Innovative approaches for the provision of environmental and social benefits from agriculture and forestry – Step 1-2 case study results
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1 Introduction

A central component of the PEGASUS project is a set of carefully selected sectoral, multi-sectoral and territorial case studies.

The PEGASUS case studies are carried out in four steps. Steps 1 and 2 aim at a broader coverage and have been carried out in 34 case studies in 10 countries (while Steps 3 and 4 will focus on more in-depth analyses of a subset of these case studies). This discussion paper presents the main results and insights gained from Steps 1-2 in these 34 case studies.

The main objective of the case studies is to achieve a better understanding of the functional inter-and intra-relationships between farming and forestry and the quantity and quality of environmentally and/or socially beneficial outcomes (ESBOs) associated with these activities. The case studies also examined how these relationships respond to different drivers or initiatives in policy and markets. Other questions that are explored relate to the appreciation of different benefits among different actors and in different farming and forestry systems and situations as well as the key motivational, institutional and socio-economic factors which can foster benefits provision.

The case study findings were first discussed among all partners at a project workshop (PEGASUS Milestone 3) held in Estonia on 27-29 June 2016. The paper integrates the main points of discussion from the project meeting in Estonia.

This paper also outlines the final selection of those case studies that will move forward into the in-depth analyses in Steps 3 and 4. During the Estonia workshop, the selection criteria for the final list of in-depth case studies were discussed and agreed upon (see Section 4).

Finally, a set of common analytical questions to be explored in Steps 3-4 has been developed and is presented in this paper.

2 Approach, methods and empirical basis

2.1 Approach and methods used

In PEGASUS, and in particular in the case studies, a transdisciplinary approach is used that builds on the social-ecological systems concept (Ostrom, 2005; Folke, 2006; Ostrom and Cox, 2010; McGinniss and Ostrom, 2014). Particular attention was paid to an effective communication and interaction with practitioner partners and stakeholders in each case study.

All researchers participating in the case studies received targeted guidance and training on relevant methods (Task 4.2). Materials for the training and the actual course was provided by IfLS (Partner 4) and CCRI (Partner 2) and delivered at the first project meeting held in Portugal in January 2016. Particular attention was paid to giving partners sufficient degrees of freedom for an adjustment of the methodology to the actual institutional environment in each case study, so that actions would be acceptable and appropriate to local conditions.
Steps 1-2 started with the definition and sketching out of the social-ecological system (SES) in each case. The SES framework was adapted for this project. The Steps 1-2 case study analysis encompassed the identification of the key ESBOs, a first appraisal of their appreciation and/or related demands, and the potential for their provision (Step 1). The analysis also covered the conditions for a successful ESBO provision or sustainability in the particular system as well as the changes required for these to be enhanced (Step 2). The description and analysis were based on local, regional or national data sets complemented by a small number of key person interviews as well as triangulation with local environmental and socio-economic data.

2.2 Rationale for the selection of Steps 1-2 case studies

The selection of the PEGASUS broad and shallow case studies, corresponding to Steps 1-2 of the case study work, has retained 34 case studies across 10 EU Member States.

A number of criteria have been used to determine and finalise this selection which, together, explain the rationale for the selection. The objective of the selection process has been to strike the best possible balance and representativeness of the variety of agriculture and forestry situations, as characterised by the criteria below. The 34 PEGASUS case studies have thus been selected to provide a good coverage of (in no particular order of importance):

- different farming and forestry system types and intensity of management;
- various geographical, climate and topographical (mountain areas) characteristics across Europe as well as social, cultural and institutional conditions - to the extent this was feasible in view of other pragmatic constraints (see below);
- diverse types of environmentally and socially beneficial outcomes (ESBOs);
- the current level of ESBO provision and remaining potentials for improvement (or in some cases potential deterioration) – e.g. some areas or sectors with high quality existing provision; some with low existing provision but high potential; some with low existing provision and low potential, etc.;
- various types of mechanism used to incentivise the supply and demand of ESBOs: policy, market/private sector or NGO driven, or a mix e.g. policy impetus and private response;
- different types of specific actions implemented as a result of the mechanisms: government-level action implemented by individuals, (bottom-up) local collective action involving various types of stakeholders, private actors-led action implemented by individuals, etc.;
- potential of the cases as a model or best-practice, as expressed by an assessment of the transferability potential to similar land use systems;
- the implementation status of the initiatives/mechanisms (initiatives that are already established, in their initial phases or cases where initiatives are required but not in place).

Emphasis in the final selection has been on initiatives and mechanisms that go beyond those that are provided for by current mainstream policy and that bring a certain degree of innovation. Examples for this are agri-environment measures that are based on co-operative approaches and/or private sector engagement in PG/ESS supply.
Some pragmatic considerations have also been taken into account such as focusing on cases located in the PEGASUS Consortium member countries and ensuring a fair distribution of case studies across these partners to allow for feasible resource planning as well as coordination. To some extent, the selection process has also taken into account where there were existing relationships between PEGASUS members and stakeholders involved in the initiatives and the willingness and interest of stakeholders in participating in the project (reasons for these can be multiple, e.g. seeking increased publicity, and do not necessarily introduce a discriminant bias).

The map shown in Figure 1 below provides the location of the 34 broad and shallow cases (Steps 1-2).

![Figure 1](image_url)

Sources: Based on NUTS3 regions, CORINE land-cover map for 2006 (and 2000 data for Greece), JRC/EEA 2008 HNV data
Ten case studies are located in the temperate zone of Central Europe, 10 in the Western temperate zone, six in Eastern temperate and 8 in Mediterranean regions. In terms of farming and forestry systems and their management intensity, the broad and shallow case studies include 4 forestry cases and 6 cases with mixed farming and forestry activities (including agro-forestry systems) and 24 agricultural cases, with a relatively balanced combination of intensive (7 cases), extensive (13) and mixed intensity (4) management systems. In many of these cases (12), the initiative considered covers not only farmers/foresters but also downstream operators along the supply chains. The selection also includes 3 cases where permanent crops or horticulture are dominant and 9 mountain cases.

With respect to the drivers that have resulted in the initiative to be set up (type of valorisation mechanisms), these are policy-based in 5 case studies, private actors-based in 9 case studies, NGO-driven in 7 case studies, and a mix of policy impetus combined with a private-led response in 13 of 34 case studies. A majority of cases (21) are thus implemented through individual contracts (whether with public institutions or private companies/NGOs) while 13 cases have emerged from bottom up local collective actions. Moreover, it is worth noting that while a majority (29) of cases are analysing existing initiatives, some 5 case studies will be investigating situations where such initiatives are not yet in place or in their infancy.

ESBO coverage was initially described by case study teams following a rapid review and description. Later in the actual implementation of Steps 1-2 case studies, all teams have been required to consider all the beneficial outcomes targeted in PEGASUS.

This initial description of coverage shows that overall the 34 case studies are predominantly concerned with biodiversity outcomes (25 cases), followed by landscape character (22 cases), water quality and/or availability issues (17) and rural vitality (17). Other important topics include: soil issues, public outdoor recreation, education and demonstration activities while a few case studies cover almost all of the other ESBOs of interest. As anticipated, ESBO having an impact at the local scale (e.g. biodiversity: number of species and habitats) tend to be better represented in local initiatives which in turn is reflected in our selection. Initiatives aimed at enhancing the provision of globally relevant ESBOs such as carbon sequestration or GHG emissions are less frequent as their impact/importance is more difficult to grasp at the local level.

### 2.3 Short description of the 34 case studies in Steps 1-2

All PEGASUS partners who undertook case study analyses have been involved in 3 or 4 case studies, giving a total of 34 Steps 1-2 case studies. Implementation was based on a commonly agreed methodology and reporting template (Task 4.1).

Table 1 shows that the 34 case studies cover a wide spectrum of activities including private sector and traditional issue-based approaches as well as more integrative territorial multi-actor approaches. In all 34 cases more than one social or environmental benefit has been considered thus ensuring that there are inter- and intra-relationships to be studied.
Table 1
Key features of the 34 case studies

<table>
<thead>
<tr>
<th>#</th>
<th>Case</th>
<th>Key ESBOs</th>
<th>Secondary ESBOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT1</td>
<td>Organic farming label in the mountain Murau region</td>
<td>Species and habitats, Landscape character and cultural heritage</td>
<td></td>
</tr>
<tr>
<td>AT2</td>
<td>S-E-S in the Biosphere Reserve Lungau (Salzburg region)</td>
<td>Species and habitats, Landscape character and cultural heritage, Rural vitality</td>
<td></td>
</tr>
<tr>
<td>AT3</td>
<td>Mountain forestry and ESBO provision in mountain area Pinzgau</td>
<td>Flood protection, Soil protection, Rural vitality</td>
<td></td>
</tr>
<tr>
<td>CZ1</td>
<td>Biodiversity rich meadows payment in CZ</td>
<td>Species and habitats</td>
<td></td>
</tr>
<tr>
<td>CZ2</td>
<td>Birds and amphibians support on wet meadows</td>
<td>Species and habitats, Educational activities</td>
<td>Landscape character and cultural heritage</td>
</tr>
<tr>
<td>CZ3</td>
<td>Forest restoration in the Liberec region: guided succession</td>
<td>Soil protection, Species and habitats, Educational activities</td>
<td></td>
</tr>
<tr>
<td>DE1</td>
<td>GrünGürtel Frankfurt (Green Belt Frankfurt)</td>
<td>Outdoor recreation</td>
<td>Water quality, Air quality, Rural vitality</td>
</tr>
<tr>
<td>DE2</td>
<td>Traditional orchard meadows in Hessen/Baden-Wurttemberg</td>
<td>Food security, Water, Air, GHG emissions, Soil, Species and habitats, POLLINATION, Landscape character and cultural heritage</td>
<td>Outdoor recreation, Educational activity, Rural vitality</td>
</tr>
<tr>
<td>DE3</td>
<td>Regionalwert AG Freiburg / Hamburg / Munich</td>
<td>Soil functionality, Species and habitats</td>
<td>Water quality, Rural vitality</td>
</tr>
<tr>
<td>EE1</td>
<td>Marketing of local organic, artisan and farm food</td>
<td>Rural vitality</td>
<td>Species and habitats, POLLINATION, Biological pest control, Soil, Water, Landscape and cultural heritage, Farm animal welfare, Food security</td>
</tr>
<tr>
<td>EE2</td>
<td>Grass-fed beef</td>
<td>Species and habitats, Landscape character and cultural heritage, Farm animal welfare, Rural vitality</td>
<td>Food security, Water quality, Carbon sequestration, Soil functionality, Educational activities</td>
</tr>
<tr>
<td>EE3</td>
<td>State Forest Management Centre</td>
<td>Outdoor recreation, Educational activities, Health and social inclusion, Landscape character and cultural heritage</td>
<td>Species and habitats, Rural vitality</td>
</tr>
<tr>
<td>FR1</td>
<td>Agriculture and forestry in Pays de Langres, France</td>
<td>Species and habitats, Landscape character and cultural heritage</td>
<td>Water quality, Educational activities</td>
</tr>
<tr>
<td>FR2</td>
<td>Volvic water company, management agreements and agri-forestry</td>
<td>Water quality, Water availability</td>
<td>Species and habitats</td>
</tr>
<tr>
<td>FR3</td>
<td>Agriculture and forestry in Parc National des Cévennes</td>
<td>Water quality, Water availability, Landscape character and cultural heritage</td>
<td></td>
</tr>
<tr>
<td>IT1</td>
<td>Processed tomato supply chain in the Tomato District of northern Italy</td>
<td>Water quality, Water availability, Soil functionality, Soil protection</td>
<td>Climate mitigation</td>
</tr>
<tr>
<td>IT2</td>
<td>Bergamot, niche and organic products in Calabria</td>
<td>Species and habitats, Landscape character and cultural heritage, Rural vitality</td>
<td></td>
</tr>
<tr>
<td>#</td>
<td>Case</td>
<td>Key ESBOs</td>
<td>Secondary ESBOs</td>
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</tr>
<tr>
<td>IT3</td>
<td>Valdaso agri-environmental agreement</td>
<td>Water quality, Soil functionality</td>
<td>Food security, Air quality</td>
</tr>
<tr>
<td>IT4</td>
<td>Niche products and tourism in Garfagnana</td>
<td>Species and habitats, Landscape character and cultural heritage, Rural vitality</td>
<td></td>
</tr>
<tr>
<td>NL1</td>
<td>Outdoor-grazing payments in dairy farming</td>
<td>Landscape character and cultural heritage, Species and habitats</td>
<td>Farm animal welfare, Soil functionality, Soil protection</td>
</tr>
<tr>
<td>NL2</td>
<td>Farmer, beer and water – sustainable agriculture and sourcing in North-Brabant province</td>
<td>Water quality and availability, Soil functionality, Soil protection, Landscape character and cultural heritage</td>
<td>Species and habitats, Outdoor recreation</td>
</tr>
<tr>
<td>NL3</td>
<td>Nature management and regional planning in Drenthe</td>
<td>Landscape character and cultural heritage</td>
<td></td>
</tr>
<tr>
<td>NL4</td>
<td>Skylark foundation: a farmers’ association for sustainable arable farming</td>
<td>Water quality, Soil functionality</td>
<td></td>
</tr>
<tr>
<td>PT1</td>
<td>Montado extensive silvo-pastoral system in Portugal</td>
<td>Species and habitats, Landscape character and cultural heritage</td>
<td>Air quality, GHG emissions, Fire protection, Soil protection, Farm animal welfare</td>
</tr>
<tr>
<td>PT2</td>
<td>Small scale peri-urban mosaic in Montemor-o-Novo</td>
<td>Rural vitality</td>
<td>Food security</td>
</tr>
<tr>
<td>PT3</td>
<td>Intensive olive production in the Alentejo</td>
<td>Rural vitality</td>
<td></td>
</tr>
<tr>
<td>SI1</td>
<td>Agri-forestry in sub-alpine Slovenia (Upper Savinja Valley)</td>
<td>Species and habitats, Landscape character and cultural heritage</td>
<td>Rural vitality</td>
</tr>
<tr>
<td>SI2</td>
<td>Recreation in urban forests in Ljubljana, Slovenia</td>
<td>Outdoor recreation, Health and social inclusion</td>
<td>Water availability, Air quality, Carbon sequestration, Soil protection</td>
</tr>
<tr>
<td>SI3</td>
<td>Goričko – Agriculture-based development strategies for areas hit by economic crisis</td>
<td>Food security, Species and habitats, Rural vitality</td>
<td></td>
</tr>
<tr>
<td>SI4</td>
<td>Nature conservation enabling social security in farming in Središče ob Dravi</td>
<td>Species and habitats, Landscape character and cultural heritage</td>
<td>Rural vitality</td>
</tr>
<tr>
<td>UK1</td>
<td>WILD river basin management initiative</td>
<td>Water quality, Flood protection, Rural vitality</td>
<td>Soil protection, Species and habitats, Landscape character and cultural heritage</td>
</tr>
<tr>
<td>UK2</td>
<td>Hope Farm with intensive, sustainable arable farming in the east of England</td>
<td>Species and habitats</td>
<td>Water quality, Water availability, Flood protection, Soil, Carbon sequestration</td>
</tr>
<tr>
<td>UK3</td>
<td>North Pennines multi-stakeholder partnership for sustainable uplands</td>
<td>Species and habitats, Landscape character and cultural heritage</td>
<td>Water quality, Water availability, Carbon sequestration</td>
</tr>
<tr>
<td>UK4</td>
<td>Care farms</td>
<td>Health and social inclusion, Rural vitality</td>
<td></td>
</tr>
</tbody>
</table>
3 A first compilation of results obtained in Steps 1-2

