Evaluation study of the forestry measures under Rural Development

Final report
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Contact: Andreas LILLIG
E-mail: Andreas.LILLIG@ec.europa.eu

European Commission
B-1049 Brussels
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Author:
This report is presented by the European Economic Interest Grouping:

-Alliance Environnement-
European Economic Interest Grouping

EEIG ALLIANCE ENVIRONNEMENT is formed by the following companies:

**ORÉADE-BRÈCHE Sarl**
64 chemin del prat - 31320 Auzeville France
Tél. : + 33 5 61 73 62 62
Fax : + 33 5 61 73 62 90
Mail : t.clement@oreade-breche.fr
Represented by:
Thierry CLEMENT

**IEEP**
11 Belgrave Road – London United-Kingdom
Tél. : + 44 (0) 20 7799 2244
Fax : + 44 (0) 20 7799 2600
Mail : CFroomberg@ieep.eu
Represented by:
Claire FROOMBERG

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<th>Description</th>
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<tbody>
<tr>
<td>AB</td>
<td>Administrative Burden</td>
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<tr>
<td>AEI</td>
<td>Agro-environmental indicators</td>
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<tr>
<td>EAFRD</td>
<td>European Agricultural Fund for Rural Development</td>
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<tr>
<td>EAP</td>
<td>Environmental Action Plan</td>
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<tr>
<td>EC</td>
<td>European Commission</td>
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<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<tr>
<td>EFA</td>
<td>Ecological Focus Area</td>
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<tr>
<td>EQ</td>
<td>Evaluation Question</td>
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<td>EMFF</td>
<td>European Maritime and Fisheries Fund</td>
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<td>ERDF</td>
<td>European Regional Development Fund</td>
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<td>ESF</td>
<td>European Social Fund</td>
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<td>ESIF</td>
<td>European Structural and Innovation Fund</td>
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<tr>
<td>ESR</td>
<td>Effort Sharing Decision</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<tr>
<td>CAP</td>
<td>Common Agricultural Policy</td>
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<tr>
<td>CM</td>
<td>Cropland Management</td>
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<td>CS</td>
<td>Case Study</td>
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<tr>
<td>DDT</td>
<td>FR: Direction Départementale des Territoires</td>
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<tr>
<td>FAO</td>
<td>Food and Agriculture Organization of the United Nation</td>
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<tr>
<td>FM</td>
<td>Forest Measure: referring to the Rural Development Measures 8 and 15</td>
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<tr>
<td>FTE</td>
<td>Full Time Equivalent</td>
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<tr>
<td>GHG</td>
<td>Greenhouse Gas</td>
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<tr>
<td>GM</td>
<td>Grazing land Management</td>
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<td>ILUC</td>
<td>Indirect Land Use Change</td>
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<tr>
<td>KEMERA</td>
<td>Act on the Financing of Sustainable Forestry</td>
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<tr>
<td>LULUCF</td>
<td>Land Use, Land Use Change and Forestry</td>
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<tr>
<td>MA</td>
<td>Managing Authority</td>
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<tr>
<td>MS</td>
<td>Member State</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<tr>
<td>OWL</td>
<td>Other Wooded Land</td>
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<tr>
<td>PA</td>
<td>Paying Agency</td>
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<tr>
<td>PAF</td>
<td>Prioritized Action Framework</td>
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<td>RD</td>
<td>Rural Development</td>
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<tr>
<td>RDP</td>
<td>Rural Development Programme</td>
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<tr>
<td>SCOs</td>
<td>Simplified Cost Options</td>
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<tr>
<td>SME</td>
<td>Small Medium Enterprise</td>
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<tr>
<td>TO</td>
<td>Type of Operations</td>
</tr>
<tr>
<td>TPE</td>
<td>Total Programmed Expenditure</td>
</tr>
<tr>
<td>UAA</td>
<td>Utilized Agricultural Area</td>
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<tr>
<td>UNECE</td>
<td>United Nations Economic Commission for Europe</td>
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<td>WFD</td>
<td>Water Framework Directive</td>
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**Country Abbreviations**

- BE-FL: Belgium - Flanders
- BE-WA: Belgium – Wallonia
- DE-MV: Germany – Mecklenburg-Vorpommern
| **ES CIM** | Spain – Castilla la Mancha |
| **FR-Aquit** | France – Aquitaine |
| **UK - SC** | United Kingdom – Scotland |
1 INTRODUCTION - OBJECTIVES AND SCOPE OF THE EVALUATION STUDY

1.1 Overview of the EU forest sector

1.1.1 Main characteristics of the EU’s forests

In the EU-28 in 2015, forests and other wooded land (OWL) covered around 182 million ha, corresponding to 41.4 % of the total land area of the EU-28.1 Sweden, Finland, Estonia, Latvia, Slovenia, Spain and Portugal have more than 50% of their territory covered with forests. In contrast, it represents less than 15 % of the land cover in the United Kingdom, Ireland, the Netherlands and Malta (1.1 %). OWL represents only 4.7% of the EU total land area, but is quite significant in southern European countries (20.1 % of the land area in Greece, 19 % in Portugal, 18.4 in Spain).

![Forest Map of the EU 28](source)

The forest cover in the EU has been increasing for the past 60 years as a result of natural succession of vegetation, following abandonment of farming or grazing, and of afforestation programmes. The increase in the forest area between 2007 and 2013 is slightly above 900 000 ha. This expansion makes Europe an exception at the global level. According to Eurostat and FAO, the forest resources in the EU will continue to increase, even though this phenomenon has slowed down in recent years.3 Most of Europe’s forests are available for wood supply.

Diversity of forest types

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1 FAO, Forest Resources Assessment 2015
3 In 2015, only five MS had less than 80 % of their forest area available for wood supply http://ec.europa.eu/eurostat/statistics-explained/index.php/Agriculture,_forestry_and_fisheries_statistics_introduced
The European Union has a large variety of forests, thanks to the many different biogeographical regions, natural conditions and forest practices; they range from bogs to steppes and from lowland to alpine forests. Predominantly coniferous forests are the most common (46 % of the European forest area), in relation to the very large forest areas in boreal countries. Predominantly broadleaved forest represent 36 % of the forest area and the remaining 18 % are made up of mixed forests.

Figure 2: Forest area by forest types in 2010

The variety of European forests includes more than 95 % of managed and/or modified forest by human activities, and very little forest types resulting only from natural dynamics as well as habitat types created by management. Most are still management-dependent, such as the Mediterranean dehesas or the Fennoscandian wooded pastures.

Property structure

Around 60 % of the forest area in the EU is in private hands. Detailed information from nine countries indicated that 61 % of all private forest holdings have an area of less than 1 ha and 86 % of all holdings belong to the size classes of up to 5 hectares. The average holding size across these countries is below 5 ha.

Public ownership (commune, region/province, state, etc.) represents 40 % of the forest areas, with holding/properties of around 1000 ha on average. Public ownership dominates in the eastern countries, as shown in Figure 3.

There is a trend at the EU level toward an increase in the share of private forest, due to various factors. Active afforestation as well as natural succession of abandoned agricultural land also contribute to the increasing number of private forest owners. This property structure represents a key challenge for the European forest sector. Indeed, there is a situation in which forests are mostly in private hands, with numerous small holders and a general trend towards greater fragmentation of forest holdings at EU-28 level (Forest Europe, 2011): this makes the implementation of active management strategies and the mobilization of individual owners key issues with regard to reaching European aspirations in sustainable forest management.

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4 EEA report on forest ecosystems 2015
5 European Commission, Natura 2000 and Forests, 2015
6 Namely Austria, Belgium, Bulgaria, France, Hungary, Latvia, Lithuania, Slovakia and the United Kingdom.
8 In central and eastern European countries, restitution of forests is still an ongoing process, causing profound changes in forest ownership structures in most countries of this part of Europe (the share of private forest owners rose in certain countries from zero to more than 40 or 50 %, e.g. in Lithuania and Romania). Privatization of state forests has also taken place in other European countries, but with less drastic effects on the property structure (Sweden, UK).
9 Forest Ownership Trend Assessment Maps (FACESMAP), COST Action FP1201, 2016
1.1.2 Environmental benefits and protective functions of forests

**Protected forests**

An important portion of the European forests is protected for biodiversity and/or landscape. Natura 2000 covers 20% of the forest areas at the EU-28 level, 49% of the Natura 2000 areas being forests. According to literature, there are various approaches adopted among the MS regarding such protection. While the Nordic and Baltic countries focus on protection, central, north-western and southern European countries stress active management for biodiversity, depending on forestry conditions.

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11 Eurostat

12 Forest Europe, State of Europe’s Forests, 2015, Indicator 4.9 Protected forests
Figure 4: Natura 2000 forest area

Sources: Data extracted from EC, Natura 2000 and forests, 2015; Forest & other wooded land: Eurostat, Agriculture, forestry and fishery statistics. 2013)

Protective functions

Around 50-100% of the EU forest area consists of forests with a primarily protective function. Most of them act as protection of public goods and services used by surrounding populations. For example, they ensure the availability and quality of drinking water, prevent vulnerable areas from further soil erosion, protect against floods, avalanches and provide civil security, etc. It is widely expected that climate change will increase the pressure on and/or the economic and social value of these goods and services.

Table 1: Area of forest and wooded land with a protective function in 2015

[Table showing data]

Missing: IE, GR and MT - Source: Eurostat, 2016

1.1.3 Carbon sequestration and climate change mitigation

Forests and OWL contain large stocks of carbon in biomass (above- and below-ground), dead organic matter (deadwood and litter) and soil (mineral and organic). The carbon stock of forests and OWL can either increase or decrease depending on forest management practices, potentially playing an important role in the mitigation of climate change by reducing the net emissions of greenhouse gases into the atmosphere.

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13 Total Natura 2000 on land: Natura 2000 barometer, based on the most recent data that Member States submitted to the EU up to the end of December 2013; Total Natura 2000 Forest Area: State of Europe’s Forests, 2011, Forest Europe, UNECE & FAO. Data provided by DG Environment except for Croatia (data provided by national authorities).

14 Eurostat, 2016
The carbon stocks in biomass increased steadily in all regions from 1990 to 2015. For the EU-28, the forest sink was 414 Mt CO₂/year for the 2005-2015 period; it also amounts to around 8.5% of the EU gross greenhouse gas emissions during the same period.\(^{15}\)

### 1.1.4 Forest-related activities and economic benefits

**Primary and secondary wood production**

In 2014, the production of roundwood and sawnwood in the EU-28 reached 425 million m\(^3\) (11.5% of the world’s total) and 102 million m\(^3\) (23.2% of the world total) respectively, making the EU-28 the largest producer of the G20.\(^{16}\)

Among the EU Member States (MS), Sweden was the largest roundwood producer with 70.1 million m\(^3\) produced in 2014. It was followed by Finland, Germany and France (each producing between 52 million and 57 million m\(^3\)). Approximately one quarter of roundwood production is reported to be used as wood for fuel, and three quarters is industrial roundwood that is used either for sawnwood, veneers and wood-based panels (particle boards, fibre boards, MDF, OSB), or for pulp and paper production. Just over two thirds of the sawnwood produced in the EU-28 came from the five largest producing EU MS.\(^{17}\)

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\(^{15}\) It is important to note that, while the majority of ‘forest carbon’ is in the soil in the Nordic areas, there is a more balanced situation and distribution of carbon between soil and above-ground biomass in several central or southern areas/habitats, and this fact could also be considered in forest management practices.

\(^{16}\) Eurostat

\(^{17}\) Namely, Germany (22.0%), Sweden (17.6%), Finland (11.0%), Austria (8.4%) and France (8.0%)
Figure 6: Roundwood production in 1 000 m$^3$ (2012)

Source: European Parliament, based on European Commission and Eurostat

The ratio of reported felling to increment increased from 51% in 1990 to 67% in 2010 in Europe,\textsuperscript{18} with substantial variation between countries. The future availability of wood over the next decades is quite uncertain. While some studies have suggested shortage of wood supply,\textsuperscript{19} other foresight studies expect no major increase of overall wood demand due to structural changes in the forest sector and particularly to declining demand of roundwood for paper production.\textsuperscript{20, 21}

Figure 7: Annual production of roundwood in the EU-28 between 2003 and 2014

Source: Eurostat (for_remov)

However, as shown in Figure 8, wood production varies much, spatially, across Europe. The particularly high values were possibly caused in some cases by action following disturbances.\textsuperscript{22}


\textsuperscript{19} e.g. Mantau U. et al. 2010. EUwood - Real potential for changes in growth and use of EU forests’. Final report. University of Hamburg, Centre of Wood Science, Hamburg, Germany, p. 160.


\textsuperscript{21} LULUCF discussions led to the conclusion of a very significant increase of energy use in a majority of MS

\textsuperscript{22} After a strong fall in coniferous roundwood production in 2008 and of non-coniferous roundwood in 2009 (related to the financial and economic crisis), EU-28 roundwood production rebounded strongly in 2010 (10.1%) and then stabilized. Some of the peaks in roundwood production (2000, 2005, 2007 and 2010) resulted from forestry and logging having to cope with unplanned numbers of trees that were felled by severe storms.
Forest sector economic importance

The value added generated by forestry and logging is strongly linked to the volume of roundwood produced (see Table below). In Sweden, the leading roundwood producer in the EU, each cubic metre of roundwood produced in 2013 generated an average of EUR 55.70 of gross value added (GVA) produced within forestry and logging activities. Finland, Germany, France and Poland, are the other largest producers among the EU Member, recorded similar ratios ranking

The labour input (in terms of the number of annual work units) per area of exploited forest varies significantly between Member States, from 12.5 annual work units to 2.

Forest Europe gives an average figure of 3.5 workers per 1,000 ha.

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24 Sweden, Finland, Germany, France and Poland which are the largest producers among the EU Member, have similar GVA ratios.

25 They range from 12.5 annual work units per 1 000 hectares in Romania and 9.6 in the Czech Republic to less than 2.0 annual work units per 1 000 hectares in France and Finland. According to Eurostat, those differences can be partly explained by the fact that forestry and logging work in mountainous areas generally requires a
Forest-based industries include woodworking, the furniture industry, printing, as well as pulp and paper manufacturing. In 2011, these industries comprised around 450,000 enterprises, employed almost 3.4 million people and generated a turnover of EUR 486 billion (380 billion in 2005), playing an important role in maintaining sustainable employment and rural livelihood in many rural areas. Small and medium-sized enterprises (SMEs) are predominant in the woodworking and printing sectors, while the manufacturing and converting of pulp, paper and paperboard are dominated by larger enterprises operating on a global scale (Eurostat).

In addition, the forest sector plays an important role in provision of energy, accounting for 5.1% of total energy consumption in 2012. Bioenergy is currently the largest renewable energy source used. Although its relative share is slowly declining, woody biomass was still contributing 44% to overall renewable energy production in 2014. Most EU member countries have increased the use of woody biomass for energy to reach their 2020 renewable energy targets. Further intensification of the use of forest resources is being discussed in several countries, a situation also prompted by the recent EU bioeconomy strategy.

Forest also provides non-wood products, such as cork, resin, tannin, fodder, litter, medicinal and aromatic plants, fruits, nuts, roots, mushrooms, seeds, honey, ornamentals, exudates, etc. The total value of marketed non-wood goods reached 2.3 billion € in Europe in 2010, of which 73% come from marketed plants products (e.g. decorative foliage and plants: 34%, food: 21%, etc.) and 27% come from marketed animal products (e.g. wild meat: 14%, wild honey and bees wax: 12%, etc.). Among these products, cork is one of the most important non-wood forest products in the European Union, with approximately 1.7 million ha of cork oak forests accounting for 80% of the worldwide production of cork. In addition, almost 100% of the manufactured output of cork originates in the EU.

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26 Eurostat: statistics for wood and other solid biofuels, excluding charcoal.
28 Forest Europe
Concerning amenity values, in 2010, 68.6% of EU-28 forest and OWL areas could be accessed by the public for recreational purposes and 5.7% had recreational use as a main management goal.

### 1.2 Policy context

Even if the Treaty on the Functioning of the European Union doesn’t define forest as a competence of the Union, the tight link of forest and the forest-based sector with other areas in which shared competences between the Union and the Member States applies (such as economic, social and territorial cohesion, the environment or energy) have resulted in a strong involvement of the EU on forest-related policies, through a range of regulatory frameworks based on its shared and exclusive competencies in other sectors.

The first EU Forestry Strategy was adopted in 1998 by the Commission. Based on the principle of subsidiarity and the concept of shared responsibility, it established a framework for forest-related actions in support of Sustainable Forest Management (SFM), seeking co-ordination between MS forest policies and Community policies and initiatives relevant to forests and forestry.

