rates has begun to narrow. Some rural areas suffer very high levels of unemployment, often as a result of a decline in the farm workforce as farms have modernised and capitalised, while other business has tended to concentrate in urban and peri-urban areas with better transport access and infrastructure. However, in some areas of central and Eastern Europe, the shrinkage of large-scale manufacturing in the 1990s led to a rural in-migration of ex-urban workers who returned to their families’ farms in the hope of making a living off the land (Swinnen and Vranken, 2009; Davidova et al., 2010). This resulted in a resurgence of semi-subsistence agriculture that slowed down the trends of farm modernisation and enlargement (Beaufoy and Marsden, 2010).

**Economic performance:**
- Classically, rural areas tend to lag behind urban areas economically in respect of measures of income, which is often related to a high relative dependence upon primary sector businesses, which tend to have more limited ability for adding value. There is a wide range of variation in GDP per capita across EU rural areas. Overall it is lower in rural areas than in other areas – 73 % of the overall EU average, compared with 88 % in intermediate areas and 120 % in urban areas.
- Rural areas in the EU have higher poverty rates (27 %) than cities (24 %) or towns and suburbs (22 %). However, between 2007 and 2015, the percentage of total population at risk of poverty decreased in rural areas, whereas it increased in cities, towns and suburbs.
- The primary sector (agriculture, forestry and fishery) represented 1.5 % of GVA in the EU-28 in 2015. This proportion has remained relatively stable between 2008 and 2015. In rural areas, the primary sector contributed 4 % of total GVA (2013 data). It is more important in the rural areas of the EU-N13 (8 %) than in the EU-15 (4 %).
- Whilst the share of agriculture, forestry and fisheries in rural economies has declined, the importance of diversification in rural economies has grown between 2010 and 2013.

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18 In Ireland, Slovenia and Romania, more than half of all people live in rural areas, whereas less than 10 % of the population in Italy, Sweden, Lithuania, Belgium, the UK, Spain and the Netherlands live in rural areas

19 Agriculture, forestry and fishery
Rural services

- Basic broadband services are accessible to all households in the EU, but next generation access — which is much faster — is only available to 40% of rural residents compared to 90% of urban ones.
- Even though 99% of rural households across the EU-28 had access to at least one broadband technology in June 2016, only 39% (12 million households) had access to next generation access broadband, with a very low proportion of households with access in rural areas in Greece (0.3%).
- Metropolitan areas, especially larger ones, tend to have a more highly educated population than other areas. In 2016, around 41% of those aged 25–64 had tertiary education in capital metro regions\(^{20}\) and 32% in metro regions generally, as compared with an average of 30% in the EU as a whole.

\(^{20}\) “Metro regions” are NUTS-3 regions or groupings of NUTS-3 regions representing all urban agglomerations of more than 250 000 inhabitants.