Introductory note on this section

The following compilation is meant to report some of the key points that emerged from the 34 case study reports. The bullet points are to illustrate and/or point to cases where a particular feature is more strongly expressed. Obviously, there is overlap and almost always an interplay of very different factors with a whole range of more or less significant outcomes.

Section 3 is to provide an entry-point into and orientation for further cross-cutting analyses to be carried out later in the project. Particular attention was paid to illustrating the richness and broad spectrum of results obtained from the study of real-life cases. The structuring of the section evolved when examining the 34 case study reports. In further analyses we may re-organise or take a different approach to displaying the text and data (see Sections 5-6).

A more synthetic view of Steps 1-4 case study results will be developed jointly by all of PEGASUS researchers in mixed teams in WP5.

3.1 Key issues related to changes in ESBOs

3.1.1 Drivers in policy and markets

Agricultural policy, and here in particular the Common Agricultural Policy (CAP) and its interpretation and implementation at the level of member states and regions play an important role in our case studies, affecting directly and/or indirectly ESBO provision. As will be discussed later in Section 3.1, we will find that policies always interact with other drivers, private schemes, legislation etc. Related to policy, particular references are made to:

- The role of agricultural policy in the 1970s in stimulating intensification. In SI4 Središče reference is made to the conversion of meadows and pastures into arable land and the impact of land consolidation schemes. Similar in PT1 Montado where livestock premiums led to intensification in grazing and agriculture in general.

- In UK3 North Pennines it is stressed that High Nature-Value (HNV) farming is heavily dependent upon public subsidy from both CAP pillars. The challenge is therefore that government support for the Area of Outstanding Natural Beauty (AONB) has been declining due to ‘austerity’ mechanisms since 2008, and farmers struggle to remain viable despite CAP subsidies.

- Interestingly, in FR3 Cévennes the main ESBOs are provided by neo-rural farmers with unconventional and innovative agricultural practices, who are not the main beneficiaries of CAP subsidies. In the same case study, reference is made to the perverse effect the CAP payments can have on the ground. CAP payments target productive areas, while agro-ecological infrastructure or landscape features are considered non-productive. The abandonment of traditional grazing leads to loss of natural grassland and open landscapes and scrub encroachment as well as to the loss of landscape and cultural heritage features in the area.
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(stone walls, Neolithic graves). A related development at least partly to be ascribed to the CAP is the conversion of “natural grassland” to arable land with a related loss of biodiversity, loss of carbon storage services, damages on landscape and water quality.

More recent policies and instruments focussing directly on ESBOs, trying to encourage their provision or to mitigate their degradation are relatively important in a considerable number of case studies. The most classical of these measures are agri-environmental schemes that have been introduced at EU level in the early 1990s.

The following are some related examples in our case studies:

- Agri-environmental measures of the Austrian Rural Development Programme and Natura 2000 direct payments in AT2 Lungau.
- In CZ1, the driver for the provision of biodiversity is the support provided through national environmental and EU agri-environmental policies to extensive beef cattle grazing.
- In IT1 Tomato District, nitrate pollution, drought, floods and the increasing competition for natural resources have become drivers for changes on the demand side leading for example to the adoption of integrated production methods, labelling, etc. Policy intervention and targeted measures effectively support the related changes.
- Measures co-financed by the Environment and Protection Committee of the Volvic water catchment area (CEPIV) are referred to in FR2 Volvic.
- Measures directly or indirectly geared towards strengthening the protection function of mountain forests (AT3).
- In EE3 Forest Centre, some of the profits earned by the state-owned company are invested into enhancing the provision of ESBOs (public recreation, education, landscape, etc.).
- National encouragement for catchment-based schemes and the Water Framework Directive (WFD) played a major role in UK1 WILD.
- Developing a new approach to agri-environment policy and pesticide legislation played a central role in UK2 Hope Farm.
- The effective institutional support for farmers’ collective action is important in IT3 Valdazo.
- The maintenance of protection forest is increasingly in need of public financial support, and the Austrian RDP is incentivising good silvo-cultural practices (AT3).
- Project funding is important in SI2 Urban Forests, a problem is that this does not provide stable financing. The same holds also true for NL2 North-Brabant, that is: funding of sustainability projects is important and a problem is that fundraising is a time consuming process. Moreover, due to the uncertainty of funding provision, implementation of projects is also an unpredictable and capricious process.
- In IT3 Valdazo, the main factor of success is seen in policy innovation related to the package of RDP measures and here specifically, the agri-environmental agreements.
- Regional financial support for a facilitator who supports a bottom-up process of landscape management in Southwest Drenthe (NL3).
Markets for primary products, and changes in markets, can have a massive influence on land use changes and therefore also on the provision of ESBOs. Examples are:

- PT1 Montado concludes that the deterioration of the cork market had a substantial impact on the related land use system and habitats.
- An important factor in DE2 Orchards was the industrialisation of apple cultivation and processing in supplying global markets, leading to the abandonment of traditional orchards with lower productivity. The trend was reinforced by the increasing demand for building land and, as a result, pressure on traditional orchards that in the past surrounded rural villages and towns.
- The lack of marketing and sales opportunities in large-store retail channels limits the potential income generation for small-scale producers and processors in EE1 Farm Food. For the same reason, the increasing demand for local farm, artisan and organic food is insufficiently met.
- Market-related measures include the promotion of all-season domestic and sustainable tourism, and the related differentiation strategies (AT2 Lungau).
- A promising market with a combination of average prices, good quality and a stable and favourable cheese technology export are positive factors in FR1 Pays de Langres.
- The slow response to market drivers and weak private initiative are key factors in SI3 Goričko.
- Premium marketing using a quality label of the Naturschutzbund Deutschland e.V. (NABU), which is an environmental NGO in Germany, and organic certification are important in DE2 Orchards.
- Consumer demand for organic food and sustainable investment opportunities are the main limits for the approach used in DE3 Regionalwert AG. So far, the demand for both is growing within the region as well as outside (transfer of the approach to other regions like Hamburg or Munich).

The private sector can be an important driver and change agent which is apparent in several case studies:

- In FR2, reference is made to the Public Private Partnership with Danone as the economic importance of sustainable water management is relevant both for Danone (owner of Volvic Waters Society) and local authorities (local taxes, employment). A supporting factor is the societal and corporate interest in biodiversity conservation (reinforcing the good image for Danone as well as of environmental NGOs).
- In IT-1, all stakeholders interviewed pointed to the timeliness of public policies but they equally emphasise that the actual application and success of policy measures is mainly explained by their consistency with the market-driven strategies of local entrepreneurs.
- Key drivers in IT2 Bergamot are the interplay between the perfume, pharmaceutical and cosmetics industry and organic innovators that allowed to overcome the rent-seeking behaviour of exporters of bergamot oil.
- Market demand for ESBOs in SI1 Agri-forestry comes mainly from tourism businesses
• The need for cleaning drinking water by a private sector water company is increasingly important in UK1 WILD.

• In NL1, the dairy co-operative is the key driver to promote processed milk that is based on outdoor-grazing, securing quality of the final products (mainly cheese). A premium is paid to dairy farmers to acknowledge such farming practice.

• In NL2 North-Brabant, conserving the public resource of groundwater, a sustainable use of soils, and creating an image towards sustainability were common triggers among Bavaria Brewery and farmers to start this initiative.

• Skylark is a private sector initiative (NL4). The organisation is fully paid by supply chain companies and participating arable farmers. At times, for specific projects, public subsidies are acquired. Skylark has set its own sustainability criteria for arable farming and some supply chain companies create a demand by preferring Skylark farmers.

That a combination of policy support with private sector and market mechanisms can be particularly effective, is indicated in a relatively large number of cases. In several case studies this interplay is relatively pronounced:

• In AT1 Murau, a private labelling initiative and successful marketing project would not be possible without basic public support through the Rural Development Programme which accounts for a substantial share of mountain farmers’ income (as well for farmers throughout Austria).

• In IT1 Tomato District, integrated production practices are at widely adopted primarily as a result of economic advantages and changes in demand resulting from new consumption trends. This economic rationale and the related voluntary, private sector-led certification are reinforced by financial support provided through public policies as well as the adoption of European, national and regional protection legislation and quality standard requirements. The latter guaranteeing high quality standards and environmental sustainability, as well as complete traceability.

• In EE2, a private marketing initiative on organic grass-fed beef meat is controlling the whole supply chain with joint standards and labelling. This private sector initiative is strengthened through various public funds (e.g. organic support, semi-natural habitat management support, marketing support), increasing the viability of this approach.

• In IT3 Valdaso it is tried to integrate policy support with a marketing strategy and regional quality label or regional label.