The Forest Action Plan, set up by the European Commission in 2006 and covering the 2007-2011 period, pursued the same objective to support the multifunctional role of forests and to enhance SFM in the MS, as well as allowing the EU to fulfils its international commitments relating to forests. It was designed as a tool ‘towards better coordination of forest policy and related actions within the EU’, to coordinate actions related to the forest sector running in parallel with different policy areas and at different levels of implementation (e.g. international and national levels).

In 2013, the Commission adopted a ‘new EU Forest Strategy: for forests and the forest-based sector’. This new strategy was developed to provide a new framework, to better tackle the new challenges facing forests and the forest sector, including the growing demands on and threats to forests, as well as the increasing number of forest-related policies. It was built on three key principles:

- Sustainable forest management and the multifunctional role of forests, delivering multiple goods and services in a balanced way and ensuring forest protection;
- Resource efficiency optimising the contribution of forests and the forest sector to rural development, growth and job creation;
- Global forest responsibility, promoting sustainable production and consumption of forest products.

The EU forest strategy set eight priorities, addressing the different aspects of the ‘value chain’ strategy. This strategy is implemented through a variety of policies (both at the EU and national level) and regulatory frameworks based on its shared and exclusive competencies in other sectors, but the main EU-level funding to implement the Forest Strategy has been and remains the co-financing of forestry measures (FM) under the Rural Development Regulation. Furthermore, as stated in the EU Forest Strategy, the Commission considers that rural development funds in particular should be used, to support the implementation of sustainable forest management: *Member States should make use of rural development funds to improve competitiveness, promote the diversification of economic activity and quality-of-life, and deliver specific environmental public goods, to contribute to promoting the social functions of sustainable forest management.*

For the 2007-2013 period, the EAFRD offered a structured set of measures supporting forestry in order to promote better integration of forestry in rural development. Among the 40 measures of EAFRD, 20 had a direct or indirect relevance to forestry and 8

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31 This includes the Europe 2020 strategy for growth and jobs, the Resource, Efficiency Roadmap, Rural Development Policy, Industrial Policy, the EU Climate and Energy Package with its 2020 targets, the Plant Health and Reproductive Materials Strategy and the Biodiversity and Bioeconomy Strategies. COM(2011) 244 and COM(2012)60.
specifically addressed forestry. A strong emphasis was put on Sustainable Forest Management (SFM) and most FM were related to Axis 2 of the EAFRD strategic framework (improving the environment and the countryside), meaning that they were to contribute to the EU-level priority objectives of biodiversity, water and climate change. A total of €9 billion was spent on the RD measures dedicated to forests: this corresponded to about 5% of the total financial resources devoted to the 2007-2013 RDPs.\(^\text{32}\)

In the 2014-2020 RD regulation, a quite similar set of measures supports the implementation of sustainable forest management (see Section 2.1 for the description of this set of measures). Two measures are specifically targeting forests holders and projects in forests areas: Measure 8, supporting Investments in forest area development and improvement of the viability of forests (noted M8 in this report) and Measure 15, dedicated to forest-environmental and climate services and forest conservation (noted M15).

For the implementation of the forest measures in Rural Development Programmes (RDP) MS/Regions have been free to choose to implement the measures responding to their specific needs and to define the budget allocated to each measure. This has resulted in a variety of implementation choices, which are described and analysed in detail in this evaluation study. Furthermore, forest support is implemented in the RD strategic programming framework and should contribute to the EU priorities for rural development as laid down in Art. 5 of Reg.1305/2013: forest support is expected to contribute, mostly,\(^\text{33}\) to ‘Restoring, Preserving and Enhancing Ecosystems’ (4\(^{\text{th}}\) EU priority for RD) and to Promoting Resource-efficient, Climate-resilient Economy (5\(^{\text{th}}\) RD priority).

To complete this policy context, it is important to notice that some specific rules, on which we come back in this evaluation, apply to forest compared to other sectors:

- Since the forest sector falls outside of Annex I and Article 42 of the Treaty on the Functioning of the EU, all competition rules fully apply to it.
- The forest sector is not included in the WTO agreements.

### 1.3 Objectives and scope of the evaluation study

The objective of the contract was to carry out an ‘assessment of the contribution of FM under Regulation (EU) No 1305/2013 to achieving the strategic objectives of the Common Agricultural Policy (CAP), the objectives of Rural Development Programmes as laid down in Regulation (EU) No 1305/2013 consisting of (1) fostering the competitiveness of agriculture (2) ensuring the sustainable management of natural resources and climate action, and (3) achieving a balanced territorial development of rural economies and communities including the creation and maintenance of employment, and the six Union priorities for rural development as laid down in Art. 5 of this regulation. The evaluation also sought to assess the efficiency, relevance, coherence and EU added value of the RD measures in supporting the implementation of sustainable forest management.

The measures in the scope of this evaluation were the FM as set out in Articles 21 – 26 and 34 of Reg. (EU) No 1305/2013 (measures 8 and 15 of RDPs). As part of the assessment of coherence with other actions, the evaluation also considered the whole set of Rural Development measures with an impact on the forest sector (e.g. training, cooperation, innovation, etc.). It also had to consider other CAP measures complementary to the FM, e.g. cross compliance and the ‘greening’ measures related to ecological focus areas (EFAs) under the Direct Payments Regulation [Regulation (EU) 1307/2013], and other measures, including regulatory, at national or regional level.

The geographical scope of the evaluation was the EU-28, except the outmost regions, in which forestry issues at stake and contexts are far from those on the EU mainland. The evaluation concentrated on the actions implemented in the 2014-2020 period. However, given that the study covers a limited time period (2014-2017), the evaluation


\(^{33}\) The targeted priorities depend on MS implementation choices: see § 2.2.
significantly took account of this implementation process and outputs of the 2007-2013 RD forest measures,\textsuperscript{34} to show the level of implementation of the FM and to capture mid-term and long-term effects of the measures. This approach is mainly based on the fact that the measures of the current and previous programming periods are quite similar (see the main differences described in § 2.1.2) and thus enable comparison.

\textsuperscript{34} Particularly for the EQ on effectiveness.
2 **DESCRIPTIVE PART (TASK 1.1)**

2.1 *Presentation of the evaluated measures*

2.1.1 **Main evaluated forestry measures of RD Regulation over the two periods**

The table below presents the main evaluated forestry measures, included in Articles 21 to 26 and 34 of Reg. (EU) No 1305/2013 and transposed into RD measures No 8 and 15. The table also presents the measures from Reg. (EU) No 1698/2005 that were very close in content to the current ones. Their implementation over the 2007-2013 period was largely taken into account in this study to capture the long-term relevance and effects of the measures (e.g. EQ2-6 and 15-16), or as a reference period (e.g. EQ7-9).

**Table 2: Main forest measures of the Rural Development Policy 2014-2020, and their equivalent in the 2007-2013 period**

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<th>Article</th>
<th>Measure</th>
<th>Sub-measure</th>
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<th>Article</th>
<th>Measure</th>
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<tr>
<td>Art. 23: Establishment of agroforestry systems</td>
<td>Measure 8. Investments in forest area development and improvement of the viability of forests</td>
<td>8.2. Support for establishment and maintenance of agroforestry systems</td>
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<td>Art. 24: Prevention and restoration of damage to forests from forest fires and natural disasters and catastrophic events</td>
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<td>Art. 25: Investments improving the resilience and environmental value of forest ecosystems</td>
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<td>8.4. Support for restoration of damage to forests from forest fires and natural disasters and catastrophic events</td>
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<td>Art. 26: Investments in forestry technologies and in processing, in mobilising and in the marketing of forest products</td>
<td></td>
<td>8.5. Support for investments improving the resilience and environmental value of forest ecosystems</td>
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<td>Art. 34: Forest-environmental and climate services and forest conservation</td>
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<td>15.1. Payment for forest-environmental and climate commitments</td>
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<td>Art. 47: Forest-environment payments</td>
<td>225. Forest-environment payments</td>
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</tbody>
</table>


The following paragraph provides the description of the support provided under each sub-measure and presents the main differences between the 2014-2020 FM and their 2007-2013 equivalents.

2.1.1.1 Articles 21-26 (Measure 8)

**Art. 21: investment in forest area development and improvement of the viability of forests (sub-measures 8.1-8.6)**

Article 21 corresponds to M8 as a whole and presents the content of the five following articles (corresponding to sub-measures M8.1 to 8.6: see following paragraphs). It introduces the **general requirements, concerning** all forest investment measures, for MS/Regions to determine in their RDPs the size of holdings above which support becomes conditional on the existence or the drafting of a forest management plan\(^{35}\) (or an equivalent instrument) in line with the General Guidelines for the Sustainable Management of Forests in Europe adopted at the Ministerial Conference on the Protection of Forests in Europe of 1993.

**Art. 22: afforestation and creation of woodland (sub-measure 8.1)**

The support is available to public and private land holders and their associations. It can cover the costs of establishment and an annual premium per hectare to make up for lost agricultural income and costs of maintenance, including early and late cleanings, for a maximum of 12 years.

In the case of state-owned land, support may only be granted if the body managing such land is a private body or a municipality. Support for afforestation of land owned by public authorities or for fast growing trees shall cover only the costs of establishment. No support is available for the planting of trees for short rotation coppicing, of Christmas trees or of fast growing trees for energy production.

For this measure, both agricultural and non-agricultural land are eligible. Species planted must be adapted to the environmental and climatic conditions of the area and must comply with minimum environmental requirements.\(^{36}\) These include various implementation choices for MS, as follows:

- **MS** must ensure that the support is granted to projects which avoid inappropriate afforestation of sensitive habitats such as peat lands and wetlands as well as negative effects on areas of high ecological value, including areas under high natural value farming, or to ensure consistency with management plans on Natura 2000 sites.

- **MS** must define the relevant tree species to be planted, taking into account the need for resilience to climate change and natural disasters, potential invasive character and the local conditions of the afforested area.

- **As regards fast-growing species, MS** must define the minimum and maximum time before felling. The minimum time shall not be less than 8 years and the maximum shall not exceed 20 years.

- **In areas where afforestation is difficult due to severe pedoclimatic conditions, MS** can allow support for planting of other perennial woody species such as shrubs or bushes suitable to local conditions.

- **Where the afforestation covers an area exceeding a certain threshold (to be defined by MS)** the support will be granted for the exclusive planting of ecologically adapted species and/or species resilient to climate change. The impact of these species should be assessed to ensure that they will not threaten biodiversity and ecosystem services or have a negative impact on human health. Alternatively, beyond a certain size, it will be required that a mix of tree species is planted which includes either a minimum of 10 % broadleaved trees by area, or a minimum of three tree species, with any of these accounting for at least 10 % of the area.

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\(^{35}\) This was only valid for measure 122 previously but now covers all M8 sub-measures.

Main differences with the equivalent 2007-2013 RD measures (M221 and M223):

M8.1 is similar to M221 and 223 of Reg. (EU) No 1698/2005. The changes are the following:

- Afforestation of agricultural and non-agricultural land are now in a single sub-measure, whereas they were two different measures during the 2007-2013 period. Consequently, the procedure for checking the payment calculation is simpler due to the fact that it there is no longer a need to check whether the land concerned is agricultural or another type of land, or whether the beneficiary is farmer or non-farmer.
- Investment costs can be supported at 100 % now vs 80 % during the previous period.
- The maintenance costs can be paid up to 12 years instead of the 5 years initially.
- Afforested areas are eligible for the direct payments (under the First Pillar of the CAP) for the period of commitment. Therefore, the afforested areas may benefit simultaneously from the direct payments under the First Pillar of the CAP and from maintenance support.
- Plantation of short rotation coppice is not supported.

**Art. 23: Establishment of agroforestry systems (sub measure 8.2)**

This measure targets ‘agroforestry systems’, meaning land use systems in which trees are grown in combination with agriculture on the same land. It can benefit private land holders, municipalities and their associations and can cover:

- the costs of establishment, and;
- an annual premium per hectare to cover the costs of maintenance for a maximum period of 5 years.

The maximum support rate, set in Annex II of EAFRD Regulation, corresponds to 80 % of the eligible investment for the establishment of agroforestry systems.

Main differences with the equivalent 2007-2013 RD measure (M222):

This sub-measure is the equivalent of M222 of the previous programming period. The scope of the measure has been enlarged: it did not include payment for maintenance in the previous period. Moreover, the establishment of new agroforestry systems is no longer restricted to agricultural land; wooded areas can also be converted to agroforestry with support from this measure. One novelty is that MS can define the minimum and maximum number of trees per hectare, taking account of local pedoclimatic and environmental conditions, forestry species and the need to ensure sustainable agricultural use of the land, as well as the forest species to be planted.

**Art. 24: Prevention and restoration of damage to forests from fire and natural disaster and catastrophic events (submeasures 8.3 and 8.4)**

These two measures concern private and public forest holders and other private law and public bodies and their associations and can cover the costs for:

- Measure 8.3:
  - the establishment of protective infrastructure. In the case of firebreaks, support may also cover aid contributing to maintenance costs. No support is granted to agricultural-related activities in areas covered by agri-environmental commitments;
  - local, small scale prevention activities against fire or other natural hazards, including the use of grazing animals;
  - establishing and improving forest fire, pest and diseases monitoring facilities and communication equipment.

- Measure 8.4: restoring forest potential damaged from fires and other natural disasters including pests, diseases, as well as catastrophic events and climate-change-related events.

In the case of preventive actions concerning pests and diseases, as part of M8.3, the extent of risk of an outbreak occurrence must be specified by MS in the RDPs, supported by scientific evidence and acknowledged by scientific public organisations. Where
relevant, the list of species of organisms harmful to plants which may cause a disaster must be provided in the RDPs.

In the case of support concerning forest fire prevention, measure 8.3 applies to forest areas that are classified as having a medium to high forest fire risk, according to the forest protection plan established by the MS. To be eligible, the preventive operations must be consistent with the national forest protection plan.

Restoration under measure 8.4 is eligible according to two prerequisites:
- The natural disaster has been formally recognised by the competent public authorities of the MS.
- At least 20% of the relevant forest potential has been destroyed as a result.

Support under this measure, however, is not intended to compensate for any loss of income resulting from the natural disaster. MS need to ensure that overcompensation as a result of the combination of this measure and other support or private insurance schemes is avoided.

Main differences with the equivalent 2007-2013 RD measure (M226):
These two sub-measures correspond to the previous M226. The scope of intervention of the prevention measure has been streamlined, opening it up to preventive actions against pests and diseases. Under specific conditions, it can also cover natural disasters, catastrophic events and climate-change-related events. The definition of natural hazards, pests and diseases was extended, which simplifies the process of applying for support: previously these interventions were partly covered by measures on forest environment and non-productive investments.

Art 25: Investments improving the resilience and environmental value of forest ecosystems (sub-measure 8.5)
This measure concerns individuals, private or public forest holders, forest-holder associations or other private or public bodies.

It aims to support target investments that contribute to:
- achieving environmental aims;
- providing ecosystem services;
- enhancing the public amenity value of forest and wooded land, and;
- improving the climate change mitigation potential of ecosystems.

Investments made under this measure should aim at meeting commitments to environmental and climate objectives and at the provision of ecosystem services; they may also result in economic benefits in the long term.

Main differences with the equivalent 2007-2013 RD measure (M227):
Compared to the equivalent measure in the previous programming period (M227), the scope of the measure has been strengthened by emphasising the importance of providing ecosystem services and by covering the enhancement of climate change mitigation potential of ecosystems.

Art. 26: Investments in forestry technologies and in processing, in mobilising and in the marketing of forest products (sub-measure 8.6)
This measure concerns private forest holders, forest-holder associations, municipalities or SMEs,38 and can cover the costs of investments that:
- enhance forestry potential or;
- contribute to adding value to forest products via the processing, mobilising and marketing of these products.

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37 Established in Art.24 of Reg. (EU) 1305/2013

38 In some islands and overseas territories of the EU, support can also be granted to companies that are not SMEs.
Investments related to the improvement of the economic value of forests must justify the expected improvements to forests. These can include investments for soil-friendly and resource-friendly harvesting machinery and practices.

Investments related to the use of wood as a raw material or as an energy source must be limited to operations prior to industrial processing.

The support provided via this measure is limited to a maximum support rate of 40% of the eligible investment,\(^{39}\) although higher rates are allowed in specific regions,\(^{40}\)

Main differences with the equivalent 2007-2013 RD measures (M122 and M123):

The sub-measure groups together the former Axis 1 forestry interventions (processing, marketing, improvement of economic value of forests). The scope of the measure is opened up as regards the investments for the improvement of the economic value of forests. The investments are no longer tied to ownership of the land or a specific holding. Therefore, support for forestry equipment can also be granted to service providers who do not have their own forest property but provide services for forest owners, as well as in cases where the value of investment exceeds the threshold related to the size of one particular forest holding. In addition, the mobilising of wood is now explicitly mentioned as eligible.

2.1.1.2 Art. 34: Forest-environmental and climate services and forest conservation (Measure 15)

This measure (M15) covers the following sub-measures:

- M15.1: Payments for forest-environment and climate service commitments (Art. 34, §1-3).
- M15.2: Payments for conservation of genetic resources (Art. 34, §4-5)

The objective of the measure is to respond the needs of promoting the sustainable management and improvement of environmental values in forests and woodland, by providing a support per hectare to forest holders who commit to operations for natural resources preservation, climate change mitigation and adaption, and conservation of the genetic resources of forests.

Support is limited to commitments made on a voluntary basis; the programme identifies mandatory requirements established at the national level. Further, support under this measure is not granted for activities funded by the EU framework programme for research and innovation.

Commitments are be undertaken for a period of between five and seven years; however, MS are free to determine a longer period in their rural development programmes for particular and duly justified types of commitments.

Support is attributed per hectare and is not above €200 per hectare per year (Annex II of EAFRD Regulation). However, the amount may be increased in duly substantiated cases, taking into account specific circumstances to be justified by the Member State/region in the RDPs. For operations concerning environmental conservation and in duly justified cases, support may be granted as a flat-rate or one-off payment per unit for commitments to renounce commercial use of trees and forests, calculated on the basis of additional costs incurred and income foregone.

Main differences with the equivalent 2007-2013 RD measures (M225):

One novel feature is that conservation and promotion of forest genetic resources are covered as eligible investments, under sub-measure 15.2, with no need for setting a ‘minimum’ payment and with the possibility of applying one-off payments.

Art. 34, §1-3 - Sub-measure 15.1 Payments for forest-environment and climate service commitments

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\(^{39}\) Annex II of EAFRD Regulation.

\(^{40}\) 65% of the eligible investment in less developed regions.
Support under M15.1 can be granted to public and private forest holders and other private-law and public bodies and their associations. In the case of state-owned forests, support may be granted only if the body managing such a forest is a private body or a municipality.

The support aims at covering all or parts of the additional costs and income foregone resulting from one (or more) forest-environment and climate commitments, going beyond the relevant mandatory requirements established by the national forestry act or other relevant national law.

Those commitments may include a large range of actions, such as:

- Maintaining specific forest habitats and the conditions for natural forest regeneration with high diversity;
- Restructuring allowing regeneration and broader species diversity in order to improve biodiversity and climate resilience, and maintenance of diverse forest edge or second crown layer to preserve forest microclimate and to preserve the carbon content of the forest soil;
- Environmental management for recreation;
- Low impact sylviculture, e.g. protection of the forest soil and ensuring its development, soil-friendly harvesting, transporting and regeneration methods (continuous cover instead of clear cutting);
- Habitat improvements, including the improvement of wildlife corridors, e.g. maintenance of micro-habitats, small open areas, leaving behind decaying and dead trees for biodiversity reasons.
- Leaving groups of trees after final felling; maintenance of mosaic-character forest structure; postponement of final felling to protect habitats, soil and water sources; preservation of wetland habitats; repression of aggressively expanding non-indigenous tree and shrub species;

When necessary, they may also cover transaction costs to a value of up to 20 % of the premium paid for the forest-environment commitments.

**Art. 34, §4-5 - Sub-measure 15.2 Payments for conservation of genetic resources**

Support under M15.2 can be granted to public and private entities.

The support aims at covering the costs and income foregone resulting from commitments to the conservation of genetic resources, such as:

- Promoting the ex situ and in situ conservation, characterisation, collection and utilisation of genetic resources in forestry, including web-based inventories of genetic resources currently conserved in situ, including in situ/on-holding conservation, and of ex situ collections (gene banks) and databases;
- Actions promoting the exchange of information for the conservation, characterisation, collection and utilisation of genetic resources in EU forestry, among competent organisations in the MS;
- Accompanying actions: information and dissemination of information.

These actions in conserving genetic resources could cover various activities adapted to the local situation and specific needs, examples such as:

(a) in the case of specific forest designated as ‘seed production stands’ as a source for production of verified reproductive material: costs of approval/concession including the related administrative costs and official declaration, maintenance, and management plan, conservation and breeding of rare tree species and shrubs for seed production and harvest;
(b) forest stands to conserve important genetic resources: maintenance of stands for production of verified reproductive material, including maintenance and harvest of
reproductive material (in particular seedlings direct from forests rather than from nurseries); a forest genetic library; and natural regeneration with suitable provenances to conserve and enhance genetic resources;

(c) usage of seeds/plants of certified/verified provenance, including usage of suitable seeds and wild seedlings from one’s own production for seeding/planting;

(d) in situ conservation: in-situ units of conservation may need different types of sylviculture works:

- prevention of dynamic development from other species than the conserved species;
- harvesting of seeds, growing of seedlings and completion of natural regeneration by plantation of genetic resources from the in-situ units of conservation, when natural regeneration is not sufficient;
- sylviculture works required by the management plan;
- conservation and breeding of rare tree species and shrubs, such as elm or resistant ash provenances for seed production and harvest.

(e) ex-situ conservation: inventory, harvest of forest genetic resources, creation and maintenance of ex-situ units of conservation.

Article 8 of the Commission Delegated Regulation No 807/2014 defines the types of operations eligible for support.

This measure is new and thus had no equivalent in the previous period.

### 2.1.2 Other RD measures concerning forests over the two periods

Several other RD measures can be used to support the forest sector and sustainable management of forests, while not addressing forest holders or forest areas specifically. The sub-measures most likely to be used for forests are listed in the table below, with their equivalent in the 2007-2013 programming period.

**Table 3: Other Rural Development measures with a potential to support forests (2014-2020 and their equivalent on the 2007-2013 programming period)**

<table>
<thead>
<tr>
<th>Article</th>
<th>Measure</th>
<th>Sub-measure</th>
<th>Article</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. 14: Knowledge transfer and information actions</td>
<td>Measure 1. Knowledge transfer and information actions</td>
<td>1.1. Support for vocational training and skills acquisition actions</td>
<td>Art. 21: Vocational training and information actions</td>
<td>111. Vocational training, information actions, including diffusion of scientific knowledge and innovative practices for persons engaged in the agricultural, food and forestry sectors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2. Support for demonstration activities and information actions</td>
<td></td>
<td>331. Training and information for economic actors operating in the fields covered by Axis 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3. Support for short-term farm and forest management exchange as well as farm and forest visits</td>
<td>Art. 59: Skills acquisition and implementation</td>
<td></td>
</tr>
<tr>
<td>Art. 15: Advisory services, farm management and farm relief services</td>
<td>Measure 2. Advisory services, farm management and farm relief services</td>
<td>2.1. Support to help benefit from the use of advisory services</td>
<td>Art. 24: Use of advisory services</td>
<td>114. Use by farmers and forest holders of advisory services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.2. Support for the setting up of farm management, farm relief and farm advisory services as well as forestry advisory services</td>
<td>Art. 25: Setting up of management, relief and advisory services</td>
<td>115. Setting up of farm management, farm relief and farm advisory services, as well as forestry advisory services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.3. Support for training of advisors</td>
<td></td>
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</tr>
</tbody>
</table>

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42 Even though only Measure 1.3 explicitly mentions forests, all M1 and M2 sub-measures are relevant to forestry.

43 Measure 2.2 deals with forests more explicitly, but other sub-measures 2.x seem to be applicable to forests as well.
<table>
<thead>
<tr>
<th>Article</th>
<th>Measure</th>
<th>Sub-measure</th>
<th>Article</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. 17: Investments in physical assets</td>
<td>Measure 4. Investments in physical assets</td>
<td><strong>4.3.</strong> Support for investments in infrastructure related to development, modernisation or adaptation of agriculture and forestry</td>
<td>Art. 30:</td>
<td>Infrastructure related to the development and adaptation of agriculture and forestry</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>4.4.</strong> Support for non-productive investments linked to the achievement of agri-environment-climate objectives⁴⁴</td>
<td>Art. 41:</td>
<td>Non-productive investments</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>7.1.</strong> Support for drawing up and updating of plans for the development of municipalities and villages in rural areas and their basic services and of protection and management plans relating to Natura 2000 sites and other areas of high nature value</td>
<td>Art. 57:</td>
<td>Conservation and upgrading of the rural heritage</td>
</tr>
<tr>
<td>Art. 20: Basic services and village renewal in rural areas</td>
<td>Measure 7. Basic services and village renewal in rural areas⁵⁵</td>
<td><strong>7.4.</strong> Support for investments in the setting up, improvement or expansion of local basic services for the rural population including leisure and culture, and the related infrastructure</td>
<td>Art. 56:</td>
<td>Basic services for the economy and rural population</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>7.6.</strong> Support for studies/investments associated with the maintenance, restoration and upgrading of the cultural and natural heritage of villages, rural landscapes and high-nature-value sites including related socioeconomic aspects, as well as environmental awareness actions</td>
<td>Art. 57:</td>
<td>Conservation and upgrading of the rural heritage</td>
</tr>
<tr>
<td>Art. 27: Setting up of producer groups and organisations</td>
<td>Measure 9. Setting up of producer groups</td>
<td>9. Setting up of producer groups and organisations in the agriculture and forestry sectors</td>
<td>Art. 35:</td>
<td>Producer groups</td>
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<tr>
<td>Art. 28: Agri-environment-climate</td>
<td>Measure 10. Support to Agri-environmental and climate measures</td>
<td><strong>10.1.</strong> Payment for agri-environment-climate commitments⁴⁶</td>
<td>Art. 39:</td>
<td>Agri-environmental payments</td>
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<td></td>
<td>Art. 46:</td>
<td>Natura 2000 payments</td>
</tr>
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</table>

⁴⁴ These sub-measures are used for agroforestry e.g. in CLM and Extremadura.

⁵⁵ Measure 7.1 deals more explicitly with forests, but sub-measures 7.4 and 7.6 at least seem to be applicable to forest as well.

⁴⁶ This measure is mostly dedicated to agriculture *stricto-sensu*. However, in certain situations ‘agricultural parts’ of existing systems such as Dehesa/Montados may receive support for the maintenance or improvement of existing ‘agroforestry systems’.)
Other CAP measures of the Direct Payment Regulation (Reg. 1307/2013) such as cross compliance, greening measures and particularly those relating to Ecological Focus Areas (EFAs), etc. can impact forests. These measures have been taken into account when relevant in the answers to the evaluation questions.

The following paragraphs provide a description of the RD horizontal measures that can be deployed in the forestry sector.

**Art. 14: Knowledge transfer and information actions (Measure 1)**

This measure concerns entities or bodies that will provide knowledge transfer and/or information actions to the benefit of people engaged, in particular, in the forestry sector, with no limit on the size of the forestry holding. However, there is a focus on SMEs, operating in rural areas. It aims at supporting actions such as:

- Vocational training and skills acquisition actions;
- Demonstration projects/information actions;
- Short-term farm and forest management exchanges and farm and forest visits.

**Art. 15: Advisory services, farm management and farm relief services (Measure 2)**

This measure concerns 3 types of operations: the provision of advice, the setting up of service providers and the training of advisors.

When addressing forest holders, advice should comply with the regulations of Directive 92/43/EEC (on conservation of natural habitats and of wild fauna and flora), Directive 2099/147EC (on conservation of wild birds) and the Water Framework Directive. It may cover issues related to:

- the economic and environmental performance of the enterprises;
- adaptation to climate change and climate change mitigation (at the level of forest holdings or groups thereof);
- the economic and environmental performance of the forest holding, with a focus in this case on SMEs operating in rural areas.

**Art. 17: Investments in physical assets (Measure 4)**

This measure focuses mostly on investments in agriculture but can also support investments in infrastructure, in particular for access to forest land (e.g. construction or...
improvement of access roads, bridges and footbridges, forestry railway and cable way infrastructure for forest management purposes; protection and consolidation works; tunnels; and marking and warning systems). No specific beneficiaries are defined in the Regulation in order to also allow integrated projects such as land consolidation.\(^{50}\)

**Art. 20: Basic services and village renewal in rural areas (Measure 7)**

This measure supports interventions stimulating growth and promoting environmental and socio-economic sustainability of rural areas.\(^{51}\) Among the eight types of operations eligible under this measure, two are of particular interest with regard to forestry:

- Sub-measure 7.1, providing support to the drawing up and updating of plans for the development of protection and management plans relating to NATURA 2000 sites and other areas of high nature value;
- Sub-measure 7.6, providing support to studies and investments associated with the maintenance, restoration and upgrading of the cultural and natural heritage of villages, rural landscapes and high-nature-value sites, including related socio-economic aspects, as well as environmental awareness actions

**Art. 27: Setting-up of producer groups and organizations (Measure 9)**

This measure aims at facilitating the setting up of producer groups and organisations in the agriculture and forestry sectors, for the adaptation to market requirements, joint approaches to place goods on the markets, establishment of common rules for production information, or other activities.\(^{52}\)

**Art. 28: Support to agri-environment-climate (Measure 10)**

This measure supports farmers, groups of farmers or other land managers who commit to carrying out operations that make a positive contribution to the environment and climate. Its inclusion in rural development programmes is compulsory at the national and/or RDP level. This measure is granted on the basis of an area under commitments and concerns agricultural land only. However, in certain situations ‘agricultural parts’ of existing systems such as Dehesa/Montado may receive support for the maintenance or improvement of existing agroforestry systems.

**Art. 30: Natura 2000 and Water Framework Directive payments (Measure 12)**

Forests are addressed by sub-measure 12.2. (Compensation payment for Natura 2000 in forest areas). The beneficiaries of this measure can be farmers or private forest holders and their associations. It is granted per hectare of forest to compensate the additional costs and income foregone resulting from the implementation of Directives 92/43/EEC and 2009/147/EC.

**Art. 35: Co-operation (Measure 16)**

This measure aims at promoting forms of cooperation (such as producer groups, cooperatives, inter-branch organizations, clusters or networks) and in particular supports the cooperative drawing up of forest management plans or equivalent instruments when specifically addressing forests (sub-measure 16.8). This support is dedicated in particular to small forest holdings, where managers have little interest in drawing up a management plan on their own.

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\(^{50}\) 78 RDPs out of the 100 reviewed include support for such forestry infrastructure in their description of measure 4.3 (see Figure 30 in Annex 10).

\(^{51}\) 54 RDPs out of the 100 reviewed mentioned support for forestry-related operations in the description of measure 7. We should note that this measure is particularly used in France for supporting the preparation of N2000 plans or other N2000-related operations in forest areas (see Figure 30 in Annex 10).

\(^{52}\) 21 RDPs out of the 100 reviewed mentioned support for forestry-related operations in the description of measure 9 (see Figure 30 in Annex 10).
The forest sector can also benefit from other types of operations under measure 16, such as support for pilot projects and the development of new products, practices, processes and technologies (M16.2).\(^{53}\)

### 2.2 Implementation choices and measures selected by Member States/Regions to address forest sustainable management

The following paragraphs presents the main implementation choices made at RDP level on the RD measures addressing forests.

Concerning the forest measures (M8&15), the implementation choices are presented on the basis of the targets set up for the Common Evaluation Framework (CMEF) output indicators, extracted from the SFC database in January 2017.\(^{54}\) It is presented at Measure and sub-measure level, compared with the achievements of the 2007-2013 period.

Concerning the RD horizontal measures, the implementation choices on forests presented in §2.2.3 are based on the review of the description of the measures in the RDPs.

#### 2.2.1 Overview of the selection of forestry measures 8 and 15 in the RDPs

M8 and 15 represent 4.6% and 0.2% respectively of the total planned public expenditure at EU-28 level (4.6% and 0.3% respectively of the total EAFRD contribution). The following chapter offers a description of the implementation choices of M8 and 15 at RDP level and of the planned implementation of the corresponding sub-measures, in comparison to what was done in the previous programming period.

**Figure 11: Share of each measure in the total planned public expenditure at EU-28 level (left) and share of the budget of forestry measures 8 and 15 by sub-measure**


#### 2.2.1.1 Implementation choices of forest measures 8 and 15 at RDP level

Most RDPs have chosen to implement the sub-measures of M8 and 15. The RDPs that planned the highest budget on the FM are ES – Andalucía, ES – Castilla-La Mancha, ES – Galicia, GR – Greece, PL, PT – Continental Portugal, UK – Scotland. However, some MS or Regions have not programmed any, such as DE – Bayern, DE – Niedersachsen/Bremen, Rhineland-Pfalz, FI (Mainland and Åland), IE, LU and NL.