• AT3 Pinzgau shows that (environmental) regulation is sometimes needed to accompany compensation payments and/or the creation of markets. The case study argues that incentivising intensive game keeping and hunting can lead to problems if not accompanied by enforceable institutions which are accepted by the majority of people.
Societal trends, demographic changes and related changes in demands and markets can become a main driver of change in ESBO provision.

- An example is DE2 which shows that the cultivation of traditional orchards is not profitable any more in the main commodity markets. The abandonment of traditional orchards is linked with a rapidly decreasing knowledge on orchard maintenance. This trend is reinforced further by the high demand for building land in conurbations.
- Demographic changes and economic decline in geographically remote areas is referred to in SI4 Središče.
- In IT4 Garfagnana, demographic trends and new tourism-related demands increased the appreciation for quality and niche products.
- Hunting corresponds to a significant income, thereby reducing the need for a higher livestock density which in turn contributes to biodiversity conservation and landscape protection (PT1 Montado).
- Land shortage and poor soil fertility management on land leased on an annual basis are referred to in NL4 Skylark.
- Growing cities, increasing numbers of commuters and the resulting pressures on land for development are the most important drivers in DE1 Green Belt Frankfurt.

Economic drivers resulting in high unemployment, migration, depopulation and land abandonment are referred to in PT3 Intensive Olives.

- In SI4 Središče reference is made to the EU common market and the economic crisis which together put an enormous pressure on less competitive farmers to search for new niches. The main constraint in related responses was the lack of knowledge, capital, ideas and willingness for cooperation.
- An important prerequisite for the continuation of mountain farming and the provision of ESBOs is a sufficient agricultural income (AT1 Murau).
- In FR3 Cévennes reference is made to the influence of market forces and competition on farming practices with intensification, related gains in productivity and a resulting abandonment of traditional grazing practices – all with negative consequences on ESBOs and reinforced further by climate change and the related drought risks. Similar effect are referred to in PT3 Intensive Olives and CZ2 Wet Meadows.
- The low producer prices obtained in conventional meat markets are a key driver in (EE2 Grass-fed-Beef).
- Payments for the delivery of public goods might be most effective if linked with product quality rather than public payments. Such an approach could offer perspective to the dairy sector in a highly volatile market (NL1 Outdoor-grazing).
- Bavaria Brewery and the farmers in NL2 North-Brabant are aware of the fact that a good quality and availability of groundwater in the long run is essential for running and growing their businesses, now and in the future.
Most often in our case studies we found that different drivers interact, sometimes reinforcing each other, in other times mitigating effects.

- AT1 Murau is one such example as in this case ESBO provision is driven by a combination of public support schemes (RDP), price premium payments, an increasing consumer demand for differentiated, environmentally sound, origin-guaranteed products as well as the motivation and capacity of larger retail supply chains.

- The authors of IT4 Garfagnana go further arguing that “key drivers are the coherence and complementarities of the local strategies, the design of well-tailored and targeted policy interventions”. Related with this is a successful implementation of the local socio-economic development plan and the coherence and coordination of public investments.

- In AT2 Lungau, demographic changes, the increasing economic competition and the CAP subsidy system related to agriculture and environment interacted and impacted on ESBO provision in many ways.

- The economic crisis, negative demographic trends and the passive mentality of people were the main drivers affecting ESBO provision in SI3 Goričko.

- Demographic trends, loss of market power and competition of foreign products resulting in low market prices led to ESBO degradation in IT3 Valdaso. Changing climatic conditions and an increasing pest resistance seems to further aggravate these problems.

- Developments in agricultural markets, changes in consumer preferences, macro-level prices for outputs and inputs and the intensification of production affected the provision of ESBOs in manifold ways in AT1 Murau, UK2 Hope Farm, and NL2 North-Brabant.

- The decline in outdoor grazing and related ESBOs is connected with legislation on phosphorous which increasingly limits milk production (following the rapid increase of milk production in the recent past) as well as the rapid increase and higher feed efficiency and competitiveness of in-house systems (NL1 Outdoor-grazing).

- Economic and social pressures on upland farming plus the decline in funding for protected landscapes (UK3 North Pennines).

- In FR1 Pays de Langres, the specialisation and simplification of farming systems coincides with a low density of population and low attractiveness of the area and a forest market oriented towards standard quality of wood leading to a corresponding loss in added value.

- In FR3 Cévennes, the study area is described as “too poor to host cities, too rich to be abandoned”; neo-rural immigration occurs since the 1970s, global market trends meet an increasing demand for local products, and also drought risks and limited water availability affect ESBO provision.

- In IT1 Tomato District, the interplay between a supportive role of policies with the Common Market Organisation (CMO), Rural Development Programmes (RDP) and regional funding, the promotion of integrated pest management (IPM), cooperation, innovation, processing and commercialisation and the related increases in agricultural production value added is emphasised. Regional services include the plant protection service, meteorological service,
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- The cork market is a good example of common aims between farmers/land owners, land use system protection and market, as a higher relevance of cork production leads to a higher interest in maintaining a healthy tree cover (PT1 Montado).
- In DE3 Regionalwert AG, the initiative wants to operate explicitly outside a public policy framework using financial market principles. And yet, the particularly the organic agriculture businesses are still operating within the regulatory framework provided by the EU and Federal states level and the support provided within the CAP.
- The key drivers identified in CZ3 Liberec are public policy tools focused on environment, forest restoration and support of nongovernmental organisations, private financial support, educational and social benefits.
- The main drivers of grassland management in CZ2 Wet Meadows are CAP subsidies, partly environmental programmes and the programme for Environmental education and awareness of the Ministry of Environment.
- Other case studies where very different drivers interacted affecting together the provision of ESBOs are EE1 Farm Food, EE2 Grass-fed-Beef, and UK4 Care Farms.

Other drivers include extreme weather events (AT3, CZ1, CZ2, CZ3, IT2, UK1), pests and diseases (CZ3 Liberec), the shift from institutional to community care (UK4 Care Farms), changes affecting the economy of the forestry sector (EE3 Forest Centre), an unfavourable ownership structure (SI2 Urban Forests), the inclusive decision-making and active work on public image (trademark) (SI2), a strong regional identification and collective consciousness for natural conservation among a significant number of stakeholders (AT2 Lungau), an increasing appreciation of the region and of its tourism potential (SI3 Goričko), and access to irrigation and the economy of large scale farms (PT3 Intensive Olives).

3.1.2 Appreciation of different ESBOs in different farming and forestry systems and situations

It is probably not surprising that in almost all case studies there are a number of social and environmental benefits (or ESBOs) that are referred to. Often their delivery seems to be synergistic, e.g. an improvement in landscape structures also leads to an improvement in biodiversity.

Some examples show that there can even be synergies between social and environmental benefits:
- In IT4 Garfagnana, reference is made to an area with homogenous features (environmental, historical, economic, social, cultural and institutional) and several ESBOs: biodiversity, high levels of crop and livestock genetic diversity; landscape character and cultural heritage; rural vitality: maintaining and sustaining rural identity through cultural practices, knowledge and traditions; high levels of social capital, trust and cooperation.
- Landscape features are an important ESBO provided by outdoor-grazing systems in NL1. Outdoor-grazing might also be beneficial for animal health or ammonia emissions for instance, as levels in outdoor-grazing are below those found in in-house production systems,
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and although complex and dependent on farm management practices, it might also be beneficial for biodiversity.

- In NL2, the central private sector actor Bavaria brewery contends that a diverse landscape with high biodiversity contributes to the "social and ecological resilience of the area".
- The ESBOs referred to in DE2 Orchards comprise sustainable and sufficient production of food, water quality, climate adaptation and mitigation, healthy functioning soils, biodiversity, maintaining and enhancing landscape character, public recreation and education, and rural vitality.
- In EE2, it was found that grass-fed organic beef production provides ESBOs like biodiversity, landscapes, carbon storage, rural vitality and also ESBOs related more specifically to organic farming (soil, water quality, animal welfare).
- Mediterranean agro-pastoral cultural landscapes are seen as connected with rural vitality and the maintenance of water quality (FR3 Cévennes).
- Synergies between biodiversity and water ESBOs (e.g. biological control and water quality) (FR2 Volvic and UK1 WILD).

In some case studies we found conflicting goals, especially when considering social and environmental benefits simultaneously. Some examples:

- In FR3 Cévennes, reference is made to a competition between forest and agriculture especially about access to water resources under the particular Mediterranean climatic conditions.
- Landscape transformation can be quite staggering for the occasional visitor while for the locals it tends to be seen as the expression of the rural vitality. Farming system intensification allows provides increases in productivity and profitability but affects environmental and landscape benefits (PT3 Intensive Olives).
- The famers and land owners/managers in PT1 Montado know that agriculture intensification can have negative impacts on biodiversity and landscape character. They point to the need to ensure a sufficient income to maintain the system active, and leading land managers focus on performance in the short-term.
- The common aim of all the actors in CZ3 Liberec is to increase species biodiversity, ecological stability and landscape attractiveness. Conflicting interests are between NGO Čmelák and foresters and the hunters about the numbers of deer, the protection of new plantings, fencing etc.

That agriculture and forestry and, often, particular practices or systems are directly connected with the provision of many ESBOs is shown in most if not all case studies. It is also apparent in many case studies that this contribution is appreciated. Some examples:

- In IT4 Garfagnana, ESBO provision is strongly linked to the features of the local farming system, not only in terms of farming structure and practices, but also in terms of rural traditions, cultural heritage, sense of belonging to the rural community, cultural and social habits.
• Agriculture and forestry in the mountain district Murau (AT1) are inseparably linked to the provision of key ESBOs. There is a great public consensus to support mountain farming for maintaining the specific land use and thereby maintaining cultural landscapes and high levels of biodiversity.

• In AT2 Lungau, the particular contribution of organic farming to the provision of biodiversity, cultural landscape and rural vitality emphasised, pointing to the fact that 50% of all 786 farms within the region are managed and certified as organic.

• The business payment scheme in NL1 acknowledges outdoor grazing through a quality premium for the milk produced. Branding outdoor grazing will enable dairy farmers to maintain landscape management, possibly with other environmental and social benefits from dairy farming. Outdoor-grazing is appreciated by consumers and perceived by consumers as a notification of quality of the final products (mainly cheese).

• Conservation of habitats and genetic resources with innovative or improved traditional practices of land management. Focusing the work on ESBOs which are recognised also by local actors (in this case alpine livestock production, autochthonous breeds and mountain wood) as strong development potential is most important in SI1 Agri-forestry.

• Landscape and species and habitats are the most important ESBOs in the case study area, and agriculture and forestry are highly appreciated by people as providers of the related amenities (DE1 Green Belt Frankfurt).

• In DE1, it is pointed out that only some types of agricultural land use are appreciated – traditional orchards, open arable fields and wet meadows for example – in forestry differences seemed less obvious.

• State forests and their role in public recreation/education/health provision as well as related landscape character and cultural heritage, biodiversity and, indirectly, rural vitality are considered most important in EE3 Forest Centre.

Landscape provides a more holistic description and leverage point in a number of case studies, much of this centred around observations that were interpreted as an appreciation of landscape qualities and scenery:

• FR1 Pays de Langres provides a nice illustration of that as reference is made to “a typical landscape with strong interactions between farming and forestry; a mosaic landscape with crops on plateaus, forest in relief and grassland in valleys”.

• A wide range of habitats and species are present and many are valued – including Curlews, a bird species whose annual springtime return is noted as a key event (UK3 North Pennines).

• Biodiversity and landscape and rural vitality are key ESBOs in IT2 Bergamot – bergamot is described as “part of the image and identity of the area”.

• Maintaining traditional permanent grasslands and preventing overgrowth is mainly based on extensive grazing with autochthonous breeds in SI1 Agri-forestry.

• Steppe ecosystems provide a wide variety of biotopes for birds, including some endangered species which relies solely upon these ecosystems (PT3 Intensive Olives).
• Management of the landscape in and around the village by local actors increases social co-
hesions in Southwest Drenthe (NL3).