\(^{53}\) 89 RDPs out of the 100 reviewed include support for some form of co-operation in which forestry is incorporated (see Figure 30 in Annex 10). 31 RDPs provide support for the preparation of forest management plans or equivalents.

\(^{54}\) It is important to note that the target values may evolve throughout the implementation period. The values presented in this chapter are representative of the objectives ongoing in January 2017.
The following table shows the public expenditure planned on measures 8 and 15, per RDP, and gives an overview of the importance of the sub-measures in each RDP. The implementation choices on each sub-measure are detailed in chapter 2.3.2.

Table 4: Targeted level of implementation for forestry measure, per RDP

<table>
<thead>
<tr>
<th>MS or Region</th>
<th>Public expenditure (M€)</th>
<th>Targeted level of implementation for forestry measures</th>
</tr>
</thead>
<tbody>
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<td>8.2.</td>
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</tr>
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<td>CY</td>
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<td>CZ</td>
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<td></td>
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<td>DE - Berlin / Brandenburg</td>
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<td></td>
</tr>
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<td>DE - Mecklenburg-Vorpommern</td>
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<td>DE - Saarland</td>
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<td>DE - Sachsen-Anhalt</td>
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<td>DE - Thüringen</td>
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<tr>
<td>EE</td>
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<td>ES - Navarra</td>
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<td>ES - País Vasco</td>
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<td>ES - Valenciana</td>
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<td>FI - Mainland Finland</td>
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</table>
### Evaluation study of the forestry measures under Rural Development

<table>
<thead>
<tr>
<th>MS or Region</th>
<th>Planned expenditure (M€)</th>
<th>Targeted level of implementation for forestry measures</th>
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<td>UK - Scotland</td>
<td>332.4</td>
<td></td>
</tr>
<tr>
<td>UK - Wales</td>
<td>72.8</td>
<td></td>
</tr>
</tbody>
</table>

**Table legend:**
- Planned public exp. > 50M€
- Planned public exp. between 50M€ and 1M€
- Planned public exp. < 1M€
- No budget allocated

Source: SFC database (extraction January 2017)

Of the RDPs, 102 have planned expenditure on M8 for a total planned expenditure of 6,823M€, and 22 RDPs have dedicated more than 100M€ to M8. The highest budgets are allocated by PT-Continental (524M€), ES-Castilla la Mancha (427M€) and ES-Andalucía (413M€). Spain is by far the Member State where M8 has been the most implemented: the Spanish RDPs represent 53% of the planned public expenditure on M8 at the EU-28 level. The share of EAFRD in the planned public expenditure varies significantly depending on the Region (i.e. 100 % in UK-England, 54 % in UK-Scotland).

![Figure 12: RDPs dedicating more than 100 M€ of their total planned public expenditure to M8](source.png)

Source: SFC, RPDs financial plans, latest adopted versions in January 2017
The level of implementation of Measure 15 is much lower: 34 RDPs selected the measure, for a total planned expenditure of 342 M€. The highest budgets are allocated by RO, HU, IT – Campania, UK – England and UK – Scotland. RO is a very specific case as it represents 30 % of the public expenditure planned on M15 at the EU-28 level. Furthermore, 95 % of the public expenditure planned on this measure is EAFRD funded.

**Figure 13: RDPs dedicating more than 2 M€ of their total planned public expenditure to M15**

Source: SFC, RPDs financial plans, latest adopted versions in January 2016

### 2.2.1.2 Allocation of measures by objectives and focus areas

For the 2014-2020 period, MS had to choose measures responding to the needs identified at the RPD level, and to the EU priorities for rural development. The RDP are structured per EU Priorities and Focus Area (FA):\(^55\) the identified needs, responding measures and allocated budget are described per focus area to highlight how the programme will address EU priorities.\(^56\) The box below gives details on the six priorities of RD regulation and its related focus areas.

**Box 1: Architecture of RDPs**

Regulation (EU) No 1305/2013 (Art. 5) defines the six priorities for the rural development policy for 2014-2020, broken down into eighteen ‘Focus Areas’ (FAs). The six EU priorities for rural development also reflect the relevant Thematic Objectives (TOs) of the Common Strategic Framework, defined in Regulation (EU) No 1303/2013 (Art. 5). Based on that, the rural development programmes drawn at Member State or regional level had to address at least four of the six EU priorities. In order to better understand Member State and Region choices, Figure 1 below shows the architecture of EU Priorities and Focus Areas of the rural development policies, and their links to the thematic objectives of the Common Strategic Framework.

**Figure 14: The 6 priorities and 18 Focus Areas for Rural Development and links\(^58\) with the 11 Thematic Objectives of the Common Strategic Framework**

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\(^{55}\) See Box on next page for the Focus Areas details.

\(^{56}\) Since the measures programmed under priority 4 can address several focus areas (4A. Natura 2000, 4B. Water management, 4C. Soil management), the allocated budgets are defined at Priority level.

\(^{57}\) See Box on next page in which the six priorities as well as their link with Focus Areas are presented.

\(^{58}\) Working paper ‘Elements for strategic programming’, prepared in the context of the seminar on ‘Successful Programming’ EAFRD 2014-2020 (Brussels, 6th and 7th December 2012)
M8 and M15 were mostly identified as ‘appropriated’ to address the priorities 4 and 5. However, MS were free to implement them under any of the six priorities. The following chapter gives an overview of the MS implementation choices on measures 8 and 15 under each Focus Area.

Table 5: Number of RDP in which measures 8 and 15 are implemented, per focus area

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>2A</th>
<th>2C+</th>
<th>3A</th>
<th>3B</th>
<th>4</th>
<th>5A</th>
<th>5B</th>
<th>5C</th>
<th>5D</th>
<th>5E</th>
<th>5F+</th>
<th>6A</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8</td>
<td>18</td>
<td>10</td>
<td>2</td>
<td>3</td>
<td>81</td>
<td>1</td>
<td>24</td>
<td>74</td>
<td>1</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M15</td>
<td></td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Source: SFC database (extraction January 2017)

This table shows that M8 and 15 are programmed mostly under Priority 4, and to a lesser extent, under Priority 5, 6 and 2. It is important to note that 10 Managing authorities added to the common framework a focus area 2C focusing on the forestry sector.
M15 was chosen to address Priority 4 in 30 RDPs. It is also programmed under FA 5E in three RDPs: Italy – Umbria (5M€), Spain – Andalucía (11.1M€) and Spain – Madrid (0.09M€).

<table>
<thead>
<tr>
<th>Measure</th>
<th>Budget (in M€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8</td>
<td>219.4</td>
</tr>
<tr>
<td>M15</td>
<td>338.2</td>
</tr>
</tbody>
</table>

Source: SFC database (extraction January 2017)

2.2.1.3 Share of the budget of forestry measures in the RDPs budgets

44 RDP have planned to dedicate 5% or more of their public expenditure to M8, and 40 less than 2%. Regarding M15, the MS/Region which planned to dedicate the highest share of their public expenditure to this measure are IT-Campania (1.8%), UK-Scotland (1.5%), HG (1.2%) and Romania (1.2%).

2.2.2 Implementation choices by sub-measure, in comparison with 2007-2014 achievements

2.2.2.1 MS implementation choices on Measure 8.1

According to the SFC database, 50% (representing 60 RDPS from 20 MS) of the RDPs’ planned expenditure are on M8.1. As a comparison, 55 out of 90 RDPs implemented M221 and/or 233 on the 2007-2013 period.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Area afforested</th>
<th>Public expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8.1</td>
<td>569 234 ha</td>
<td>2 263 M€</td>
</tr>
<tr>
<td>M221 +223</td>
<td>288 209 ha</td>
<td>973 M€</td>
</tr>
</tbody>
</table>

The following analyses are mostly based on the target value set by managing authorities and implemented in the SFC database. It should be noted that the target indicators in the SFC database have already evolved several times since the adoption of the RDP: the data were extracted from the SFC database in January 2016 and present the latest update at that time.
PL and UK-Scotland allocated the highest budget to M8.1. They were also the MS/Region with the highest achievements on the afforestation measure of the 2007-2013 period.

Among the MS and Regions with RDPs in the 2007-2013 period, five planned to implement M8.1 but did not record any expense on measure 221 or 223 in the previous period. On the contrary, seven MS/Regions did not programme the measure but had some expenses on the afforestation measure in the previous programming period.

Regarding public expenditure, most MS/Regions set up targets at least twice as high as the executed expenditure in 2007-2013.

The following maps show the implementation choices of afforestation measures, comparing the current and previous programming period.

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61 GR, IT-Sardegna, ES-Murcia, FR-Guadeloupe, ES-Baleares. GR set up significantly high targets for afforestation: 119.3 M€ of public expenditure and 34 000 ha afforested through the measure. RO, ES-Pais Vasco, IT-Lazio, as well as IT-Basilicata, ES-Azores, BE-Flanders, IT-Marche and IT-Veneto planned to implement M 8.1 but had very low outputs on measure 221 and/or 223.

62 DE-Baden-Württemberg, DE-Bayern, DE-Niedersachsen/Bremen, DE-Sachsen-Anhalt, DE-Thüringen, IT-Molise and NL (only 0.6M€ on the 2007-2013 period).

63 LV, CZ, ES-Aragón, IT-Piemonte, ES, Galicia and LT planned expenditure below 2007-2013.
An average share of 1.3% of the budget was allocated to M8.1. Only ES- Castilla y Leon, IT-Lombardia, IT-Veneto and UK-Scotland have planned to dedicate more than 5% of their budget to support for afforestation/creation of woodland.

2.2.2.2 MS implementation choices on Measure 8.2

In the 2007-2013 programming period, M222 supporting the establishment of agroforestry systems was planned in 16 RDPs and implemented in 8 RDPs. For the 2014-2020 period, the objectives of the EU-28 MS/Regions have significantly increased: according to the SFC database, 30 RDPs have planned actions on M8.2, but only 27 set up targets in terms of area to be established in agro-forestry systems. The main indicators are the following:

**Table 8: Main indicators regarding support to the establishment agroforestry systems**

<table>
<thead>
<tr>
<th></th>
<th>Area established in agro-forestry systems</th>
<th>Public expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned on M8.2 (2014-2020)</td>
<td>72 529 ha</td>
<td>123,3 M€</td>
</tr>
<tr>
<td>Executed on M222 (2007-2014)</td>
<td>2 904 ha</td>
<td>2,1 M€</td>
</tr>
</tbody>
</table>

ES-Andalucía, GR, ES-Asturias and ES-Extremadura allocated the highest budget to M8.2, while none of them recorded expenses on the agroforestry measure (222) in the 2007-2013 period. HU, PT - Continental Portugal, ES-Azores, BE-Flanders and IT-Veneto, which implemented M222 in the 2007-2013 period, set up targets significantly above the achievement of the previous period, in terms of public expenditure and area to be established in agroforestry systems.

Figure 18: Public expenditure planned on M 8.2 and comparison with the executed expenditure on 222, in Million Euro

The following maps show the implementation choices of agroforestry measures, comparing the current and previous programming period.

Missing: FR-Basse-Normandie, FR-Poitou-Charentes and UK-Northern Ireland (budget<0.2M€)
In the MS/Regions which have programmed M8.2, the share of RDPs’ budget allocated to this measure is quite low overall (0.13 % on average). Even if more MS/Regions choose to support the establishment of an agroforestry system than in the previous programming period, the voluntary Regions and targeted level of implementation are quite similar.

2.2.2.3 MS implementation choices on Measures 8.3 and 8.4

Of the RDPs, 36 % allocated budget to M8.3 (prevention of damage) and 35 % to M8.4 (restoration). Some RPDs having chosen both measures, a total of 45 % of the RDPs is covered by either one or both of those measures. As a comparison, 56 out of 90 RDPs (63 %) implemented M226 in the 2007-2013 period.

The main indicators are the following:

<table>
<thead>
<tr>
<th></th>
<th>Nb. of beneficiaries</th>
<th>Public expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned on M8.3 (2014-2020)</td>
<td>21 469</td>
<td>1 586 M€</td>
</tr>
<tr>
<td>Planned on M8.4 (2014-2020)</td>
<td>NA</td>
<td>759 M€</td>
</tr>
<tr>
<td>M8.3+8.4</td>
<td>NA</td>
<td>2 346 M€</td>
</tr>
<tr>
<td>Executed on M226 (2007-2014)</td>
<td>NA</td>
<td>2 377 M€</td>
</tr>
</tbody>
</table>


The MS/Regions which have allocated the highest budget to prevention and restoration are ES – Castilla Mancha, ES – Galicia, GR, PT – Continental, Portugal, and ES – Andalucía.

Among the MS/Regions with RDPs in the 2007-2013 period, 4 RDPs (DE - Niedersachsen / Bremen, IT - Friuli-Venezia Giulia, IT – Trento and PL) did not plan any expenditure on M8.3 and 8.4, even though they had implemented M226.65

64 ES-Andalucía and ES-Extremadura are the only regions allocating more than 1 % of the total planned public expenditure to this measure.

65 This is very significant for PL, which recorded a public expenditure of 128 M€ on prevention and restoration during the previous programming period. ES – Andalucía, SK, IT – Basilicata and AT have also targeted a public expenditure of more than 50 M€ under the executed expense on M226.
On the contrary, some Regions planned a very high level of implementation of M8.3 and 8.4, while this level was quite low in the previous programming period.\textsuperscript{66} \textsuperscript{67}

Figure 20: 33 RDPs planning a public expenditure above 10 M€ on M8.3&4

The following maps show the implementation choices of the prevention and restoration measures, comparing the current and previous programming period.

\textsuperscript{66} In particular ES - Castilla-La Mancha (+177 M€), GR (+151 M€) and PT - Continental Portugal (+97 M€).

\textsuperscript{67} All of these regions are in the Mediterranean areas in which fire prevention is a high concern.
The largest share of the RPDs’ budget was allocated to M8.3 and 8.4 in the Mediterranean countries, in relation to the high fire hazards context. M8.4 was programmed in most RDP with a very low share of the budget, but in FR-Aquit., ES-Asturias and IT-Toscana.

The targeted levels of implementation are quite similar to the achievement of 2007-2013. However, some MS/Regions chose to focus on restoration or prevention and lowered the share of the budget allocated on those type of operations.\textsuperscript{68} Others (such as GR, EE, UK) newly programmed the measures.

### 2.2.2.4 MS implementation choices on Measure 8.5

69\% of the RDPs have planned to implement M8.5. The budgets allocated to this measure are quite high, the average planned public expenditure being 18.6 M€.

The main indicators are the following:

<table>
<thead>
<tr>
<th></th>
<th>Area concerned by investments</th>
<th>Nb. of operations</th>
<th>Public expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Planned on M 85 (2014-2020)</strong></td>
<td>2 921 535 ha</td>
<td>93 693</td>
<td>1 507 M€</td>
</tr>
<tr>
<td><strong>Executed on M227 (2007-2014)</strong></td>
<td>NA</td>
<td>NA</td>
<td>1 120 M€</td>
</tr>
</tbody>
</table>


Regarding the programming of M8.5, the choices of Regions and MS are quite similar to what was done for its equivalent measure (M227) on the 2007-2013 period. Only four

\textsuperscript{68} Such as AT, IT-Veneto, IT-Friuli Venezia Giulia
Regions or MS (DE–Bayern, DE–Niedersachsen/Bremen, DE–Rheinland-Pfalz, ES–Castilla y León) closed the measure for the current period, while it has been newly opened in six Regions or MS (AT, BG, IT–Valle d’Aosta, LV, MT, SK).

However, the targeted level of implementation differs from 2007-2013 in most Regions and MS. The difference between the executed public expenditure of the previous programmes and the planned expenditure for 2014-2020 is above +20 M€ in 10 RDPs and below -20 M€ in 3 RDPs.

Figure 22: 44 RDPs planning a public expenditure above 10 M€ on M8.5


The following maps show the implementation choices of the measures supporting non-productive investments in the forest sector, comparing the current and previous programming period.

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69 ES – Andalucía, AT, IT – Basilicata, HR, DE – Berlin / Brandenburg, ES – Castilla-La Mancha, CZ, DE – Nordrhein-Westfalen, IT – Sicilia, SK, LV.

70 PT – Continental Portugal, ES – Extremadura, ES – Cataluña.
Figure 23: Maps of the implementation of the M8.5 and of its equivalent over the previous period (M227)

Source: SFC database

Quite important shares of the RDPs’ budgets have been allocated to M8.5 (1.5 % on average). In Regions where this support to non-productive investments was already in the previous programming period, the share of the budgets allocated are quite similar to the level of 2007-2013 (executed public expenditure).