**Water and soil protection** appears to be relatively often perceived as something that land users have to do anyway. Some examples from our case studies:
• Certain farming practices protect water as well as other ESBOs such as carbon and society takes it for granted (UK1 WILD and UK3 North Pennines).
• Intensive agricultural systems affect soil and water quality and quantity, and innovative practices are implemented to reduce the use of fertilizers, pesticides, water (IT1 Tomato District).
• Soil and water protection/conservation were considered most important in NL4.

**Climate and climate change mitigation** are referred to only rarely. One example is DE1 Green Belt Frankfurt: Extreme weather events have in recent years contributed to the appreciation of the green belt’s role in climate regulation; they serve as example to increase awareness and support for the green belt among politicians and the public. EE2 Grass-fed-Beef contributes to climate change mitigation through management of semi-natural habitats and permanent grasslands. A number mentioned extreme weather events (AT3, CZ1, CZ2, CZ3, IT2, and UK1) and this might be considered to be linked to climate change.

**Social benefits**, like public health and leisure, are explicitly referred to in some case studies, but much less than environmental benefits. Some examples of cases where social benefits play a more important role are:
• In PT3 Intensive Olives, the most important ESBO is rural vitality. As other peripheral territories, Baixo Alentejo municipalities have experienced a long time of rural exodus and land abandonment. The Alqueva irrigation project brought the promise of more jobs, attracting investments and settling population in the region.
• Appreciation of ESBOs in the region is varied between different stakeholders and is seen to hold a particular potential for health-related tourism etc. (AT2 Lungau).
• In EE3 Forest Centre, reference is made to improvements in public outdoor recreation, environmental and cultural heritage education possibilities and public health. It is also emphasised that there is a high appreciation by society for the kinds of ESBOs provided.
• Appreciation and demand of the forest functions providing public health and leisure in both locations (Celje and Ljubljana) is increasing. In both cases forests are designated as forests with special function and no commercial exploitation is taking place (SI2 Urban Forests).
• Knowledge related to the management of traditional orchards (e.g. varieties and their properties) needs to be regained arduously, while the appreciation of this knowledge and of the ESBOs related with traditional orchards by consumers is relatively limited (DE2).
• Education is given a special meaning by Forest Service representatives in SI2 Urban Forests.
In DE3 *Regionalwert AG*, the level of ESBO provision is closely linked to the organic land management of the businesses associated with the central actor RWAG. RWAG is an initiative of producers that covers relevant parts of the agricultural sector and the sustainable food supply chain, a quantitative increase in ESBO delivery is seen as possible.

In EE3 Forest Centre reference is made to people’s increasing interest in contributions to public health, wellbeing, environmental awareness, closeness to nature etc.

Rural vitality was referred to as the most important ESBO in UK3 North Pennines – “most valued by a wide range of stakeholders” – but its provision deserving more attention.

In UK4 Care Farms, while individual care farms all had different approaches, it was the health and wellbeing aspects that focus the initiatives and the farm was the setting where this took place.

Public recreation and maintaining an area of natural importance surrounding rural municipalities are important in DE1 Green Belt Frankfurt. It is asked how these ESBOs can also contribute to maintaining a vibrant urban community. The management of urban growth is a key issue to secure both level and quality of the ESBOs provided by the green belt.

Villages become more attractive and social cohesion increases due to the cooperation of local actors and farmers in Southwest Drenthe (NL3).

### 3.1.3 Key motivational, institutional and socio-economic factors that enable transformative practice

In this section in particular it is to be noted that the bullet points are to illustrate and/or point to cases where a particular feature is more strongly expressed. All first insights will still need to be examined in more depth in Steps 3-4 of the case study work.

Based on Steps 1-2 case study reports, four broad types of determinants emerged as playing a more important role in enabling and indeed fostering transformative practice. They are:

- engagement at an individual level as well as in the form of collective action,
- institutional factors and policy frameworks,
- a good and effective communication within initiatives and with external audiences, and
- the ability to learn and innovate.

**Engagement at an individual level as well as in the form of collective action** is an obvious and key factor driving changes in many initiatives. Some cases where this is particularly pronounced are:

- The personal enthusiasm of some active people is the key factor in EE1 Farm Food, EE2 Grass-fed-Beef and DE3 *Regionalwert AG*. The same was found in NL2 North-Brabant were enthusiasm seemed to be a key feature of the entire organisation.
- The initiative and engagement of an environmental NGO is appreciated by the local community. The common interest in preserving nature as well as creating opportunities for economic development through new/transformed practices might eventually help to overcome the lack of cohesion (SI4 Središče).
In AT2 Lungau, a cooperative approach is a necessary precondition for achieving the main goals of Biosphere Reserve. Currently, there are difficulties in achieving this objective but there is awareness and common interest in working together towards this target.

In IT1 Tomato District, reference is made to the key role of “collective action rooted in shared history, mutual trust, common values and goals”. Contractual agreements between farmers and industries, common representation and lobbying activity through an inter-branch organisation play an important role.

Landowners with a sense of belonging seeing themselves as cultural heritage keepers are a traditionally dominant social group, contributing to collective strategy making and a reinforcement of cultural and identity values (PT1 Montado).

The increasing public interest plays a catalytic role in ESBO provision, but personal engagement of key actors remains the main factor (SI2 Urban Forests).

Local environmental institutions and initiatives have fostered the creation of successful community groups and stimulated ESBO provision (UK1 WILD and UK3 North Pennines).

Involvement of groups of local actors in landscape management in Southwest Drenthe (NL3) encouraged the ESBO provision in and around villages.

Private initiatives connecting producers and consumers are key in ensuring the continued provision of the target ESBOs in the area (SI1 Agri-forestry).

The key difference in SI2 Urban Forests was due to the personal engagement of forest service workers, municipality policy and leadership, and a consistent long-term strategy.

**Institutional factors and policy frameworks** can contribute significantly to triggering, enabling or fostering collective action for the provision of ESBOs.

- Networking and rigorous respect of protocols and agreed rules is what distinguishes tomato supply chain of northern Italy (IT1 Tomato District). And it is collective actions that make it possible to deliver public goods that could not be provided or protected by a single farmer, being characterised by a large geographic scale. Institutional and policy factors are similarly relevant for Italian case studies IT3 Valdasso and IT4 Garfagnana.

- Ownership of land affects the ability of farmers to take action to improve their situation – tenants have less autonomy and financial collateral than owner-occupiers. The motivations of large and distant estate owners can be difficult to ascertain as different and sometimes conflicting goals appear to play a role for them (UK3 North Pennines).

- Governance seems most important in UK1 WILD and a range of suitable existing structures are identified (others may perpetuate perceptions of complexity, regulation and bureaucracy).

- The CAP single payment scheme is capped but at a very high level. The cap could be lower and the money redistributed so that social benefits are increased, for example with higher payments for smaller farms or those with smaller turnover (UK3 North Pennines).

- The support mechanism for NGO work who are leaders of some projects appears to be a limiting factor for the sustainability of projects in CZ2 Wet Meadows and CZ3 Liberec.
• The eligibility criteria for investment support for educational activities are an important factor in CZ2 Wet Meadows.
• Landscape management by local actors is organized as a bottom-up process in Southwest Drenthe (NL3). This asks for administrative structures which stimulate and respond to such initiatives.

**Good and effective communication**, and explaining connections, contributes to gaining support among relevant actor groups and the public. Effective communication is also important within initiatives in order to align interests and work in the same direction. Throughout all cases, individual personalities are important as well as engagement, knowledge, consistency, communication, transparency and clarity, and trust. Some more specific examples are the following:

• A communication strategy is key so people are clear who is leading what and how different aspects link together. The result is increased farmer buy-in and the willingness to innovate and contribute are important is shown in UK1 WILD.
• Outdoor-grazing is a main feature of dairy farming and a landscape feature in the Netherlands that is widely used in communication and the marketing activities of milk processors. It might be a way to communicate the broader context of farming in a region (NL1 Outdoor-grazing).
• In UK3 North Pennines it was found that there is clear need for more communication between stakeholders to identify ESBO win-wins.
• Changing the rules in contracts without proper communication between actors affected the fragile relationships and collective action became very difficult in CZ1 Biodiversity Meadows.
• Group discussions and farm visits help to raise awareness and can increase the motivation of relevant actors. A mechanism to address awareness and intrinsic motivation of farmers through peer review and social learning (NL4).
• In IT3 Valdaso, farmers and technicians are interlinked by bulletin information and on-farm visits.

The **ability to learn and innovate** helps to find solutions in complex situations with conflicting interests and goals that apparently contradict each other.

• Continuous innovation in agricultural and processing practices and techniques, certification and high-quality and traceability schemes play a central role in IT1 Tomato District.
• In UK1 WILD, the key factors contributing to a positive development include the presence of a facilitator and the willingness of government agencies to ‘stand-back’ and engage widely.
• In UK3 North Pennines, water issues are complex due to conflicts between heritage conservation (lead), biodiversity (management) and quality (sources of contaminants), and there is a need for more co-operation to find common solutions.
• An independent external facilitator supports local groups in Southwest Drenthe (NL3) with providing knowledge about the landscape, helping them with the development of landscape management plans, teaching them how to maintain landscape elements, and providing tools and planting materials.
3.1.4 How to increase awareness and provision

Awareness about the connections between agriculture and forestry and the quality of ESBOs can be seen as one of the important preconditions for their appreciation among relevant actor groups and eventually their provision. The related findings from the 34 case studies are:

- Awareness of the consumers on how the products are produced and what the related benefits are is increasing thanks to the approach adopted in EE2 Grass-fed-Beef. Consumer awareness about artisan and organic food production and the related ESBOs is increasing rapidly. The higher knowledge and interest to buy the products provided, the higher success of the approach (EE1 Farm Food).
- Awareness and provision can be increased through coordinated and well-conceived efforts in marketing and increasing visibility (SI4 Središče).
- Awareness of forest ecosystem benefits can be improved through education and targeted promotional activities (SI2 Urban Forests).
- Developing stronger, labour-intensive value chains to enable market valuation of ESBOs and social entrepreneurship are key factors in SI3 Goričko.
- Experimenting and visiting each other are important in NL2 North-Brabant: “seeing is believing”; “tangible results are key”. Also awareness among inhabitants and tourists was increased through for instance a cycling tour in the area.
- The cooperation of local stakeholders with farmers in Southwest Drenthe (NL3) increases the understanding of stakeholders for the pressures farmers have to cope with.
- Public awareness concerning the importance of a protection of forests puts pressure on political bodies leading to interventions (development of plans, support schemes for reforestation, technical and financial support) in order to ensure that the protective function of forests remains high (AT3 Pinzgau).
- Intensive work with young people is needed comprising education, training and cooperation (SI3 Goričko).
- The collective action in IT3 Valdaso has positive effects on learning and networking which in turn leads to environmental improvements.
- Awareness that a nature park can bring economic benefits for the local population which is handicapped by remoteness and a lack of employment and income opportunities is a key factor in SI4 Središče. A need to improve the area’s appeal as tourist destination and promote its specificities through a unique experience, including tailored tourist (e.g. riding, kayaking and fishing) and culinary offers is identified.
- The recent wave of young ‘start-up’ farmers coming to the area is connected with fresh ideas and an increased creative potential (SI3 Goričko).
- In AT2 it was found that the awareness about the status as a Biosphere Reserve is still limited in the local population, but it is a main goal of the Biosphere Reserve management to improve public relation and thereby increase the level of consciousness.
### 3.1.5 Enabling and limiting factors

In this section we discuss the factors which were found to enable an improved provision of ESBOs in the 34 case studies. As indicated before, the bullet points are to illustrate and/or point to cases where a particular feature is more strongly expressed and limiting and enabling factor in particular will need to be examined in more depth in Steps 3-4 of the case study work.

Based on Steps 1-2 case study reports, the following three broad groups of factors emerged as playing a more important role in ESBO provision:

- **New business models, products and entrepreneurs**
  - A crucial role has been played by new entrepreneurial resources and innovators (IT2 Bergamot).
  - Private companies and new non-profit associations play a role in SI1 Agri-forestry. The strongest agri-food actor is a cooperative that is successfully developing a brand of organic beef produce and searching for new local suppliers.
  - Consumer choices in favour of new organic hay-milk products contribute directly to the provision of ESBOs and create spill-over effects in tourism as well as the quality of life for the local population and external perception of the region (AT1 Murau).
  - Positive developments in the development of EE2 Grass-fed-Beef are the combination of a new product, the related support measures (e.g. quality schemes, market development, EU information provision and promotion) helping to develop export markets, and an increase in consumers’ awareness about the origin of food, how it is produced and what the related benefits are.
  - Marketing possibilities for micro-enterprises are crucial in EE1 Farm Food whose activities are in turn related with an enhanced provision of rural vitality, biodiversity, landscape character and cultural heritage.