2.2.2.5 MS implementation choices on Measure 8.6

67 % of the RDPs have planned to implement M8.6, with a mean planned public expenditure of 10.3 M€. The main indicators are the following:

Table 11: Main indicators regarding support to productive investments in the forest sector

<table>
<thead>
<tr>
<th></th>
<th>Nb of operations</th>
<th>Public expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned on M8.6 (2014-2020)</td>
<td>13 898</td>
<td>825 M€</td>
</tr>
<tr>
<td>Executed on M122 (2007-2014)</td>
<td>NA</td>
<td>488 M€</td>
</tr>
<tr>
<td>Executed on M123 (2007-2014)</td>
<td>NA</td>
<td>6 971 €</td>
</tr>
</tbody>
</table>

Source: SFC database (extraction January 2017) and 2007-2013 monitoring (final execution)

M8.6 covers quite the same type of operations as M122 and 123 of the previous programming period. However as shown in the table above, there is a huge difference in the scales of the budgets of the two programming periods.

PT-Continental is by far the RDP which has allocated the highest budget to M8.6 (97M€). In terms of share of the budget, ES-Pais Vasco stands out with 19.4 % of the RDP’s budget allocated to M8.6, the second highest rate being 4.5 % (ES-Galicia).

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71 Not available: the share of the budget allocated of the sub-measure could not be calculated on account of large discrepancies in data from the financial and indicators plans.

72 The Regions with the highest objectives of implementation are ES-La Rioja (10.36%), IT-Basilicata (8.87%) and ES-Madrid (8.75%).

35
The following map shows the implementation choices on measure 8.6.

**Figure 25: Maps of the implementation of the measure 8.6**

Measure 8.6 was implemented in a larger number of RDP with a mean share of the budget (0.9% of the total planned public expenditure in average). However, no MS/Region allocated more than 5% of their budget on this measure.
2.2.2.6 MS implementation choices on Measure 15.1

25% of the RPDs have allocated budget to M15.1, with a mean planned public expenditure of 10.8 M€. The main indicators are the following:

Table 12: Main indicators regarding payments for environmental commitments

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Areas under forest environment contracts</td>
<td>Public expenditure</td>
</tr>
<tr>
<td>1 402 743 ha</td>
<td>314.5 M€</td>
</tr>
<tr>
<td>443 365 ha</td>
<td>140 M€</td>
</tr>
</tbody>
</table>

Source: SFC database (extraction January 2017) and 2007-2013 monitoring (final execution)

Regarding the programming of M15.1, the choices of MS/Regions are quite similar to what was done for its equivalent measure (225) in the 2007-2013 period. The targeted level of implementation is also quite similar to the achievements of the previous period.

Figure 26: Planned public expenditure for forest-environmental and climate commitments (15.1)

Missing UK - Northern Ireland, DE - Niedersachsen / Bremen, IT - Friuli-Venezia Giulia, LU, CY (budget of M15.1 <1M€ on both programming periods)


The share of M15.1 in the RDPs’ budgets is globally low. It is above 1% in only 3 RDPs.

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73 Seven Regions or MS (CY, DE - Baden-Württemberg, DE – Bayern, DE - Niedersachsen / Bremen, ES - CyL, IT - Friuli-Venezia Giulia and LU) closed forest-environmental payments for the current period; on the other hand, they started up in 7 RDPs (BG, DE - Sachsen-Anhalt, ES – Andalucía, ES - CLM, IT – Marche, RO, UK - Wales). FR - Nord-Pas de Calais also opened this measure, while it had not been implemented on the national French RDP for 2007-2014: it is the only French region which has planned expenditure on M15.1.

74 It only differs more than 10 M€ in ES – Andalucía (+11 M€), ES - Castilla y León (-27 M€), HU (+28.9 M€), RO (+117.8 M€), UK-England (+10.8 M€) and UK-Scotland (+16.8 M€)

75 IT – Campania (1.63%), UK – Scotland (1.53%) and RO (1.38%)
The following maps show the implementation choices of the forest-environmental and climate commitments, comparing the current and previous programming period.

Figure 27: Maps of the implementation of the M15.1 and of its equivalent over the previous period (M225)

Source: SFC database

The share of the budget allocated to measure 15.1 is of 0.12 % in average. RO, IT-Campania and UK-Scotland are the Regions/MS giving the highest importance to this measure in their RDP.

2.2.2.7 MS implementation choices on Measure 15.2

Measure 15.2, addressing the conversation of genetic resources in forests, was allocated budgets in only 16 RDPs, with a total planned public expenditure of 39.7 M€. It is a new measure with no equivalent in the previous period. Small budgets have been allocated to this measure: the mean planned public expenditure being 1.4 M€.

Figure 28: Planned public expenditure for genetic resources actions (15.2)

Source: SFC database (extraction January 2017)

The share of M15.1 in the RDPs’ budgets is below 1 % in all RDPs. The following maps show the implementation choices on M15.2.
The MS/Regions which programmed M15.2 globally allocated a low share of their budget to this measure and no RPDs have set a high implementation objective for this measure, even though the subject covered is of great importance. This may be related to the fact that the measure is new in the 2014-2020 programming period.

2.2.3 Implementation choices on the RD horizontal measures to address forests

The graph below shows the number of RDP in which horizontal measures have been planned to benefit to the forest sector, forest holders or to target wooded land. It is based on the description of the horizontal measures in the RDPs carried out in the scope of this study. However, the budget allocated to forests in each measure is not available.
Annex 2 provides the same analysis at sub-measures level. The horizontal sub-measures which address forests the most frequently are sub-measures 1.1 (Vocational training), 1.2 (Demonstration activities), 2.1 (Use of advisory services) and 4.3 (Investment in forest roads).

Concerning the sub-measures related to the implementation of Natura 2000 in forests, M12.2 is planned in 18 RDPs and M7.1 which should support the implementation of development plans in Natura 2000 forest areas, in 36 MS/Regions.
3 MODEL OF INTERVENTION LOGIC (TASK 1.2)

3.1 Theoretical foundation of the effects of forestry measures on production, the economy, the environment and climate

The theoretical foundations of RDP measures relating to the forestry sector can be explained as follows. Agriculture and forestry produce commodities, such as food, feed, fibre wood, fuel, cork, etc. From a microeconomic point of view, these sectors look for the optimal use of production factors (land, capital, input consumptions and labour) to maximise their profit or economic benefit. The particularity of forests is that profits coming mostly from the sales of wood occur in the very long term, from 15 to 70 years or more. At the same time, forests produce public goods, such as amenities, environmental services, protection against floods or of soils, cultural values, recreational areas, etc. Of course, management can, via damaging practices, cause negative externalities. While the production of private goods is largely secured by the market balance between supply and demand (within the strict legal constraints of forest legislation in MS), this is not the case for public goods: the non-excludability and non-rivalry in the consumption of public goods imply that:

- users of public goods have no incentive to pay for them, which can lead to their over-exploitation;
- on the supply side, farmers/owners have little incentive to provide public goods because they are not being paid to do so.

Therefore, in the event that the demand for public goods is not met as a “side-effect” of economically viable agricultural/forestry activities, and/or if the production of public goods requires going beyond legislative requirements, some form of economic incentives needs to be provided to farmers/forest holders to encourage them to provide public goods.

These ideas are spelled out in detail in the context of EU agriculture and the CAP by Cooper et al. (2010), and Buckwell et al (2009). Given that context, public funding is highly relevant to provide the incentive that can lead land and forest managers toward the production of environmental and social services, along with the production of market goods.

A range of policy instruments is available to support the production of public goods. The FM mostly operated on voluntary agreements, which aim among other things at enhancing the provision of environmental services, i.e. by compensating the beneficiaries for the additional costs and income foregone resulting from the commitments made, or by encouraging the adoption of virtuous practices, e.g. through support to investments. This is for example the case of M8.5 (incentive to environmental investments) and M15.1 (payments for environmental commitments). Nevertheless, we can consider that investment measures such as M.8.1 (afforestation), M8.2 (agroforestry) or M8.6

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76 The lowest values apply to projects involving fast-growing species like poplar which have a rotation period starting from 6-8 years.
77 Ecosystem services are the benefits people obtain from ecosystems (source: Millennium Ecosystem Assessment).
79 Cooper, T., Hart, K. and BaIn some islands and overseas territories of the EU, support can also be granted to companies that are not SMEs DG Agriculture and Rural Development, Contract No 30-CE-1233091/00-28, London, Institute for European Environmental Policy.
81 Command-and-control instruments or regulatory instruments, such as regulation, binding standards, investment in information and awareness raising, research and studies, public direct intervention, etc. Market-based instruments, which include economic incentive instruments, such as instruments based on the "polluter pays principle", which modify the price signal and encourage resource consumers to take into account the resource scarcity, and modify their management practices, etc.
(investment in forestry) operated on the same principle: to provide incentives going beyond the installation costs, maintenance (and in some case agricultural income foregone) to take into account the ecosystems services provided by these forests to the whole society. We come back on this point in the recommendation chapter.

The theoretical foundation of FM also slightly depends on the type of beneficiaries (i) Farmers are often beneficiaries of direct payments and so have to apply greening measures, cross compliance, etc. which could interfere with some of the FM (e.g. 8.1 and 8.2) and they also can benefit from premium to compensate agricultural revenue losses, (ii) Non farmers forest holders/managers who are not in this framework and for whom only apply the minimum environmental requirements set up by each MS.

The FM were above all designed to address sustainable forest management and under the new RD Regulation the FM were grouped into a single one (M8) to facilitate simplification and allowing beneficiaries to design and realise integrated projects with increased added value. Hence this set has a large range of objectives: economic, social and environmental. The following paragraphs describe the potential effect of the each sub-measures of M8 and M15, distinguishing their potential effect on beneficiaries’ production decision and then on the environment and climate change.

Before coming to this review, it is important to notice that in Reg. (EU) 1305/2013 there is no single objective by sub-measure but only an overarching one for all the measures dedicated to forests in the form of its recital 20.03

### 3.1.1 Potential impact on beneficiaries’ production decision

#### 3.1.1.1 Afforestation – creation of woodlands on agricultural land (M8.1)

This measure is linked to the first objective of FM mentioned in recital 20 of Reg. (EU) 1305/2013: “support for sustainable and climate friendly land use” as well as to “improvement of forest resources”, the afforested areas being dedicated to produce wood in the future.

In this respect, M8.1 could be assimilated both to a subsidy to produce wood and to a kind of payment for environmental services (PES) given to farmers/owners, to increase ecosystems services of their land by transforming their agricultural land into woodlands.04 Our reasoning is based on the fact that forestry is normally profitable and thus does not require support to only produce wood.05 Hence, if support is given, it should be to produce something other than wood, which should be amenities and public goods (if sustainable forest management rules are applied), in comparison to most of the agricultural lands.

To produce these ecosystems services, investments are necessary: measure 8.1 includes the financing of the plantation and its maintenance for up to 12 years, which represent

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03 Most of the concepts in this section are borrowed from the scientific literature developed on this subject in Europe: (Allen et al, 2012), (Cortignani and Dono, 2015), (Matthews, 2013), (Solazzo, Donati and Arfini, 2015), (Vann and Cardillo, 2013), (Was, Majewski and Czekaj, 2014), (Westhoek et al, 2012).

04 Recital 20 states: 20) Forestry is an integral part of rural development and support for sustainable and climate friendly land use should include forest area development and sustainable management of forests. During the 2007-2013 programming period, a variety of measures covered different types of support for forestry investments and management. In the interests of simplification and of allowing beneficiaries to design and realise integrated projects with increased added value, a single measure should cover all types of support for forestry investments and management. That measure should cover the extension and improvement of forest resources through the afforestation of land and the creation of agroforestry systems combining extensive agriculture with forestry systems. It should also cover the restoration of forests damaged by fire or other natural disasters and catastrophic events and relevant prevention measures; investments in forestry technologies and in the processing; the mobilising and marketing of forest products aimed at improving the economic and environmental performance of forest holders; and non-remunerative investments which improve ecosystem and climate resilience and environmental value of forest ecosystems. Support should not distort competition and should be market neutral.

05 This is a progressive shift from the primary purpose of afforestation measures (when they were first introduced) to take agricultural land out of production whilst providing land owners with an alternative source of revenue.

06 This is for example the position of MS such as Sweden and Finland.
the main costs for the owner. Besides these payments linked to the investment, a premium is given to farmers during up to 12 years (max.) to cover the real cost incurred and the loss of agricultural income. These payments play an incentive role which is supposed to equal or exceed their opportunity costs and incite the farmers to uptake this measure instead of continuing agriculture that provides regular revenues.

Concerning the incentive aspect, the main conclusions of several works on AECM and PES is that, to get a significant uptake of a measure, the payment has to exceed the willingness to accept of the beneficiary\(^\text{86}\) (Thoyer and Said, 2003;\(^\text{87}\) Evaluation of the AEM in the EU: Oréade-Brèche, 2005) to change their practice, meaning that there is an incentive for them to shift from one situation to another.\(^\text{88}\) Given that afforestation is a long-term investment for owners, this measure shall also be analysed, taking into consideration patrimonial strategies of beneficiaries who have enrolled (or will enrol) in this measure.\(^\text{89}\)

3.1.1.2 Support for the establishment and maintenance of agroforestry systems (M8.2)

This measure mostly concerns farmers interested by a mixed production of agricultural products and some wood or willing to engage in new agricultural practices. In all cases, in terms of economic rationale, it works like M 8.1 both for farmers and “non-farmer” owners.

3.1.1.3 Support for the prevention of damage to forests from forest fires and natural disasters and catastrophic events (M8.3)

This measure aims at setting up operations to protect forests against fire, pests and diseases in terms of equipment as well as prevention activities (e.g. grazing animals, etc.). Even if it is open to private and public owners, this measure could be considered as collective equipment benefiting forests in general, more than one forest in particular. Because it reduces risk for forest owners (private or public), it may favour plantation and proper upkeep of forests. The economic reasoning behind this measure is to convince owners (private or public) that the conditions are there to keep their forest (or even invest) because fires, pests, etc. are under control. The effectiveness of these measures is really dependant on the coherence of their implementation (e.g. completion of a network of existing firebreaks in highly inflammable areas and based on a forest protection plan, etc.).

3.1.1.4 Support for the restoration of damage to forests from forest fires and natural disasters and catastrophic events (M 8.4)

As this measure is actually done to restore damaged forests, it cannot be considered as having an influence on the owner's production decision because it just allows him (her) to come back to the former situation, even if some do not come back to the original situation because they adapt the new stands to avoid further damages.

In fact, it operates almost as public insurance to recover the forest and thus its production capacity and the ecosystem services that it had before and that were destroyed or reduced by the catastrophic event. It does not pay for the wood lost, which should be covered by the owner with a private insurance.

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\(^{86}\) Keeping in mind that it is only cost incurred and income foregone that are included in the premium calculation.


\(^{88}\) Keeping in mind that this land remains eligible for direct payments but also recalling the first pillar obligation, which could play a role as incentive or disincentive that will be studied in the case studies.

\(^{89}\) They could be in situations such as: (i) they are young but do not lack land and then could share the production between agriculture and forest, (ii) they are older and they do not have a successor for their farm and hence prefer to keep the land and plant for their children.
3.1.1.5 Support for investments improving the resilience and environmental value of forest ecosystems (M8.5)

The range of operations that could be implemented under this measure make it difficult to create a model of intervention in terms of owner’s production decision, as most of these operations target environmental goals as a priority. The economic rationality of this measure has to be considered with aid coupled with M15.1, as M8.5 pays for the investments and 15.1 for the maintenance of ecosystem services through environmental commitments. Hence we treat the theoretical foundation of this measure in M 15.1.

3.1.1.6 Support for investments in forestry technologies and in processing, mobilizing and marketing of forest products (M8.6)

The rationale of this measure is the following: to be competitive, farmers, forest owners and enterprises have a range of opportunities. The two main strategies are (i) to lower their costs including factor costs (land, labour or capital) and (ii) improve technology, technical performance and productivity of factors. Thus, several strategies of investment can be perceived which are listed in the title of the measure itself.

Thus, investment support consists of leverage effects on holdings/properties and enterprises to enhance competitiveness, for instance by reduction in production costs, increase in factor productivity, adaptation to new markets, new trends and new technologies, or improvement in access to credit.