- **Effective processes and management**
  - In NL3, the presence of one or more active actors who mobilise other local actors is important. However, the creation and organisation of local groups takes time, especially if organised as a bottom-up process which has many advantages.
  - An independent external facilitator is needed to support the local groups with practical knowledge and tools (NL3 and UK1 WILD).
  - Facilitation and engagement are crucial, as are personalities (UK1, UK2). The current WILD project lead is respected by most of farming community, GRCC are respected by local communities; Formation of ‘Farmer Guardians’ key and now resourced through AES (through a new approach) (UK1 WILD).
  - A high level of trust and values sharing between actors is important in CZ3 Liberec.
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- In IT1 Tomato District, mutual trust and common interests of all actors along the supply chain is the outcome of a “healthy competition between operators that acknowledge the need for cooperation within the supply chain and common cross-cutting areas of action” such as the addressing of environmental issues. The presence of different private labels does not endanger cooperation.

Integration and embeddedness
- In DE2 Orchards, the broad identification with the region is important. Most new initiatives around traditional orchards, however, act for themselves and follow own agendas which leads to tensions between different initiatives. Integration in emerging networks is a key factor.
- In IT2 Bergamot, a number of enabling factors come together, in particular PDO denomination, local development schemes, contracts with food and cosmetic industries, the Bergamot consortium and other cooperative structures.
- In AT3 Pinzgau, all actors are actually involved in the decision-making processes, which in turn contributes to integration and success.
- While RDP measures are of great importance for mountain farming, a combination with private schemes renders extensive forms of mountain agriculture economically more viable, thereby reducing the threat of farm abandonment due to market developments (AT1 Mura).
- In SI1 Agri-forestry, perhaps the most apt policy measures would be those that encourage producers to find effective forms of cooperation and foster visibility and competitiveness.
- In NL4, the Skylark case, the farmers are organised in regional groups to enhance social learning and peer-to-peer discussions; the regional groups are embedded in a national organisation, and through the national organisation the farmers as a collective are connected to the chain.

In the following, we identify those factors that were found to limit or block the provision of ESBOs in the case studies, i.e. where provision was either limited or where damaging practices could not be changed. We do not include those factors that can be interpreted as the absence of an enabling influence such as a slow response to market changes and lack of entrepreneurship (referred to before). Instead, the focus is on those limiting factors that are rather important in their own right. Some of the factors that play a more important role in many case studies limiting ESBO provision are free-riding behaviour, high transaction costs, the lack of devolution of competences at territorial level and scarce monitoring activity.

Some more specific findings:
- The transferability of practical, emotional and personal skills is seen as a key factor in UK4 Care Farms.
- In NL1 Outdoor-grazing, the abolishment of milk quota induced an increase in number of cows, reducing the possibility to feed all dairy cows from the grassland that is near the farm
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- In NL4 Skylark, the intensive farming practices in combination with the practice of hiring land for one season is a limiting factor. There are limitations in the public sphere, but they appear less important.
- In SI1 Agri-forestry, the local setting is seen as not particularly responsive to changes in policy and even less to the market environment.
- In SI3 Goričko, reference is made to the perceived conflict between environment and conventional agriculture which is partly related to past conditions and the transition from previous political-economic system.
- In SI3 Goričko and NL4 Skylark, the main limiting factors are in the public policy sphere where goals and measures lack fine-tuning and tailoring to local needs. Conservation measures do not meet real conditions (e.g. demands regarding time of mowing), but limit agriculture with questionable environmental effects. In SI3, this is aggravated by partial solutions and misapplication of funds, inadequate spatial planning and allocation of land-use units, and a lack of direct environmental control.
- In SI4 Središče, it is a problem that a part of the farming community remains reserved due to fear of further tightening of the Natura 2000 regimes. Risk aversion, ignorance, a lack of entrepreneurial spirit and trust, and conservatism linked with age and educational structure are other factors referred to in the analysis.
- In UK1 WILD, farmers remain wary of the Environment Agency’s regulation and inspection approach and local communities feel unable to resolve water issues due to complex arrangements for ditch and watercourse management.
- In UK2 Hope Farm, farmers criticise the RSPB for not really farming, not ‘showing it as it is’; for being judgmental, adversarial and condescending: “farming well is hard work – ‘not a chocolate box’”.
- The concentration of political power and strong inequality between small and large land owners are seen as limiting factors in IT2 Bergamot.
- In DE2 Orchards, a decrease in social capital (i.e. less interactions in the communities, less willingness to commit to associations, a decreasing number of active association members and volunteers for executive work) are seen as limiting factors.
- In CZ1 Biodiversity Meadows, the limited participation in collective action and ESBO provision is explained with the dominant economic motivation of farmers, and the generally low trust in collective action and in informal institutions in society.
- The absence of appropriate national and local regulations protecting or controlling the maintenance of the ESBOs is referred to in PT1 Montado as a main limiting factor.
- In EE2 Grass-fed-Beef, it is pointed out that legislation does not consider innovative and untraditional thinking, is often developed slowly with unexpected changes. The general lack of planning in the agricultural sector, sometimes sceptical attitude about organic farming and poor knowledge of chefs about the local raw materials and the origin of products aggravates the problem.
• Tensions between local institutions and agricultural unions (professional farms vs small, diversified and often pluri-active farms), and conflicting interests between local farmers developing short supply chains initiatives and some local retailers and processing firms are limiting joint action in IT4 Garfagnana.
• In NL1, it remains a challenge to secure monitoring and enforcement on the provision of ESBOs, and it is unclear whether monitoring and enforcement could be achieved through the private and/or public sector. There is an increasing demand from the agri-food chain to guarantee outdoor-grazing and the sector is considering the potential of ICT technology.
• There is no guarantee on the quality of landscape management by local actors and the continuation of the local groups in the longer run in Southwest Drenthe (NL3).

3.1.6 First lessons learned regarding governance arrangements and institutional frameworks

From the previous section, it appears that governance arrangements and institutional frameworks seem to play a rather central role. The interplay between different governance mechanisms and institutional frameworks, and between different actors, plays a very important role. For instance, UK2 Hope Farm provides a rather telling summary statement: “It’s about people, persuasion, networks, knowledge, trial and trust”. The deepening of the related analyses in Steps 3-4 is needed, but the first lessons identified below provide an entry point into forthcoming analyses.

The first lessons learned in our 34 case studies are divided into the following subsections:

- Multi-level and multi-actor governance frameworks
- Planning and regulation
- Coordination, cooperation and trust
- Roles of different actors

Multi-level and multi-actor governance frameworks

- The need to devolve some of the decision-making powers to lower levels of administration is seen as important in SI1 Agri-forestry. There is a strong effort of the local governance to create favourable conditions to develop the municipalities’ competitive advantages. Collective action is seen as important.
- Bottom-up processes are seen as particularly important in NL3 (local actors decide which landscape elements they will manage), local groups are facilitated by Landscape Management Drenthe which is funded by the regional (Province) and municipal governments.
- The integration of national and local level initiatives and their associated stakeholders within a coordinated approach to multi-issue delivery is at the heart of UK1 WILD.
- FR3 Cévennes highlights the importance of cooperation and coordination across multiple governance levels, and of connecting diverse actors and activities. These include the CAP, European legislation, the European Charter for Sustainable Tourism in Protected Areas, national legislation and government, the National Park Authority, Regional Government, the departmental council, joint communities, several dynamic local associations, hunter and farmer lobbies, the Entente interdépartementale Causses Cévennes, Cévennes écotourisme,
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- In IT2 Bergamot, private mechanisms are most important, including certification under PDO and organic certification. National and regional policies and the CAP and RDP play a minor role.
- The important role of local authorities and agencies in delivering well-designed and targeted policies stimulating private initiatives by involving a broad range of rural stakeholders is emphasised in IT4 Garfagnana.
- In DE1 Green Belt Frankfurt, the effective interplay between regional and local spatial planning, nature conservation legislation (national, regional), the local/municipal Green Belt constitution, public land ownership, a project working group and citizen participation (e.g. ideas competitions) are the key success factor.
- In DE2 Orchards, a premium price initiative is connected with regional production chains and networks, funding through RPDs and state/regional funds and (supra-national) regulations (EU regulation on organic production, EAFRD, WFRD). Regional and local control mechanisms also play an important role.
- UNESCO’s Man and the Biosphere Programme, the Seville strategy, Federal State level policies on environmental protection, contract nature protection, Nature 2000, the Ramsar convention, LEADER and external monitoring are the most important frameworks in AT2.
- The institutional changes implemented in NL3, shifting from regional and local governance to local groups taking responsibility and taking care of landscape management, is identified as being an important shift.
- The approach used in NL4 Skylark seems effective in motivating farmers and building their capacity. Effectivity in outcomes is a question and a more fine-grained monitoring of water quality by the water board is needed and would be welcomed by farmers.

Planning and regulation

- In DE1, the Green Belt constitution provides public-legal safeguarding measures as well as a current and future land use plan. The designation as landscape protection area differentiated in Zone I (land use focus) and Zone II (conservation focus) limits uses. The integration into the local area planning and regional spatial planning ensures strategic development and connectivity with surrounding areas. In all planning, an increasing weight is given to citizen participation.
- Regulatory frameworks, including property rights/tenure, play also an important role in FR2 Volvic and UK3 North Pennines.
- In AT3 Pinzgau, the Austrian Forest Act and regional regulation on protection forest, the regional Act on Game Keeping and the Nature Protection Law and spatial planning system are the central regulatory instruments and their effective interplay is a main success factor.
- Contradictions between Natura 2000 and the Birds Directive on the one hand, and the conversion to irrigation crops and related intensification on the other are central in PT3. The
subsidised intensification of land uses poses a real threat to conservation efforts and endangers the protection of important habitats including Special Protection Areas.

- Rigid institutional and legal arrangements (in particular related to forestry, agriculture and taxation), policy poorly fitting to the local situation (e.g. agri-environmental measures), the lack of collective actions in farming and forestry are the most important constraints in SI1.

**Coordination, cooperation and trust**

- In NL2 North-Brabant, the successful cooperation stands out, the initiative succeeds to connect stakeholders in an efficient way, and Bavaria and farmers are more embedded in the comparatively small region, stimulating and inspiring other regions as well.
- Corporate Social Responsibility and the role of the initiative as a bottom up multi-stakeholder organisation are emphasised in NL2 North-Brabant.
- NL4 Skylark is an example of a group of farmers that, as a group, have been successful in seeking cooperation with the regional water board (public authority).
- The interplay between public policies and private actions is important for ESBO provision in FR2 Volvic. Financing schemes, markets, local research activities and cooperative arrangements between different actors (CEPIV, sponsorship agreement LPO/Danone) play a major role.
- In NL1, valorisation of milk takes place through the cheese value chain; product quality and its effective communication are key features and success factors for marketing cheese with guaranteed outdoor grazing. Other contributing factors include CAP payments (Pillar 2) for nature management, the additional payment for outdoor grazing and the close cooperation with the Water, Land and Dijken which is the official contracting party for nature and water management.
- The key role of collective action with an interplay between advisory, learning and networking leading to both positive environmental effects and an increased knowledge are emphasised in IT3 Valdaso and UK1 WILD.
- In CZ3 Liberec, the building of trust and a good reputation (also through transparency) helped to get support from the general public and to raise funds.

**Roles of different actors**

- In SI4 Središče a more proactive role of agricultural extension service is demanded; “it is generally reserved towards environmental projects and sees its role primarily in production-related issues; farmers see it as a service for filling in subsidy forms”.
- In DE3 Regionalwert AG the citizen’s shareholder corporation facilitates access to capital; a basic principle is to operate explicitly outside a public policy framework.
- In CZ3 Liberec, an NGO land trust plays a central role in coordinating the collective action, raising public funds, and educating and motivating the general public to support the conversion of commercial forest to a semi-natural forest.
- The challenge for the main NGO in UK2 Hope Farm is to adopt a different role and engage with a new range of actors in a meaningful way.
• The Local administration of Protected Landscape Areas (LAPLA) plays a key role in leading the multi-actor initiative, orchestrating the tailoring of agri-environmental schemes and of national environmental policy measures (PPK) both in form of contracts with farmers and NGOs. LAPLA is also important in coordinating negotiations on the management types, resulting in a very good tailoring of measures (CZ1 Biodiversity Meadows).
• Particularly important in CZ2 Wet Meadows are two NGOs – the Czech Society of Ornithology and a local environmental NGO – who collaborated with local, regional and national authorities, donors and volunteers, and local farmers, bought part of the grassland (new property rights gave freedom to investment activities), created a working group to elaborate agreements with farmers on the grassland management as well as agreements between different users of water.

3.2 Towards an appropriate analytical framework for Steps 3-4

3.2.1 Experiences with the SES framework in Steps 1-2

The Social-Ecological Systems (SES) framework was discussed in Maréchal et al. (2016) (D1.2) as a means of bringing the two conceptual frameworks of public goods and ecosystem services together within a broader architecture. The SES framework provides a wider compass by including human and social capital alongside natural capital in one holistic approach. It is not a replacement for the insights of both the public goods and ecosystem services concepts; rather it seeks to embrace the full set of dynamic relationships between natural assets and processes and human assets, actions and their respective drivers. The SES framework also highlights the role of institutions and governance, including the regulation of property rights, as critical in shaping the relationships associated with the management of natural resources which gives the approach particular relevance to PEGASUS.

Key aspects of the SES approach will be captured through the participatory methodology and ‘action-orientated research’ focus of PEGASUS, which places farmers, foresters and other stakeholders at the centre of the project. The daily land management decisions of these stakeholders have a direct impact on the provision – or non-provision – of a range of environmental and social goods and services.

Benefits of SES framework

The SES framework was helpful for identifying and analysing the links between different dimensions as these quotes show:

• “SES does identify the links between the social and ecology – generally good across the 34 and the structure, including the diagram, helped. ... The SES framework was applicable to this CS and to some extent it is a useful tool to analyse the links between the ecological and the regional socio-economic systems.” (AT2)

• “The application of the SES framework in the context of the PEGASUS project [...] is a useful framework to analyse the links between ecological systems and links to societal, political and economic dimensions.” (AT3 Pinzgau)
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For some of the case study leads, the outcome of aiding the structuring of the case study, and the associated questions that helped the completion of the SES framework, was that there was a corresponding reduction in complexity:

- The SES framework was a good starting point to improve the structure of the case study (AT1 Murau). In addition, the questions of the SES framework template were useful in structuring the analysis (AT3 Pinzgau).
- The SES framework allows organizing in a systemic manner a complex situation that mixes various governance systems, stakeholders, etc. It was also designed to facilitate the analysis of a huge number of case studies. In this sense, it is a relevant methodology for PEGASUS project in general and for our case study description in particular (FR2 Volvic).
- The SES approach enabled the multi-layers of the WILD project to be unpicked. As a result the researchers found it useful in identifying the connections so that these can be analysed in more detail (UK1 WILD).

In the view of a number of case study leads the SES framework was useful in stakeholder communication:

- The SES framework helped identify the whole system but also enabled work on subsystem variables and this has proven very useful in the interaction with stakeholders (AT1 Murau).
- SES framework worked well in communication with the stakeholders (NL4 Skylark).
- The SES framework was useful for understanding and approbation of the methodology by stakeholders. It was easier and more flexible organisation than by focus group, avoiding direct tensions between stakeholders and free expression of interviewed person (reveal problems and tensions) (FR3 Cévennes).
- It is necessary to offer more direct benefits to interviewees and regional actors in order to keep them engaged. Therefore, the in-depth analyses will have to connect the analytical framework and action linkages to actual problems in the regions (AT2 Lungau).
- As confidence in it grew and the various boxes and connections became clearer it was more useful to a wider group. As a result the development of the SES framework was an iterative process and is still ongoing (UK1 WILD).
- The conceptualisation of the SES helped to scope the work well – core actors found it useful, though we didn’t use it for a wider group due to a lack of time (UK2 Hope Farm).

Overall the SES framework was considered to be adequate and worthwhile (AT3, DE3, IT4, NL2). The SES framework is able to show the drivers and how they connect to different ESBOs, these connections are important.

However, some shortcomings of the SES framework were identified in the reports and in the subsequent discussions in Estonia.

**Shortcomings of SES framework**

First, some felt that one limitation of the framework was that it was unable to show change and the shifting dynamics of the case studies. In a sense the reports were a snapshot in time. These comments from the case study reports show how it impacted the case study work:
• SES framework seems static, so the dynamic element is missing, the story and evolution of the case studies is important. The discussion in Estonia amongst the case study leads and whole project team felt that this was a significant limitation of the SES framework if the work was only undertaken once. If this exercise was repeated or undertaken retrospectively then a more dynamic picture would appear.

• The SES framework works less well when you have to consider the dynamics of the social-ecological system. The concept of turning points is crucial to understand change over time and to take that there are processes of social and economic innovation that take place. In a sense the SES framework is static (IT2 Bergamot).

• Because not everyone is pulling in the same direction all of the time and this is constantly changing, this makes the SES framework a review of a point in time. But this is a common challenge in complex situations and in innovative and adaptive situations these things are regularly updated (UK1 WILD).

For those case studies that were not a well-defined geographical area the SES framework had some spatiality challenges that were difficult to overcome:

• Suitability of the SES differs between case studies, it works well for the analysis of territorial and well defined case studies, but it is difficult for more national and spatially scattered actions and initiatives (Estonia project meeting).

• Spatiality within the SES was a challenge: The managed land in this CS is scattered across the administrative district of Baden-Württemberg. The same is true for RWAG partners and shareholders. Although, most of the activities take place within the administrative district of Freiburg, where also the majority of shareholders reside. It can be discussed whether it is possible or even useful to locate functions spatially or define borders of the SES (DE3 Regionalwert AG).

• SES approach is based on the assumption that certain geographical area is analysed – but this CS was not related to certain geographical area (EE1, EE2 and EE3).

• The [care farming] sector is very localised and linked to individuals so the system is very scattered (UK4 Care Farms).

There were also some shortcomings in terms of communication with stakeholders:

• The SES is a researcher’s tool, it needed to be translated for local stakeholders (Estonia project meeting).

• Stakeholders were challenged by the level of detail at times. While manageable, contextualizing subsystem variables has been sometimes difficult. The timescale was a limitation on stakeholder side (AT1, AT2).

• The SES figure is difficult to explain to stakeholders and needs adjusting so that it gives additional practical insights (NL2 North-Brabant).

• The idea of SES is already in the minds of stakeholders, but this way of representing it was difficult for some of them. The interviews added to our understanding of the system, but needed adjusting so that they covered the bigger consortium and its vision of the SES (IT2).
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• The RWAG consists of, maintains and produces a network of actors. Networks can be seen as exchanges “that entail ongoing interaction in order to derive value from the exchange” (Smith-Doerr, Powell 2005: 379). Thus, the RWAG network can be seen not only as the entirety of interconnected actors but also as a resource itself that can be used and put into action. This resource, however, is difficult to situate inside the applied SES framework (DE3 Regionalwert AG).

For others the SES framework was not able to capture the complexity and range of topics in sufficient depth. It is possible that these case were too large for a single SES framework and suggests that this approach does have its limitations:

• Being referred to a very wide and complex social-economic system, the SES doesn’t allow to take due account of: differences in geographic characteristics, hydrographical system, climate and soil, water availability, diversification of crops and produce, institutional setting and policy delivery; the full scope of interactions between actors, between actors and institutions, between institutions; cumulative environmental impacts from multiple releases/interactions and on different ESBOs; major turning points that profoundly and irreversibly changed the course of events; relations between specific actions taken and beneficial outcomes (IT1 Tomato District).

• The role of market mechanisms is really crucial and SES does not fit to this accept within ‘action situations’. There is a list of ESBO variables without any particular attention to this issue (IT2 Bergamot).

• The ratio of scale to the boundaries within the SES are the administrative requirements as defined by the AEA. With this choice it was possible to analyse more in depth the different SES components. However, it was not possible to explore the broader system and the multi-level governance system involved as this was too complex (IT3 Valdaso).

• SES framework’s application seems less effective when using a broader perspective such as in this case where there were several sectors and policies involved, together with several mechanisms and initiatives to be addressed (IT4 Garfagnana).

• Including the value chain more explicitly in the methodology is important for private based mechanisms and this was a challenge within the SES framework as currently developed for this project (NL1 Outdoor-grazing).

• The context for each case study is important, with different perspectives and experiences of co-operatives or local governance. Those present need this context to understand what is on offer. It is difficult to discuss co-operatives with those who have no experience of them. The SES framework and the underpinning literature on this is narrow.

Overall, the SES framework provided a useful tool to see the connections between the ecological system and the social framework. The results were that the connections and interactions were clear both in terms of governance and natural systems. However, it was challenged by being fixed at one point in time, being geographically focussed and too complex for some stakeholders. Areas that also challenged the SES framework concerned the private sector engagement and issues around the context and values.
ESBO-related issues

There were several issues with the need to focus on Environmental and Social Beneficial Outcomes (ESBOs). This was the term that the project agreed to use to reconcile the concepts of Public Goods and Ecosystem Services, as described in D1.2. While useful not all of the experiences were positive, not least because the term was something for internal discussion – a working definition –, but the case studies were all about discussion with stakeholders. It is also to be noted that some additional outcomes were referred to which implies that the original list might have to be revisited (Air quality: temperature regulation, cold air generation and micro climate).

- The list of ESBOs is useful for getting started and relating to the SES framework; however, separating it by ESBO might complicate the analysis. Might be easier to start from the initiatives’ focus (DE1 Green Belt Frankfurt).
- The link between ESBOs and the SES framework needs care. There was an assumption that a Resource Unit (RU) automatically becomes a service (or in our terminology ESBO). For example groundwater is an RU, which can be quantified (groundwater level, groundwater quality). The ESBO “Achieving (or maintaining) good ecological status of surface water and good chemical status of groundwater” links to definitions and therefore depends to some extend on existing values, experiences, knowledge, existing alternatives etc. This link enables the ‘action situation’ to have an element of evaluation/assessment leading to “attribution of societal value to RU” which deepens the understanding of the ESBOs (defined what is beneficial). So in this sense ESBO extend further than an RU and this needs to be taken into account (DE2).
- The link between ESBOs and their role in the SES framework seems rather too marginal. The ESBOs are central and it was a challenge to detail the outputs/results/impacts of action within the system description (EE1, EE2, and EE3).
- More emphasis should be put on better characterize the common-pool / public good nature of target resource systems, including ESBOs (FR2 Volvic).
- We found it hard to use (at least some of) the second-tier ESBO variables and more time should be dedicated to understand how they can be of use for PEGASUS in the light of the research questions targeted. In Ostrom’s research program, these variables were instrumental in finding regularities in factors affecting the successful local management of a common-pool resource (FR2 Volvic).
- Research question determines the boundaries of the RS (Mc Ginnis & Ostrom 2014): our main research question was ‘How does an initiative successfully contribute to the provision of ESBOs’ within the territory of the initiative. We concluded that all orchards managed by the producers in the initiative are our RS (DE2 Orchards).
- Resource units/ESBOs: it would be necessary to better clarify the relations between benefits and reduction of negative effects (the case study shows mechanisms relevant to reduce the negative environmental effects) (IT3 Valdaso).
- In the narrative it is not always easy to sharply distinguish actors from governance structures and RUs from RSs. As a result the story is harder to tell (NL4 Skylark).
The shallow and broad case studies provided insufficient resource to really understand some of the ESBOs in-depth – we weren’t able to fully investigate climate, water, soils potential, let alone the wider list (UK2 Hope Farm).