3.1.1.7 Payment for forest environmental and climate commitments (M15.1)

The aim of forest-environmental-climate payments (FECP), as stated in the preamble to Reg. (EU) 1305/2013 is to “play a prominent role in supporting the sustainable development of rural areas and in responding to society's increasing demands for environmental services. They should further encourage farmers and other land managers to serve society as a whole by introducing or continuing to apply agricultural (or forest) practices that contribute to climate change mitigation and adaptation and that are compatible with the protection and improvement of the environment, the landscape and its features, natural resources, and the soil and genetic diversity”.

They provide an economic incentive to encourage the participation of land managers and their uptake of particular management activities, either to maintain activities that would otherwise not be carried out or to change management practices, going beyond relevant mandatory standards and requirements established by the national forestry act or other legislation e.g. Natura 2000 related obligations.

3.1.1.8 Support for the conservation and promotion of forest genetic resources (M15.2)

This measure, like measure 8.3, is more dedicated to a support for the whole sector than to individual forests or owners. In that sense it has no real or direct influence on producers’ production decisions. It may help to improve the competitiveness of the sector or improve sector resilience to climate change etc.

3.1.2 Potential contribution of forest measures to environment and climate objectives

In terms of the potential impact on the environment, we consider, first the environmental remit of the CAP, and second the wider environmental implications (positive and negative) of the types of activities that could be funded under the supported measures (M8 and M15).

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90 The costs of carrying out similar management practices will vary between land managers as a result mainly of variations in opportunity costs, which may be due in turn to differences in many factors such as: land productivity, production opportunities, resource quantities and qualities, and natural conditions. The basic premium for this measure is 200 €/ha/ year for a commitment covering 5 to 7 years, but it is specified in Annex II of the RD regulation that these amounts may be increased in duly substantiated cases, taking into account specific circumstances to be justified in the RDP.
The following sub-sections describe the potential contribution of individual forest measures to environment and climate objectives. Annex 9 provides summary tables on the expected positive impacts on the environment of the FM, with the actual impacts of each measure on the environment are evaluated as part of the Evaluation Questions.

3.1.2.1 Potential contribution of individual forest measures to environment & climate objectives.

Afforestation (M8.1) can have a favourable impact on soil, water, air and biodiversity as well as responding to the need of enhancing ecosystems and carbon sequestration to increase public goods and services and to shift to a low carbon economy. Afforestation also contributes to the protection of the environment, prevention of natural hazards and fires and can help other sectors (as well as existing forests through ‘buffering’) such as agriculture to adapt to climate change. For example, well situated forests can establish new habitats suited to specific species, buffering or increasing the extent of existing habitats and contributing to green infrastructure, or protecting designated sites. They provide structural elements in the landscape, helping to stabilise soils and water flow and protect watercourses from pollutant run-off. Forests are also a major carbon sink, both in above and below ground biomass, and provide a net-cooling effect of the immediate micro-climate. Establishing new forests can also improve adaptation to climate and other natural impacts through stabilising habitats and soils, to increasing connectivity or providing shading for foraging livestock etc.

Agroforestry (Support for the establishment and maintenance of agroforestry systems (M8.2) provides similar environmental benefits as that of afforestation. In this context agroforestry means land-use systems and practices where woody perennials are deliberately integrated with crops and/or animals on the same parcel or management unit without the intention to establish a remaining forest stand. Agroforestry across Europe includes both traditional systems that are an essential part of cultural and natural heritage (e.g. Dehesa in Spain, Montados in Portugal, Baltic wooded meadows, grazed orchards, and wood pastures) and modern alley cropping systems that combine high productivity with protection of the environment and adaptation to climate change.

Agroforestry has been identified by the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) as a ‘win–win’ multifunctional land-use approach that balances the production of commodities (food, feed, fuel, fibre, etc.) with non-commodity outputs such as environmental protection and cultural and landscape amenities. These systems are particularly suitable to restore the production potential of degraded areas, to upgrade environments with natural limitations or to mitigate climate change through the inclusion of increased carbon sequestration potential in agricultural landscapes and aid in adaptation responses, e.g. through shading or water retention.

Preventing or restoring forests from damage from natural disasters, fires and catastrophic events (M8.3 & 8.4) is important in maintaining the environmental services and benefits that result from forests or agro-forestry. Maintaining or re-establishing forest areas contributes to the maintenance of carbon stores/stocks in vegetation and soils and ensures the preservation of existing habitats and landscape features necessary to support a variety of biodiversity. Established forests provide important regulating services in relation to water and soil stabilisation, purification and flow management. Preventing the loss of forests or reinstating them ex post thus helps to ensure these functions in the longer term.

Beyond preventing damage to forests, their on-going sustainable management is another essential component of maintaining and enhancing the environment and climate benefits of forests. M15.1 M8.5 and M15.2 provide support to land managers to help maintain the effective environmental, economic and social functioning of forests. M15.1 (payments for forest environmental and climate commitments respond to the needs of promoting the sustainable management and improvement of environmental value and condition in forests and other wooded land. The potential environmental benefits are wide ranging in line with the broad scope of the measure akin to that of M10.1 the Agri-environment-climate measure. M8.5 provides support to M15.1 specifically to improve the resilience
and environmental value of forest ecosystems and thus has a key role to play in the adaptation of forests to climate change and thus the maintenance of environmental and public amenity value of forests and wooded land. M15.2 provides more specific support to maintaining the genetic diversity of forest resources and to develop varieties of forest species able to adapt to specific or changing local conditions. Genetic diversity within individual trees of stand and species diversity are needed to ensure that the forests contribute in full to all the environmental, climatic and societal objectives, as mentioned in the measure fiche “Forestry” detailing the role of the forestry sector in the European Union. Without such diversity, forests lose vitality and become less resilient to pests and diseases, thus unable to provide the expected ecosystem services.

Forests managed by private entities as well as private investments in the forestry sector play an important role in rural economies. EU support provided under M8.6 is significant for the development of woodlands, forest protection, innovation, improving production, technologies, processing technology and marketing of forest products, thus enhancing market and job opportunities in the forestry sectors, including the provision of biomass for energy.

Simultaneously, the EU commitment to multifunctional forestry contributes to the key environmental and climate objectives of the Union. In order to guarantee the delivery of these benefits in a balanced way, it is essential to ensure multifunctionality and sustainable forest management (SFM), which are among the key principles of the EU Forest Strategy. Strengthening SFM is needed to improve competitiveness and job creation, in particular in rural areas, while ensuring forest protection and delivery of ecosystem services. Economic viability is of crucial importance for maintaining the multiple benefits that forests provide to society, and especially for providing a living for rural populations.

In summary, the FM provide a set of measures that can work together towards implementing SFM in the EU consistent with the EU Forest Strategy. In so doing they have the potential to provide complementary support aimed at different aspects of forest management that underpin the role and potential of forests to support environmental and particularly climate objectives (Box 2). Crucial to how effective these measures are in delivering these potential benefits are the choices made by Member States and land managers in how they are implemented, the actions funded under the measures and, in many cases, where and for how long those actions take place. The effect of FM on the environment and climate objectives, as well as Balanced Territorial Development (BTD) are described further as part of the study evaluation questions.

Box 2: Potential climate action benefits of forests and FM

Forests are a major carbon sink in the EU and have an important role in the adaptation of rural areas to changing climatic conditions. In supporting the establishment and ongoing management of forests and wooded land, the FM are a key tool in addressing the EU’s Climate Action objectives.

In 2014, the Land Use, Land Use Change and Forestry (LULUCF) sector represented a net EU carbon sink of around 308 Mt CO₂-eq. Existing and new forests were the main contributing sink within the LULUCF sectors with forest measures amongst the most frequently cited measures in Member State reports on activities to improve mitigation within the LULUCF sector. Over the past decades, the relatively large proportion of young forests and moderate harvest rates have led to a net carbon accumulation in European forests\(^\text{91}\) (EEA, 2016b). The rate at which carbon accumulates in forest stands from one crop of trees (‘rotation’) to the next rotation is influenced by site (particularly soil type), forest operations and by the extent of soil disturbance at planting and harvest (Reed et al, 2009). The FM can therefore both support the establishment of these carbon sinks as well as their maintenance and sustainable management to ensure climate mitigation benefits are realised.

From an adaptation perspective, forests can deliver positive climate action in a variety of ways. They provide a means of adapting agricultural production systems that would otherwise become

\(^{91}\) While being a net sink, the sector was also the source of CO₂ emissions. The largest source was land conversion, especially from forests to other land uses (also known as deforestation), and emissions from organic soils converted to cropland use.
marginal under economic or climate related changes, as well as improving the resilience of agriculture systems, such as through the establishment of agro-forestry or farm woodlands. The incorporation of trees into agricultural systems can provide improved water regulation including improved water retention; capture or nutrients; increased potential of biological pest control by providing home and shelter to insectivorous animals; improved soil protection from erosion; as well as greater economic stability due to higher level of diversification. Where trees and woodlands are integrated into landscapes they can (if well cited) provide many of the adaptation benefits to wider rural areas, towns and villages, particularly in relation to stabilising soils (such as on sloping land) and mediating water flow in flood situations. FM can therefore help to deliver such benefits to rural areas through the way in which forests are managed.

In addition, the FM can provide support to forests to aid in the adaptation of forests to changing climatic conditions, such as the diversification or improvement in sustainable production systems; increasing genetic diversity; and improving forest and ecosystem help making them more resilient to change and reducing the risk of fire and other natural disasters.

3.2 Intervention logic of measures 8 and 15 and their equivalent in the previous period

The two charts on the next pages show diagrams of the logic of intervention of the FM. The columns show the measures, the expected results of their implementation, the general objectives of RD regulations and then those of the CAP itself, in that order. The expected results are often taken from recitals of the concerned regulation. The arrows between boxes show the logical link between each measure and its effects.

The main effects are symbolised by solid arrows:  ➔

The main secondary effects by dotted arrows:  ➒

92 However, under certain circumstances forest plantations can aggravate environmental problems, in particular by reducing water availability in arid zones. In addition, certain plantation practices have led to increased fire hazards and difficult fire situations.
Evaluation study of the forestry measures under Rural Development

Figure 31: Intervention logic for the forest measures in the RDP 2014-2020 (main sources: Reg (EU) N° 1305/2013) and (EU) No 1306/2013

**MEASURES**
- Measure 8: Investments in forest area development and improvement of the viability of forests
  - 8.1: support for afforestation / creation of woodland
  - 8.2: support for establishment & maintenance of agroforestry systems
  - 8.3: support for prevention of damage to forests from forest fires and natural disasters and catastrophic events
  - 8.4: support for restoration of damage to forests from forest fires and natural disasters and catastrophic events
  - 8.5: Support for investments improving the resilience and environmental value of forest ecosystems
  - 8.6: Support for investments in forestry technologies and in processing, mobilising and marketing of forest products
- Measure 15: Forest-environmental and climate services and forest conservation
  - 15.1: Payment for forest-environmental and climate commitments
  - 15.2: Support for the conservation and promotion of forest genetic resources
- Other measures of RDP
- External factors

**EXPECTED RESULTS**
- Accompany and complement direct payments and market measures of the CAP
  - (WA17) New economic activities created & developed, diversified activities into non-agricultural including the provision of services to agriculture and forestry
  - (WA20) Extended and improved forest resources
  - (WA20) Forests damaged by fire, other natural disasters and catastrophic events are restored, prevention measures are designed
  - (WA20) Improved economic and environmental performance of forest holders
  - (WA20) Improved ecosystems and climate resilience and environmental value of forest ecosystems
  - (WA4) Enhanced carbon sequestration with regard to land use, land use change and the forestry sector
  - (WA4) Limited emissions in agriculture and forestry
  - (WA22) Protected and improved environment, landscape and natural resources, and the soil and genetic diversity

**SPECIFIC OBJECTIVES OF UE FOR RD**
- Ensure the sustainable development of rural areas
  - Priority 1: Fostering knowledge transfer and innovation in agriculture, forestry, and rural areas
  - Priority 2: Enhancing farm viability and competitiveness of all types of agriculture in all regions and promoting innovative farm technologies and the sustainable management of forests
  - Priority 3: Promoting food chain organisation, including processing and marketing of agricultural products, animal welfare and risk management in agriculture
  - Priority 4: Restoring, preserving and enhancing ecosystems related to agriculture and forestry
  - Priority 5: Promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors
  - Priority 6: Promoting social inclusion, poverty reduction and economic development in rural area

**SPECIFIC OBJECTIVES OF THE CAP**
- Competitiveness of agriculture
- Sustainable management of natural resources and climate action
- Balanced territorial development of rural economies and communities including the creation and maintenance of employment
Figure 32: Intervention logic for the forest measures in the RDP 2007-2013 (main source: Reg. (ED) no 1698/2005)

**Axis 1**: improving the competitiveness of agriculture and forestry by supporting restructuring, development and innovation

- **122.** Improving the economic value of the forest
- **123.** Adding value to agricultural and forestry products
- **221.** First afforestation of agricultural land
- **222.** First establishment of agroforestry systems on agricultural land
- **223.** First afforestation of non-agricultural land
- **224.** Natura 2000 payments
- **225.** Forest environment payments
- **226.** Restoring forestry potential and introducing prevention actions
- **227.** Support for non-productive investments

**Axis 2**: improving the environment and the countryside by supporting land

- **228.** First establishment of agroforestry systems on non-agricultural land
- **229.** First afforestation of agricultural land
- **230.** First afforestation of non-agricultural land
- **231.** Natura 2000 payments
- **232.** Forest environment payments
- **233.** Restoring forestry potential and introducing prevention actions
- **234.** Support for non-productive investments

**EXPECTED RESULTS/OUTCOMES**

- Improved and broadened economic value of forests
- Increased diversification of production
- Enhanced market opportunities
- Sustainably managed and multifunctional forests
- Preserved natural environment and landscape
- Protected and improved natural resources
- Enhanced public amenity value of forests

**EXPECTED EFFECTS**

- Economic activity in rural areas
- Renewable and environmentally friendly products
- Biological diversity
- Global carbon cycle
- Water balance
- Erosion control
- Prevention of natural hazards
- Social and recreational services

**SPECIFIC OBJECTIVES OF UE FOR RD**

- Agricultural and forestry competitiveness
- Land management and environment
- Quality of life and diversification of activities

*Axis 1: improving the competitiveness of agriculture and forestry by supporting restructuring, development and innovation*
4 Method to answer the evaluation questions (Task 1.4-6)

This chapter sets out the methodological approach taken for this evaluation, including a description of the types of data and analytical tools used, as well as highlighting the limitations of the approach taken. Information on the specific methodological approach chosen for each evaluation study question (EQ) is included at the beginning of the answer to each EQ, in Chapter 5.

4.1 Development of an evaluation framework

The proposed methodology for this evaluation study is based on the Better Regulation guidance and toolbox, and DG AGRI guidance documents. It also draws on our experience with complex evaluations of policy interventions.

The starting point for the development of the evaluation framework is the intervention logic for the evaluated measures, as described in Chapter 3. It is used to identify the judgement criteria and related performance indicators upon which the evaluation is primarily based. Counterfactual situations were also identified (see below) particularly to answer the EQ on effectiveness.

The methodological approach combines theoretical and empirical approaches and includes a variety of methods, both quantitative and qualitative, to address the different types of analysis that were required and are most suited to address the EQs.

Where judgements relied on stakeholders’ judgement, the consistency across multiple sources has been checked. In particular, information from case studies has been carefully analysed, taking into account their reliability and likely representativeness. In all answers to the ESQs, the limitations of the available evidence are clearly indicated.

4.2 Data sources

From the start of this evaluation, it was clear that the availability of data regarding implementation of the 2014-2020 RD measures would be limited, given that some RDPs were approved in 2016 and that, there have been significant implementation delays in many MS/Regions. On the other hand, the similarity between the 2014-2020 and 2007-2013 FM provided us opportunities to get an insight into the effects of the policy on a larger time scale. The methodological approach designed for each ESQ took these factors into account to enable as deep an analysis as possible within the limitations faced.

The following data sources were used for the evaluation study.

4.2.1 Data on policy implementation

The CMEF financial output and result indicators on Pillar 2 were the main source of information on the implementation of the RD measures. There were extracted from the SFC databases. For the 2007-2013 period, the final output of the measure could be used. For the 2014-2020 period, only targets were available. Hence, the analysis of the implementation choice and of the uptake of the measure was based on predicted uptake for the 2014-2020 period and on material from case studies.

CMEF Pillar 1 output and result indicators were used to investigate the effect of the FM on the creation of Ecological Focus Area (EFAs), in EQ2. The relevant data on the EFAs declared in 2015 and 2016 had been collected by Alliance Environnement for use in the evaluation study on the payment for agricultural practices beneficial for the climate and the environment (“greening” of direct payments), which was implemented at the same time.

4.2.2 Farm Accountancy Data Network (FADN)

FADN data were used to carry out analyses on the effect of the measures on the economic viability of farms, in EQ4. Indicators JC900 and JC910 provided us the premiums granted on M221 (equivalent of M8.1 in the previous period). However, the data cover only the previous programming period, given that FADN data were available
up to 2014 only. Further limitation in the use of the FADN data are explained in the answer to EQ4 (§5.4.2)

4.2.3 Forestry and other databases

Eurostat, UNECE, FAO and Forest Europe provided the last updated data concerning the state of forests (2015), mostly delivered every 5 years. They were used to set out the context of the choices made by MA and beneficiaries (EQ1) and to quantify the evolution of the indicators over the last programming period: updates of 2005, 2010 and 2015 have been used.

The Streamlining European Biodiversity Indicators (SEBI), EEA and Eurostat Agri-Environment indicators were relevant to this study (i.e. on EQ6).

The JRC GIS database provided some relevant statistical as well as geographical information; however, only public data could be used. GIS were also used to calculate some indicators (e.g. forest coverage and its expected evolution) at RDP level, based on data provided by EFI.

4.2.4 Reports on LULUCF actions

The report on LULUCF actions detail the actions implemented to limit or reduce emissions and maintain or increase removals resulting from land use and land change, at MS level. However, the information they provide is quite different from one MS to another. All the available LULUCF reports and the relevant National Inventory Report were reviewed to extract the data relevant for the purpose of the evaluation. They provided, for some MS, the trends on land use change and details on the existing and planned policies relating to the LULUCF sector, including a quantitative or qualitative description of the expected effect of those measures on emissions and removals. Those were used in answering EQ2, 6 and 14.

4.2.5 Literature review

The environmental or socio-economic effects of the FM (EQ6) were rarely investigated in existing studies. Hence the methodology of EQ6 was largely based on the analysis of the effect of forest management practices that are similar to those which can be supported by the FM. The literature review was then carried out to provide information on the effects of forest management practices on biodiversity, forest health, forest soils, water, climate mitigation and adaptation and balanced territorial development including socio-economic effects. These can be found in Annex 1.

4.2.6 Review of the Rural Development Programmes

The RDPs of the MS/Regions are an important source of information: the 2014-2020 strategic programming framework involved a SWOT analysis, identification of the needs at MS/Region level, and a precise description of the measures programmed, to justify the opportunity of the support planned to be implemented, and its contribution to achieving the EU priorities for Rural Development.

The RDPs of the MS/Regions in the scope of this evaluation were reviewed,93 with two main objectives. The first one was to identify the needs of the forest sector identified at the local level and how they were linked to the implementation choices. The second was to produce a database of the RD horizontal measures planned to address forest issues.

Information was collected in a matrix. On this basis, we established a typology of the needs of the sector, as well as statistical analysis on the occurrence of forest needs by type and on the implementation choices on the RD horizontal measures. This work is available in Annex 2.

4.2.7 Case studies

93 The review was based on the RDP versions provided by DG Agri in May 2017.
Case studies (CS) were a very significant tool of this evaluation. Firstly, given the absence of implementation data on the evaluated measures available at EU level, they were a key source for obtaining an insight on the implementation of the 2014-2020 FM. Secondly, given the variety of implementation choices and forestry contexts, they provided qualitative information necessary to analyse the factors accounting for the local situations, as well as the opinion the stakeholders regarding the support provided to forests in RD.

Fourteen CS were chosen for this evaluation (see their location in Figure 33). All were carried out following the same approach: information was gathered via semi-structured interviews with key stakeholders (a total of about 250 stakeholders were met, including the MA, representatives of the forest sectors and of the forest holders, technical advisers, researchers, NGOs...), the review of the local RDP, ex-ante and 2007-2013 ex-post assessments, documentary research and collection of data from national and/or regional statistics.

Annex 3 gives the justification for the choice of case studies for this evaluation. It sets out the criteria adopted for their selection and provides a summary of the main findings from each CS.

All information from case studies has been carefully interpreted in terms of its likely representativeness of their MS/regions and the EU as a whole, and what generic conclusions could therefore be drawn from them.

4.2.8 Questionnaire survey to the Managing Authorities of the RDPs

A questionnaire survey was submitted to the Managing Authorities of the RDPs. The purpose was to collect information regarding the implementation of the 2014-2020 FM on an enlarged sample of MS/Region, in order to complement and cross check the information collected in the CS and in the RDPs review.

Among the 110 surveyed MS and Regions, 61 submitted an answer, from 21 MS. The results provided information on a large range of issues, in particular to understand the drivers that have guided the RDP designer in their choices to:

- decide the allocation of funding to forest vs agriculture and rural development,
- include or exclude RD sub-measures of their plan and potentially to prefer state aids to those of the RD.

It also questioned the administrative burden related to the implementation of the FM and the opinion of the MA regarding the added-value of EU support in forestry.

Annex 5 provides the detailed analysis report of the results of the survey.

4.2.9 Interviews at EU level

Additional interviews were held at EU level, with organisations representing European farmers and forest owners, woodworking industries, state forest companies as well as
agricultural, rural and forestry contractors, etc., in order to complete the views on the added-value of the FM.

### 4.3 Sources and analytical tools used in answering the EQs

Information from different data sources has been used in the answer to each EQ, in order to ensure that the assessment build on cross-checked evidences. Table 13 summarises the data sources used in the answer to each EQ. Some EQ substantially built on results from other EQs: this is the case of EQ9, 15 and 16 in particular, which have a dimension of conclusion.

<table>
<thead>
<tr>
<th>Table 13: Details on the type of data sources used in each EQ</th>
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<tbody>
<tr>
<td><strong>Sources</strong></td>
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<td>Data on policy implementation</td>
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<td>FADN</td>
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<tr>
<td>Forestry and other databases, LULUCF reports</td>
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<tr>
<td>Literature review, documentary research, models</td>
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<td>RDP review</td>
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<td>Questionnaire survey</td>
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<td>Interviews at EU level</td>
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The data were analysed through both quantitative and qualitative analytical tools, presented in Table 14.

<table>
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<tr>
<th>Table 14: Analytical tools used for the evaluation study</th>
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<tbody>
<tr>
<td><strong>Analytical Tool</strong></td>
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<td>Descriptive statistics</td>
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<td>Stakeholder analysis</td>
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<td>Cost-effectiveness analysis</td>
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<td>Coherence and relevance matrices</td>
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<td>Legislative analysis</td>
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<tr>
<td>Modelling</td>
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</table>
4.4 Identifying the counterfactual

Identifying the counterfactual is important to allow an analysis of the difference (and how much difference) there is between the activities and outcomes achieved as a result of the FM and those that would have taken place without them being in place.

With respect to the FM, the measures are not compulsory so we can find MS/Regions in which the measures were not implemented. However, those MS/Regions could not so easily be taken as robust counterfactual, for two main reasons. First MA and beneficiaries choose to implement them, depending on their needs and on other drivers: in MS/Region where the FM have not been implemented, it may be that support is not needed considering the local natural economic and social stakes, as for instance in LU or ML where the forest area is very limited. Second, some MS/Regions support operations that are similar to those eligible to the FM, through State Aids: in this case the FM haven’t been implemented but similar activities were carried out with public support. Besides, given that the FM are very diversified (e.g. afforestation, investment for firebreaks, investments in the processing sector, agroforestry, payment for environmental services, etc.), it was very difficult to set up a single counterfactual situation (before and after and with and without FM).

The approach we proposed was to identify, in neighbouring MS/Regions with natural, economic and social conditions, sufficiently comparable, “with” and “without” situations with regard:

- Support to the creation of new forest ‘agroforestry’ lands (M8.1 and 8.2)
- Support to the prevention and restoration of forests (M 8.3 and M 8.4)
- Support to environmental/climate investments and/or commitments (M 8.5 and M 15.1)

Measure 8.6 was not included in this analysis because it can cover many different types of operations (from activities in forest, to support to forest sector enterprises) difficult to compare and which are not distinguished in the budgets made available to us.

The detailed method to identify the counterfactual is presented in Annex 6: “with” and “without” MS/Regions could be identified for each of the three batches of measures presented above. Some key indicators were collected in each area, which provided information on the effectiveness of the FM.

4.5 Main limitations of the methods proposed

There are challenges in establishing the results that have occurred related to the forestry measures under Rural Development, given that:

- Results of projects in forestry occur in the very long term, making it difficult to appraise properly, with reliable hypotheses, the effect of the implementation of the measure whose effects will really become visible within several decades;
- The 2014-2020 RD measures have started to be implanted in 2015, and some have suffered significant implementation delays.

Hence, some of the main methodological challenges faced have been:

- The absolute lack of implementation data on the 2014-2020 RD measures
- The lack of geographical data at EU level to appraise the geographical distribution of the forests/stands concerned by the aids
- The limited financial and output indicators available at sub-measure level
- The lack of financial data on the share of the budget dedicated to forest in the RD forest and horizontal measures
- The difficulty to set up reliable counterfactual to really compare “with support” and “without support” situations
- The lack of studies on the socio-economic effects of the FM
- The lack of consensus among the authors on the projections of the forest sector within 20 to 30 years
Besides those general challenges, some limits related to specific EQs are presented at the beginning of the answer to each EQ in this report, in Chapter 5. These limitations inevitably weaken the robustness of the conclusions that can be drawn. Over the period of the evaluation we have reviewed the methodological approaches chosen and adapted these where necessary. We remain confident that the methods used are the appropriate ones with which to analyse the data which has been available.
5 ANSWER TO EVALUATION QUESTIONS

5.1 EQ 1 – Causal Analysis: What are the drivers behind implementation choices regarding the forestry measures and to which extent (i) at the level of the Member States administrations, (ii) at the level of the beneficiaries?

5.1.1 Understanding of the question

This question seeks insights about the underlying reasons for the decisions made by Member States’ (MS) or regions’ in choosing forestry measures (FM) for their RDPs, and the decisions made by forest owners, farmers, land managers and rural businesses to apply (or not) for the FM on offer. MS or regions have no obligation to select any of the FM for their RDPs, although some have well established forest programmes which have been supported by successive RDPs (and earlier programmes) while others have made significant changes in the FM programmed for the 2014-20 period, including ceasing to use some FM. Potential beneficiaries are free to choose whether or not to apply for support under these measures, which may involve multi-annual commitments and, in the case of 8.1 and 8.2, significant land-use changes.

Understanding the rationale for these choices helps to develop a picture of the extent to which MS/regions’ programming decisions were influenced by national policy frameworks, for example for forests, climate mitigation, nature conservation, bio economy and water, and the need to make forests more resilient to the effects of climate change. Considerations for beneficiaries might include, for example, economic benefits and opportunities for business diversification, the significance of changes in land use, the capacity to undertake the work required and, for farmers in areas of traditional agro-pastoral farming systems (not just in the Mediterranean), the effect on their CAP direct payments.

5.1.2 Method and limitations

The methodology was designed to uncover the real practical and political issues that have informed the choices made by managing authorities and beneficiaries, rather than examine the internal coherence of the RDPs.

The main sources of data are:
- The analysis of the RDPs
- for the drivers of choice by managing authorities, the responses to the questionnaire survey (QS) sent to 100 RDP managing authorities (MA) of whom 61 replied, and the analysis of the RDPs.
- for the drivers of beneficiaries’ choices, the 14 case studies (CS).

The questionnaire survey of managing authorities offered a lengthy list of possible drivers and also the opportunity to comment further on the reasons for choices made (see Annex 5). The analysis sought to identify consistencies and differences between the responses of the MAs, to explore the reasons they gave and to draw some overarching conclusions about drivers influencing their decisions, illustrated by appropriate examples. The analysis of the RDPs examined the forest relevant needs identified in each RDP (see Annex 2).

The 14 case study authors were asked to explore the motivations of beneficiaries’ decisions to apply (or not) for the FM, through interviews with a range of stakeholders and also to provide examples and explanations. The analysis was necessarily qualitative. There are significant limitations to both the CS interviews and the survey of managing authorities, especially for this EQ where the aim is to explore underlying reasons which may be sensitive for some interviewees. Both the CS and the MA survey are based on carefully structured questionnaires, but the information gleaned from these sources is necessarily qualitative rather quantitative, and variable in the quality and level of detail.

94 Including managing authorities, sector representatives, advisers and NGOs.
provided. It should be noted that for each of the CS several different stakeholders were interviewed, including the MAs, so it is not surprising that there are differences in emphasis on the importance of specific drivers between the two sources.

5.1.3 Drivers of managing authorities’ programming of the FM

5.1.3.1 Information from the analysis of the RDPs

Information extracted from the needs assessment in all the 2014 RDPs\(^95\) was used to develop a typology of forest-relevant needs in three categories – social, economic and environmental. In broad terms, social and economic needs tended to come from the forest sector, and environmental needs from local strategies and commitments, but fostering adaptation of forest ecosystems to climate change, protecting forests from natural disasters and increasing the use of bioenergy from forests featured in both categories (see Annex 2 for details). The following analysis is based firstly on more detailed replies to specific questions in the survey of managing authorities, and secondly on the CS reports. These two sources reflect many of the different types of needs identified in the review of 100 RDPs (Table 15) but also reveal a wider range of other drivers too.

<table>
<thead>
<tr>
<th>Table 15: Typology of the needs of the forest sector mentioned in the RDPs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social needs</strong></td>
</tr>
<tr>
<td>Improve the level of training of forest holders and of knowledge transfer</td>
</tr>
<tr>
<td>Stimulate innovation, applied research and experimentation and in forestry</td>
</tr>
<tr>
<td>Reinforce cooperation and the structuration of the forest sector</td>
</tr>
<tr>
<td>Promote forest as a natural/cultural heritage and develop tourism in forest</td>
</tr>
<tr>
<td><strong>Economic needs</strong></td>
</tr>
<tr>
<td>Improve the competitiveness of forest companies</td>
</tr>
<tr>
<td>Improve forest infrastructures for an improved mobilisation of timber</td>
</tr>
<tr>
<td>Increase the use of bioenergy from forest resources</td>
</tr>
<tr>
<td>Consolidation of forest land</td>
</tr>
<tr>
<td>Improve the market value of wood products</td>
</tr>
<tr>
<td><strong>Environmental needs</strong></td>
</tr>
<tr>
<td>Foster the adaptation of forest ecosystems to climate change</td>
</tr>
<tr>
<td>protection of the forest (from natural disasters)</td>
</tr>
<tr>
<td>Foster sustainable forest management 9ecofriendly practices/plan preparation)</td>
</tr>
<tr>
<td>Protect/consolidate forest ecosystems (biodiversity, soils, water…)</td>
</tr>
<tr>
<td>Reinforce/Ensure the protective role of forest</td>
</tr>
<tr>
<td>Promote the sequestration of carbon in forests</td>
</tr>
</tbody>
</table>

5.1.3.2 Drivers identified in the questionnaire survey of managing authorities

**Afforestation/creation of woodland (M8.1)**

The answers of 28 MA in the questionnaire survey identified the “increase the area of forest to address environmental concerns and contribute to climate change mitigation” as the most widespread the important factor in programming of M8.1. Consistency over the two programming periods was the second most important driver, associated with the need to ensure funding for commitments programmed during the previous period. Other drivers mentioned included protection of soils, enhancement of biodiversity, regional forestry programmes and Natura 2000 goals.

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\(^95\) Excluding those for the outermost regions.
Figure 34. Q: The support for afforestation/creation of woodland (sub-measure 8.1) was programmed in your RDP, in order to... (28 answers)

<table>
<thead>
<tr>
<th>Factor of primary importance</th>
<th>Factor of secondary importance</th>
<th>Not a relevant factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase the area of forest to answer environmental concerns and contribute to climate change mitigation</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
<td>Keep a continuity with the previous programming period</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>Encourage afforestation of marginal lands / abandoned or infertile agricultural lands</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>Encourage afforestation for the improvement of water quality (watercatchment management)</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Encourage afforestation for protection against floods, avalanches, erosion...</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Increase the production of wood</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Support farmers in the creation of Ecological Focus Areas</td>
<td>23</td>
<td>9</td>
</tr>
<tr>
<td>Encourage afforestation of other agricultural lands whose owners keep for patrimonial reason</td>
<td>11</td>
<td>17</td>
</tr>
</tbody>
</table>

Source: Alliance Environnement, Survey to the Managing Authorities, Sept. 2017

**Establishment of agroforestry systems (M8.2)**

Only 14 of the 61 MA who responded to the survey provided answers on the drivers of programming M8.2 (at EU level it is programmed in 37 RDPs).