The **selection of the key and relevant ESBOs** and the issue of ESBO provision also caused some challenges as well as some surprises:

- The range of ESBOs was very large, CSs need to have credibility and be explicit which ESBOs are involved. In one CS the decision was taken to investigate the ESBOs that the farmer stakeholders selected (this did not include biodiversity) but this was good for aiding the next steps as it would benefit future discussion and biodiversity can be added later (Estonia PM).
- Certain ESBOs are relevant within the SES, while others reach to other SES and/or ecosystems. Dealing with this was a challenge (DE2 Orchards).
- A certain surprises on the discussion on ESBOs, because interviews highlighted that farmers prioritised cultural identity as form of ESBO (as part of rural vitality) (IT2 Bergamot).
- Due the nature of this case study, based on a combination of many projects and mechanisms, it was quite difficult to describe in depth the action situations. Hopefully this will be possible during the in-depth analysis of selected initiatives in order to have a more comprehensive analysis of most relevant mechanisms for ESBOs provision (IT4 Garfagnana).
- Rural vitality is a very complex ESBOs to be analysed, due to its multidimensional nature and its relation with other socio-economic features of the area. A more exhaustive analysis of this ESBO should rely on a specific theoretical framework as well as on a more accurate selection of relevant variables and indicators (IT4 Garfagnana).

A key element of the CS was the focus on action-orientated research and most partners found the **stakeholder involvement and the research-practice exchange** very rewarding. These are some of the comments, starting with the positive:

- There was a real willingness and a high interest among stakeholders; active cooperation of stakeholders to participate to focus groups and to accept to be interviewed. For researchers there was a real interest to lead a participative approach but it takes lots of time and energy to organise focus groups, this is less time to individual interviews (FR1 Pays de Langres).
- Stakeholders involved showed very high interest in PEGASUS aims and made themselves available for follow-up questions and discussion on relevant ongoing progress towards ESBO provision at present under way both on the public side (new 2014-2020 funding) and on the private side (supply chain environmental footprint). Collection of information not otherwise available, data and information cross-check, bringing out diverging and/or converging opinions, points of view, interpretations (IT1 Tomato District).
- Semi-structured interviews with local stakeholders have proved to be a good way to come into contact with the main actors of the AEA and collect information on the ground. Interviews were fundamental because we found few (or no) information through other (more formalised) channels (book, journal articles, official documents, etc.) (IT3 Valdaso).
- Communication of our observations with the actors in place (farmers, agrifood chain, collectives and policy) is considered more important than sharing reports (NL1).
• Advantages approach: We could well empathise in the CS and built objective relationships with the actors involved. We got a lot of inside information to be able to profoundly answer the Pegasus questions (NL3).

• The «Tertúlias do Montado» (TM) are sessions using a participatory approach and these were established for the next sessions on issues of biodiversity and landscape character/cultural heritage, like strategies to profit the Montados, challenges against financial crises and climate change, and strategies to improve society awareness for the Montado value. We expect to keep improving our strategy to engage stakeholders with the PEGASUS, namely farmers and land managers, researchers, NGOs, local and regional public administration, as others relevant actors (PT1 Montado).

• The engagement of stakeholders revealed to be a crucial step to assure that all the key components of the SES are effectively addressed, even more when existing information is sometimes not enough to provide a broader picture of the system (PT3 Intensive Olives).

• Action research proved as very successful. The motivation of local actors is above expectations. This might be a result of various factors: Identification of key actors; they are not just regularly consulted about the progress of the work, but also personally engaged in project workshops and field work. Focusing the work on ESBOs which are recognised also by local actors as strong development potential. Mutual benefit, from the start, the PEGASUS team is trying to leave tangible outputs that could be utilised by the actors in the case study (e.g. an action plan to improve value-added to alpine livestock production) (SI1 Agri-forestry).

• Stakeholders were very enthusiastic and keen to engage: the energy and honesty in discussions was very valuable; conscious of a wish to give something back to those with whom we worked; enabling new conversations was something that they clearly appreciated from this work (UK3 North Pennines).

However, some found this approach challenging:

• Because the cooperation is not formalised it was more difficult to assess some of the features of collective action as actors did not think about them before (CZ1, CZ2, CZ3), but the information was collected because of enthusiasm of NGO representative and willingness to give sufficient time to the interviews (CZ2 Wet Meadows).

• Building contacts with stakeholders needed quite a lot of effort and was time consuming as there were no previous contacts (EE3 Forest Centre).

• The approach tended to strictly frame the researcher’s work, whose attention is focused on filling boxes rather than identifying original and locally grounded research questions. Need to work hard to fit the two together (FR2 Volvic).

• Focal points: Dependency on willingness and available time of the actors involved for cooperation; The case study covers a limited number of local groups as it would take too much time to investigate all 133 local groups involved (NL3).

• It was a challenge to focus on the scientific papers and perform interviews with key stakeholders. However, we realized that it was important to reinforce the participatory approach to identify which are the mechanisms to improve the provision of the key ESBOs (PT1).
• Dealing with stakeholders: Reporting unsuccessful practices by civil servants may bring some discomfort to them in the reporting stage, especially if decisions on such practices were made in higher circles. This brings some reluctance from their side to the interaction, which is understandable. For this reason, we limited inquiries on these issues in our interviews and workshops to a level that allows everybody to (still) openly discuss (SI2 Urban Forests).

• Different responses from stakeholders. There was strong interest of representatives of local institutions and proactive individuals, but not farmers, so a special workshop was organised for young farmers; attendants of the latter were very informative (Step 3-4) (SI3 Goričko).

• Risk of telling people things that they don’t find sufficiently innovative – the obvious is often the thing that they overlook, and yet it could be transformative. Some political sensitivities – how to successfully combine campaigning with farmer-friendly working (UK2 Hope Farm).

• By only interviewing stakeholders involved in the case study, there is a risk of being overly positive. That is, the closer the involvement, the more enthusiastic and optimistic about the (future of the) project. The opinion of outsiders (that is non-stakeholders) is valuable (NL2).

So the **action-oriented research approach** was very positive and should be considered beneficial and key to the research when run alongside the SES framework. However, some partners and individual CS found this challenging in terms of time and effort as well as the results it produced. The approach will be taken forward in the next stage.

There were a few other issues that were common across the partners. The first of these was time availability and the overall period set aside for the CSs. This was challenging overall and some approaches like focus groups were also considered time intensive, especially for those undertaking them for the first time. The broad and shallow reporting template did not allow for much time on issues of quantification. The challenge of the CS needed the ‘powerful tools’ to sketch out the key actors and activities, mechanisms and initiatives, as well as identify motivational, institutional and socio-economic factors across the SES.

Overall, the partners felt that, with some reservations and subsequent adjustments, the SES framework, proved to be an effective way of systematizing and representing the dynamics under ESBO provision. It was important to be flexible and not to become too rigid in the vocabulary and recording/reporting systems in order to focus on what was really useful and new. Even in those CS that had been well examined via previous projects new connections were identified.
3.2.2 Implications for Steps 3-4

First, it is clear that the SES framework was useful in providing a baseline process to ‘see’ the overall system in which the CS is placed and the various natural and societal elements and the resulting interactions. For Steps 3-4 it will be important to provide further clarification on how the SES framework links to the ESBOs. As a result the overall methodology for the 12 in-depth CS needs more guidance on identifying and discussing the trade-offs and other ‘actions’ occurring from ESBO provision. Based on the experiences of the 34 CS, there is a willingness and interest in deepening the selected CS but with different goals and expectation according to the criteria developed for Steps 3-4.

There is consensus on the need for a common approach and a common methodology to analyse the (potential) connections between governance arrangements, policy frameworks and ESBO provision. The in-depth analyses need to establish where actors see connections. The link between ESBO and the SES framework needs to be made clearer, especially in terms of the link between ESBO and RUs, and in particular the SES diagram.

The level of quantification and assessment of impact also needs to be determined. The role of policy (CAP/sectoral, rural, fiscal, regulatory; EU, national, regional) is a question that needs more attention.

The methodology will be driven by common cross-cutting analytical questions approach. The analytical questions and how they fit into the overall framework will be a key area of development. Analytical questions will include the related information that is to be gathered.

The action-orientated approach will be deepened in Steps 3-4 with a higher level of stakeholder involvement. All of the CS selected were selected because this will be possible through the level of stakeholder engagement. Some CSs will be extended to cover private sector companies and agents or some of the more ‘difficult to reach’ stakeholders. The benefits of engagement need to be clear, as well as the outcome and how the information will be used. There may also be a need to manage expectations but it is likely that the research will generate a longer term partnership in a number of instances.

Some features from Steps 1-2 will be retained, such as the long list of possible questions, the ‘sketchpad’ for assisting in the generation of areas of enquiry and handling the resulting data. The overall view was to build on the approach used for the 34 CS. All agreed that the 34 CSs were quite challenge but yielded a rich amount of information. This is discussed in more detail in the subsequent sections on cross cutting themes.
4 Selection of case studies for the in-depth analyses

4.1 Specific objectives of Steps 3-4

In a much smaller set of carefully selected case studies we will deepen the analysis and explore, together with practitioner partners and stakeholders, current impacts and future actions. The responses to different drivers or initiatives in policy and markets will be identified as well as the main challenges and the factors limiting or enabling an enhanced provision of social and/or environmental benefits. Particular attention will be paid to situations where the appreciation and/or provision of benefits is at risk. The related changes in production systems and societal demand are identified as well as the means to manage risks.

The in-depth analyses are designed to yield insights into the importance of valorising benefits and the role of value to different groups (e.g. producers, agri-business, tourism operators, community, users and wider society). Particular attention will be paid to obtaining transferable lessons on how best to encourage the provision of different benefits. The types of tools and mechanisms that might be most appropriate for their support are identified and assessed in relation to given institutional, economic and socio-cultural contexts.

In Steps 3-4, some of the case studies may experiment with the use of the QUICKScan tool developed by ALterra and JRC. QUICKScan is a tool that can be used in participatory workshops with decision makers and experts, to develop and explore potential policy options and land management alternatives and assess their likely trade-offs and impacts.

4.2 Selection criteria

The criteria for selecting the cases for Steps 3-4 were discussed and finalised during the Estonia meeting. These are:

- Willingness of stakeholders and practitioner partners to continue the CS
- Innovativeness of the particular case (in terms of mechanism, governance, etc.)
- Not mainly policy driven/top-down but predominantly driven by public/private partnership, collective action, civil society action, etc., and dynamic
- Learning potential, transferable, replicable, scalable and range of maturity

Each CS team was asked to review all of their own 3-4 national cases against this criteria and provide a reasoned proposal for the in-depth case studies in their country.

A decision on the final set of cases was made based on the reviews provided by national teams as well as a small number of additional criteria that were used to check the set as a whole, as follows:

- Coverage of a sufficient range of SES (contrasting, geographical etc.)
- A minimum of 3 forestry cases, also at least 1 or 2 mountains, and 1 or 2 with birds involved, and 1 peri-urban/urban CS
- Good range of social beneficial outcomes (so not only environmentally beneficial outcomes)
- A sufficient range of farming/forestry systems, including higher production intensity cases
4.3 Cases selected for Steps 3-4

The twelve cases selected for Steps 3-4 are:

1. Organic farming label in the mountain Murau region (AT1)
2. Birds and amphibians support on wet meadows (CZ2)
3. Traditional orchard meadows in Hessen/Baden-Wurttemberg (DE2)
4. Grass-fed beef (EE2)
5. Volvic water company, management agreements and agri-forestry (FR2)
6. Processed tomato supply chain in the Tomato District of northern Italy (IT1)
7. Bergamot, niche and organic products in Calabria (IT2)
8. Grazing systems in dairy production (NL1)
9. Skylark foundation: a farmers’ association for sustainable arable farming (NL4)
10. Small scale peri-urban mosaic in Montemor-o-Novo (PT2)
11. Agri-forestry in sub-alpine Slovenia (Upper Savinja Valley) (SI1)
12. WILD river basin management initiative (UK1)

These 12 case studies meet all of the above selection criteria with the exception of choosing a minimum of 3 forestry cases. There are two forestry cases only in the above list (SI1, FR2) but there are others were forestry and the management of trees is important (PT2 Montemor-o-Novo, DE2 and AT1 Murau). The WP4 team will also stress that in each case study there will be a specific requirement to report on whether the role of forestry in relation to ESBOs provision is under developed.

5 Key cross-cutting issues for comparative analyses and thematic clusters

The basic idea is that mixed teams become responsible for a particular cross-cutting issue. These teams will carry out the comparative analysis, and, to this end, they have contributed to prepare the analytical questions and data templates to feed into the methodology for Steps 3-4.

The work on cross-cutting issues comprises joint analysis, peer-reviewed publications and, based on the scientific analysis and conclusions, the elaboration of policy and practice briefs.

**Cross-cutting issues** related to the relationships between farming and forestry and the quantity and quality of environmentally and/or socially beneficial outcomes (ESBOs) could be:

i. Innovative governance arrangements and mechanisms in support of ESBO provision (lead: Karlheinz Knickel, IfLS)
ii. Organisational capacities, leadership, networking and communication (Lead: Teresa Correia/Rocio Juste, U Évora)
iii. Shifting societal norms, collective learning and voluntary actions (lead: Janet Dwyer, CCRI)
iv. The role and impact of policy in ESBO provision (lead: Franco Mantino, CREA)
v. The role of the private sector in ESBO provision and enabling factors (lead: Floor Brouwer, WUR-LEI)
vi. Strengths and weaknesses of the SES framework in the analysis of the functional inter- and intra-relationships between farming and forestry and the provision of ESBOs (lead Chris Short, CCRI)
Innovative approaches for the provision of environmental and social benefits from agriculture and forestry – Step 1-2 case study results

In addition to these cross-cutting questions we are considering a number of thematic clusters that might foster a continuous exchange between case study teams and deepen the analysis. The work in thematic clusters and a joint analysis might also lead to peer-reviewed publications and policy and practice briefs. The logical connections and potential overlap between the cross-cutting questions and the thematic clusters still need further discussion.

Based on first discussions, including at the project meeting on 27-29 June 2016 in Estonia, we might think of the following thematic clusters:

i. Valorisation of ESBOs via the value chain and value chain building
ii. Remote and marginal areas strongly relying on policies: role of policies and other drivers, role of rural vitality, provision of social benefits and rural vitality
iii. Joint ESBO provision with three clusters: a) Rural vitality – Landscape – Species and habitats, b) Education – Landscape – Species and habitat, and c) Soil functionality – Water availability
iv. Urban-rural relations, interplay, role of civil society and market mechanisms
v. Forestry and agro-forestry cluster.

Other clusters could evolve around similar land use types, transformative potentials (high – low) or specific ESBOs (climate, animal welfare). Clusters that are close to Euromontana and/or aspects of interest to Birdlife, e.g. one on HNV marginal protected areas or one on innovation in intensive or peri-urban settings, could also be relevant. Finally, we could explore the possibility of geographically-defined clusters in conjunction with the regional workshops planned in WP5.

6 Analytical questions and data requirements for Steps 3-4

The preliminary list of analytical questions and data requirements is based on the first analysis and synthesis of issues identified in Section 3.

The approach for Step 3-4 will be elaborated in separate guidelines. Deliverable 4.2 is mainly to clarify how we build on Steps 1-2, and move forward.

The following analytical questions and first indications of data requirements for Steps 3-4 are therefore preliminary. Both need to be further developed by the mixed writing teams that have been formed in order to address a particular cross-cutting issue.

6.1 Innovative governance arrangements and mechanisms in support of ESBO provision

(Lead: Karlheinz Knickel, IfLS – Judith Westerink/DLO, and CCRI will provide support)

• What governance arrangements and/or mechanisms have been put in place to enhance the provision of ESBOs? Please describe in more detail.
• Are these arrangements adaptations of existing arrangements/mechanisms or new ones?
• How have these governance arrangements and/or mechanisms changed in the course of time?
  o Please identify and describe the 2-3 most important changes in more detail.
  o What were the reasons for the changes?
  o Please consider internal and external factors and describe in more detail.
• Did key actors consider other governance arrangements and/or mechanisms (alternative approaches)?
• What do you think are the biggest advantages of the governance arrangements and/or mechanism that you are using?
  o How transferable are they?
  o What are the most difficult issues of the governance arrangements and/or mechanism that you are using?
• How central is the provision and quality of ESBOs to the governance arrangements and/or mechanism?
• Is there general support for this approach in your region/case?
  o If not, who is not supporting it and why?
  o Please refer to and name specific actor groups, stakeholders, institutions.
• How would you further enhance the provision of ESBOs?
  o Enlarging the scale? Multiplying? Making it more effective? Please describe your reasoning in more detail.
  o Can you express in more quantitative terms the potential increase in a 10 years period?
  o If possible, please try to quantify the current situation (e.g. number of participants, area covered) and the potential increase.
• What are the main limiting and enabling factors if you would pursue a further enhancement?
  o Please consider internal and external factors and describe in more detail.
  o For the top 3 limiting factors, how do you think you can overcome them?
  o Will you try? And, if yes, what precisely are the next steps?

6.2 Organisational capacities, leadership, networking and communication

(Lead: Teresa Correia and Rocio Juste, U Évora)

Organisational capacities, leadership, networking and communication between stakeholders, and how is this linked to the provision of one of our ESBOs. Questions are:
• Is there any social network/collective action that improves or has the potential to enhance the provision of the ESBOs? Please describe:
  o Is it a recognized network or an informal one?
  o What is the origin of this network?
  o Which stakeholders configure this collective action in what ways?
  o Is there a formal/informal leader, permanent or temporary leader?
  o How does the collective action work, communicate, etc.?
  o How does this network/collective action improve the provision of ESBOs.
• What are the positions of the different stakeholders in relation to the collective action?
• Is there any wider support for this network/collective action in your case study?
• What do you think are the strengths of this network/collective action in respect of the provision of the ESBOs?
• And the weaknesses or limiting factors?
• What could be possible pathways for overcoming the existing weaknesses? Who should promote these actions? Are there examples already of similar actions?

6.3 Shifting societal norms, collective learning and voluntary actions

(Lead: Janet Dwyer, CCRI)

• Is there evidence in the case study of shifting societal ‘norms’ in relation to expected environmental or social behaviour among farmers or foresters or those with whom they deal in supply chains?
  o Shifts are perhaps reflected in generational change within the sector (e.g. younger generation being more open to environmental messages and expectations than their parents, or younger practitioners conversely feeling less of a need to keep up cultural traditions or social practices).
  o Think about how this can be evidenced (quotations from interviews about values/attitudes, especially how these may have changed).

• To what extent does the innovation or success or potential of the case study incorporate collective learning?
  o Examine how different actors in the SES exchange knowledge and thereby improve their shared understanding of different challenges, values and potential ways to address these.
  o What kinds of shared learning have taken place and what more could be beneficial for ESBO provision?
  o Which are the key actors in stimulating, perpetuating or hindering these learning processes?
  o What were/are the barriers to them working, and how have these been overcome (if that has happened)?

• What changes or processes in the case study have happened not because of policy or market instruments (incentives or regulations or changes in institutions) but simply because of individual or collective motivations to change, among the key actors or groups of actors?
  o What are the reasons and motivations behind these changes, and how have they been encouraged or spread among the community of actors in the SES?
  o Are there perhaps completely different (i.e. not the normally-assumed) policy or market or cultural factors which could have helped to stimulate these voluntary actions (e.g. changed education, withdrawal of state support to rural services triggering self-help, new people moving into an area with different ideas and values, etc.)?
6.4 The role and impact of policy in ESBO provision

(Lead: CREA/CCRI)

- Which policies have mostly influenced the provision of ESBOs?
  - Rules, financial provisions for investments, financial provisions for environmental practices, direct income support to farmers, technical assistance, training, advice, others

- How have policies influenced positively the provision of ESBOs?
  - Improved farming/forestry economic viability, enhanced food chain organization and distribution of income to farmers within the food chain, better prices, improved education and training, clear and simplified rules, etc.

- How have policies interacted with private schemes in provision of ESBOs?
  - Direct promotion of private scheme, preparing farmers before private scheme implementation, other?
  - In which time scale did this happen?

- Have policies changed in the last 10 years and how did these changes influence the provision of ESBOs?

- Which failures have characterized the policies directly addressed to ESBOs?
  - Lack of targeting, lack of information, scarce attractiveness of policy incentives, too high transaction costs, etc.

- What would be the provision of ESBOs without policies that have been implemented in the last 10 years (positive, negative, indifferent)?

- Which role have played, if any, all those policies that stimulated farmers’ aggregation/cooperation in the provision of ESBOs?
  - For example collective agri-environmental agreement compared with single AEM?
  - Have they been really influential in promoting better outcomes/results in terms of ESBOs?

- Are there some local institutions (either public or private) supporting farmers/food chains in using public policies addressed to ESBOs? How did these local institutions fostered the social/economic adaptation of polices?

- Are there positive/negative relations within the mix of policies operating in the area for the provision of ESBOs?

- Where policies and/or policy mixes have worked, what are the factors that have enabled this?

- How important and effective have EU and national policy frameworks been and what are the related observations? Can you describe the interactions between different policy levels?

- What successful innovative policy approaches have we found?
6.5 The role of the private sector in ESBO provision and enabling factors

(Lead: Floor Brouwer, WUR-LEI)

• What is the role of the private sector in the provision of ESBOs? Which ESBOs are addressed from the private sector schemes?
• What is the main motivation in private sector initiatives? Consider among others, policy failure and market opportunities. Please explain.
• Describe the parties in the private sector (input suppliers, processors, traders, retail) and their motivation. What are the markets they operate (regional-national-international; quality products; sustainability; public concerns like environment or animal welfare; human health)?
• What is the interplay between public policy and market mechanisms (including private schemes)? Which public policies (environment, climate, spatial, CAP)? What links exist between the private sector initiative/scheme and the CAP?
• Are the private sector initiatives/schemes targeted at specific farming systems (mainstream, intensive versus extensive)?
• Are there ESBOs that are not adequately covered by the private sector initiative/scheme? Elaborate please.
• What is the future potential of the private sector initiative? Is it robust?
• Are there any benefits and/or risks related to the provision of ESBOs through private sector schemes relative to public sector schemes? Consider for example the importance of monitoring from the private sector versus monitoring of public policies.
• Could you indicate any gaps regarding the maintenance and/or enhancement on the provision of ESBOs through the private schemes and could you how these could potentially be filled through CAP measures? Please elaborate payments versus outcomes.

6.6 Suitability of the SES framework and ‘action-orientated approach’ in the analysis of ESBO provision

Suitability of the SES framework and ‘action-orientated approach to analyse functional inter- and intra-relationships between farming and forestry and determine the quantity and quality of ESBO provision.

(Lead: Chris Short, CCRI, and Simone Schiller, IfLS)

• How effective is the SES framework at bringing together the ecological and social aspects within the case studies?
• Where are the main areas of adaption for this approach in order for it to be utilised in the rigorous and robust examination of ESBO provision?
• What are the strengths of the SES framework, what does it enable researchers to ‘see’ that other approaches omit?
• Does the SES framework enable the integration of ecological and social aspects and thus provide a holistic viewpoint?
• Is it possible for the issues of dynamic change, issue-based (not placed-based) and complex initiatives to be overcome through adaptations of the SES framework?
• What role can an adapted SES framework play in future decision making and at what level?
• What aspects of the SES framework work best in relation to stakeholder engagement and dialogue?
• What role can the SES framework play in the quantification and valorisation of different ESBOs?
• What combination of approaches and methods suit stakeholder engagement in complex situations.
• What adjustments need to be made to terminology so a replacement to the term ESBO that conveys more than public goods and ecosystem services can be developed?
• What adjustments and clarifications to the SES framework need to be made in order for ESBO provision to be fully integrated?
• How important are the collective and common pool resource aspects in understanding the SES system and the provision of ESBOs?
• What new knowledge and experiences does the action-oriented approach bring to the examination of ESBOs?
• What ethical and moral aspects does the action-oriented approach bring to the research process?
• How does the context of particular countries influence the effectiveness of action-oriented approach?
• What areas of innovation were developed in order to overcome obstacles in utilising the action-oriented approach?

7 References