Addressing environmental concerns or complying with environmental commitments (protection of water soil, biodiversity, carbon sequestration) and encouraging agricultural diversification were identified as important factors by the answering MA. Increasing timber production was not a prominent driver of programming this measure.

Consistency over the two periods is fairly important, and a wide range of other environmental drivers were also mentioned, including restoring and maintaining traditional agricultural and forestry practices in the dehesa-montado systems, creating biodiversity habitats and connecting strips of predominantly native trees (including fruit trees), improving soil quality and micro-siting blocks and strips of trees to intercept rainfall run-off containing diffuse pollutants will be intercepted. The creation of EFA was also mentioned as a driver.
Figure 35. Q: The support to establishment of agroforestry systems (sub-measure 8.2) was programmed in your RDP, in order to... (14 answers)

Source: Alliance Environnement, Survey to the Managing Authorities, Sept. 2017

Prevention of damages to forest from forest fire and natural disasters (M 8.3)

Just over half of the 61 MA who responded to the survey range of reasons for programming this measure, including maintaining the protective role of forests, securing timber producing resources against fire and natural hazards, and maintaining continuity with the previous period.

Figure 36. Q: The support to prevention of damages to forest from forest fire and natural disasters (sub-measure 8.3) was programmed in your RDP, in order to... (31-33 answers)

Source: Alliance Environnement, Survey to the Managing Authorities, Sept. 2017

Support for restoration of damaged forests from forest fire and natural disasters (M 8.4)

More than half of the 61 MA who responded to the survey answered this question (34-36 answers). The desire to insure against important local risks of natural disaster (e.g. fires, storms) was of primary importance in the decision to programme M8.4 in 25 of these RDPs.
Figure 37. Q: The support for restoration of damaged forests from forest fire and natural disasters (sub-measure 8.4) was programmed in your RDP, in order to… (34-36 answers)

Source: Alliance Environnement, Survey to the Managing Authorities, Sept. 2017

Support for investments improving the resilience and environmental value of forest ecosystems (M 8.5)

As might be expected, most of the 32-37 MA who responded to this question identified environmental and climate objectives as the main reason for programming M8.5. Increasing wood production/quality and improving sylvicultural management was a primary factor for 12 of them.

Figure 38. Q: The support for investments improving the resilience and environmental value of forest ecosystems (sub-measure 8.5) was programmed in your RDP, in order to… (32-37 answers)

Source: Alliance Environnement, based on 32-37 answers from Survey of the Managing Authorities, Sept. 2017

Support for investments in forestry technologies and in processing, mobilising and marketing of forest products (M8.6)

The economic target of M8.6 was clearly confirmed by the survey responses: “increase the mobilization of wood”, “support small wood companies, providing jobs in rural areas” and “support the structuration and marketing of the sector” were of primary importance for all the respondent MAs implementing M8.6.
Figure 39. Q: The support for investments in forestry technologies and in processing, mobilising and marketing of forest products (sub-measure 8.6) was programmed in your RDP, in order to... (33 answers)

Source: Alliance Environnement, based on 13-14 answers from Survey of the Managing Authorities, Sept. 2017

**Payment for forest-environmental and climate change commitments (M15.1)**

Although only 13-14 MAs responded to this question, clearly the main drivers for them are maintenance and improvement of forest habitats and ecosystem services, although half of them also mentioned continuity with the previous programming period and coherence with national or regional strategies. Climate mitigation was important for several of them (see figure below).

Figure 40. Q: The payment for forest-environmental and climate change commitments (sub-measure 15.1) was programmed in your RDP, in order to... (13-14 answers)

Source: Alliance Environnement, Survey to the Managing Authorities, Sept. 2017

**Support for the conservation and promotion of forest genetic resources (M15.2)**

At EU level, only 16 RDPs programmed M15.2, and 10 of the 61 MAs who responded to the survey answered this question. A wide range of factors have led to programming this new sub-measure, of which the cultivation and conservation of rare trees is the most cited. Other drivers included monitoring local forest genetic resources and setting up a national planning framework for the conservation of forest genetic resources.
5.1.3.3 Drivers of managing authorities/ decisions not to programme FM

The MA were asked why they had chosen not to programme some measures. For those who replied, the two most important factors are that other issues are more important to address in the RDP that the measure doesn’t address local needs. The latter is of concern, particularly for M15, given the scope available to tailor most of the sub-measures.

Table 16 Reasons for choosing not to programme the FM in 2014-20 RDPs

<table>
<thead>
<tr>
<th>Reasons/multeasure</th>
<th>8.1</th>
<th>8.2</th>
<th>8.3</th>
<th>8.5</th>
<th>8.6</th>
<th>15.1</th>
<th>15.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other issues/sectors more important to address in the RDP</td>
<td>9</td>
<td>17</td>
<td>10</td>
<td>8</td>
<td>7</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td>The measure does not address local needs</td>
<td>8</td>
<td>20</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>Other factors</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Equivalent FM 2007-13 was too much of an administrative burden</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>More relevant strategy (State Aid) chosen to meet local needs, via State Aid</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Insufficient applicants for equivalent FM 2007-13</td>
<td>6</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>More relevant strategy (other RDP measures) chosen to meet local needs</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>7</td>
</tr>
</tbody>
</table>

5.1.3.4 Drivers identified in the Case Studies

The 14 CS illustrate the range of different drivers of MAs’ choice, design and implementation of the FM. Some are common to many or all of the CS, others are quite clearly related to the context of particular CS (for example, characteristics of the forest and agriculture sectors and policies, land-use systems, historic factors and, in some cases, recent external events including storm damage and outbreaks of pests and diseases).

Groups of drivers identified by the CS are discussed below, illustrated by examples of their differing effects.

- **Consistency, continuity and stability of funding opportunities:** This was a significant driver in many of the CS, especially where measures were perceived to have worked well in the past (AT, UK-Scot, IT-Camp). This driver influenced both the choice of measures and the relative budget allocations between measures. In some cases, the scope of the measures has been changed, for example in ES-Gal in response to changes in legislation which prohibits afforestation on agricultural land, the afforestation measure is now targeted at shrub land.
• **Maintaining and improving the contribution of the forestry sector to the national/regional economy** was seen as important in several CS (e.g. afforestation of marginal farmland in UK - Scot, providing employment in BG). Specific drivers include improving productivity, sylvicultural management and quality (AT), competitiveness and technological efficiency (ES - ClM), and in some cases increasing the forest area (BG, DE - MK) and LT). Several CS indicated varying degrees of dependence of the sector on continued government support. In contrast, in Sweden where the forest sector is a mainstay of the national economy, it is a fundamental principle that forest-based industries should not depend on support from the state to be profitable, and that support should not increase the productivity of forestland or the competitiveness of the sector. State support to forest owners is allowed only if it does not affect the profitability of the business.

• **Contribution of the sector to other policies: SFM, multifunctional forestry and biodiversity** management were important drivers of the choice of specific measures in some CS but more rarely mentioned as drivers of the programme as a whole. Climate adaptation is a significant factor in many CS (AT, SK), not just in those that had recently suffered catastrophic events. Climate mitigation and LULUCF were rarely mentioned as drivers, except in Scotland where the government’s climate mitigation strategy includes the objective of planting 10,000 ha of new forests per year. This has led to a very strong focus on M8.1, and reduced budgets for other objectives, including SFM. In Austria, where there is a strong tradition of forestry, the forest policy objectives were set in 2006 in the Austrian Forest Dialogue. Multifunctional forest management is seen as a driver of rural development, and the use of environmental forest management is encouraged, for example for watershed protection and the maintenance of cultural landscapes.

• **Demand from the forestry sector and other stakeholders** influenced the continuation/adaptation of existing FM and the introduction of new ones. Achieving consensus of the actors involved was a main driver in IT-Camp, and also in AT where there was a shared consensus between forest owners and environmental NGOs on the need to support environmental/social forest priorities.

• **Reduced RDP budget and/or share of the budget:** there were several examples where a reduced RDP budget and/or a reduced share of overall budget allocated to the FM had an impact on the programming decisions. In some cases, this was the consequence of underspending the FM in the previous period but, in a few cases, it was suggested that division of institutional responsibilities and also political/sectoral influences resulted in a less favourable RDP allocation for the forest sector compared to the farming sector. In Greece, the financial crisis and austerity measures drastically reduced the RDP budget for 2014-20.

• **Major events external to the RDP** had an impact on the choice and targeting of 2014-20 FM in two CS. Restoration work after major storm damage (and improving resilience to future storms) was a driver in SK and FR - Aq.

• **Technical, administrative and advisory capacity of managing authorities.** The changes in the EAFRD regulations concerning FM were relatively minor between the two periods, but when the MAs were choosing their FM for 2014-20 they were all coping with major changes in other aspects of programming the CAP. It is not surprising that pressure on resources and workload acted as a disincentive to choosing new measures and innovative approaches in some MA. In others, more specific problems were identified, including shortcomings of the advisory services and out of date skills (BG), an emphasis on agricultural advice at the expense of forestry advice, and problems associated with a new IT application systems (UK - Scot).

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96 Including significant changes in the programming framework and payment control requirements for the 2014–20 RDPs, and in Pillar 1 CAP measures and the associated effects on RDP land management measures.
• **Lack of uptake of specific measures and focus on certain types of beneficiaries.** Where the uptake of specific measures (particularly new ones) had failed to meet targets in the previous programming period, some CS RDPs scaled back these measures for 2014-20 and others removed them altogether (e.g. only covering existing commitments under measure 8.1 in SK). Several CS stakeholders commented on a programme focus on larger forestry operations and businesses, making it more difficult for smaller enterprises (including some municipalities) and small or communal forest owners to access support (ES-Gal). Reaching these smaller owners had previously been a problem in FR-Aq but much improved uptake was achieved by focusing on providing information and support for this group.

The major drivers of MAs’ choice of FM in the CS are summarised by RDP and by FM in Annex 7.

**5.1.4 Drivers of beneficiaries’ decisions to apply for FM**

Each of the CS gathered opinions on the factors influencing the decisions of beneficiaries applying for FM through with interviews with MA and a wide range of stakeholders. There were several common themes in the drivers described, but considerable variation in whether these acted as push factors or barriers. This variation could be seen between CS, within CS between different measures or types of beneficiary. However, in several examples there was agreement between the stakeholders within a CS on the strength and effects of specific drivers.

The main groups of drivers that are believed to influence beneficiaries’ decisions are discussed below. The full results of the survey to MA in Annex 6.1.2 illustrates some of the drivers of and barriers to beneficiaries’ choice of FM.

- **Experience of forestry measures in earlier programmes**
  This was a significant push factor on beneficiaries’ decisions, in several CS, particularly for the FM 8.1, 8.3, 8.4 and 8.6.

- **Economic or strategic effects on the business and ‘profitability’ of the measures**
  Beneficiaries’ expectation of positive benefits for their business and/or income was a key driving factor noted in almost all of the CS (but not necessarily for all measures or all beneficiaries). Several interviewees commented on the importance of ‘profitability’ in beneficiary decisions for several different measures, particularly 8.1 and 8.6. Support under 8.1 for afforestation of marginal farmland was seen as an opportunity for a medium to long-term return on investment in UK-Scot, and in HU as an opportunity in the medium-term to take a crop of fast-growing species for pulp markets, with the option of returning the land to agriculture later. 8.1 was attractive to owners of abandoned or unused farmland, while 8.2 provided a diversification opportunity for farmers with marginal land.

- **Administrative requirements and delays in implementation and payment**
  The complexity of the application process, required documentation and ‘bureaucracy’ in general were seen as significant barriers in several CS (IT-Camp, ES-Gal, AT, UK-Scot, SK, FR-Aquit). It was also noted that the time taken to process applications could mean that when approval was obtained it was too late in the season to implement the measure. Simplification of the rules, reduced administration and increased premiums for 15.1 in SK were perceived to encourage applications.

- **Payment rates**
  The proportion of eligible costs covered by the support can be an incentive (e.g. 100% of eligible costs for measures 8.3-8.5 in SK, relatively high premiums for establishing recreational facilities in HU). Elsewhere lower rates acted as a barrier (50% for public beneficiaries of 8.6 in IT-Camp).

- **Availability of administrative or technical capacity**
  Several CS noted that smaller beneficiaries (public and private) may lack the technical capacity or access to upfront financial resources to prepare project plans and forest management plans required as part of the application process (ES-Gal). Others may struggle with requirements to submit applications electronically. Unfamiliarity with new
measures, lack of up-to-date management skills and poor-quality advice resulting in unsuccessful implementation were a disincentive for applicants. In contrast, in SK the work of forest advisors and forest owners’ associations in providing information on 15.1 and helping with applications was seen as a positive driver.

- Control over land and property rights
This was a factor in some specific cases. In AT, where most forests are privately owned and self-determination is an important principle of forest management, there is a fear among owners that opting for environmental measures risks losing control of their property rights (this is linked to an ongoing conflict about forest Natura 2000 designations). In HU, unmanaged forests have been a growing problem for many years, for reasons that are unclear but generally attributed to the unfavourable ownership structure which is dominated by common ownership.

5.1.5 Conclusions on EQ1
Of the two main sources of information used to answer this EQ the survey of MAs had much wider coverage but the 61 responding RDP authorities were self-selected; a wider range of stakeholders were interviewed for the CS, but only in 14 RDP areas. Nevertheless, the results are broadly similar and it is clear that there are some common drivers of decisions about choice and implementation of the EAFRD forestry measures and state aids, and some informative examples of their effects in practice. The analysis of all the RDPs revealed that some of these drivers occurred in the needs assessment but, in most RDPs, forest needs are less well developed than those of agriculture and are also shaped to a certain extent by the programming framework and focus.

The drivers of beneficiaries’ decisions on whether or not to apply for forestry measures which are based on information from a selection of the CS, are influenced not just by managing authorities’ choice of measures on offer, but also the administrative effort and costs involved for the applicant and the availability of technical advice and other ‘soft’ support. Perhaps this is most clearly seen in the case of small forest holdings and of (relatively) new forestry measures such as 8.2, 15.1 and 15.2.

Key drivers for both managing authorities and beneficiaries appear to be successful implementation in previous periods, continuity of well-established support, financial considerations and simplicity of administration. The longevity of these factors across programming periods reflects the permanence of forestry as a land use, its importance in some rural economies, the long rotation cycle of many sylvicultural systems and the major changes required to improve forest resilience to increasing risks of pests/disease damage, storms, floods and drought/fire, as a result of climate change. However, in some case studies there appears to be a degree of policy inertia (a ‘business as usual’ approach) and perhaps also a reluctance to try new measures. In several RDPs the budget for forestry measures was constrained for the 2014-20 period and in some case studies there was a view among stakeholders that forestry was of lesser importance than agriculture, institutionally or politically, and this was reflected in budgets.

Although financial considerations and business benefits such as resilience to the effects of climate change or opportunities for diversification are probably the most widespread drivers for beneficiaries, the availability (or lack) of information, support in applying for RDP schemes and up-to-date technical advice is also important especially for smaller beneficiaries.

5.2 EQ 2 - Effectiveness: To what extent have the forest measures resulted in changes in land use and in the creation of additional ecological focus area (landscape features, agroforestry, etc.)?

5.2.1 Understanding of the question

5.2.1.1 Analysis on land use and changes in management practices
The first part of the EQ asks whether the implementation of FM measures 8 and 15 has led to changes in land use, (e.g. afforestation of agricultural land). Actually, only M8.1
(afforestation and creation of woodland) and M8.2 (establishment and maintenance of agroforestry systems) of the present programming period are concerned. Their equivalents in the previous period are: 221/223 (first afforestation of agricultural/non-agricultural land), and 222 (first establishment of agroforestry systems on agricultural land). All the others do not directly lead to a change in land use.

To round out the analysis, a first appraisal of the changes that do not concern directly land use by itself but rather changes in management has been conducted for other sub-measures such as (M8.6) in sylviculture and improvement of forest stands, (M8.4) for reforestation of damaged forests and (M8.5 & M15.1) management of forests for biodiversity purpose, etc.

5.2.1.2 Analysis of the creation of additional EFAs

The second part of the question is related to the implementation of the greening measures of the CAP, in particular the creation of additional ecological focus areas (EFAs) with trees. EFAs cover a broad range of features, among which two types are directly related M8.1 or M8.2 support:

- **Hectares of agroforestry** (noted ‘EFA-Agroforestry’ hereinafter): only areas that received or have received support from EAFRD in 2007-2013 or 2014-2020 can be taken into account (Reg. 639/2014, recital 53)
- **Afforested areas** (noted ‘EFA-Afforested areas’ hereinafter): areas eligible for direct payment in 2008 and that have received support for afforestation from EAFRD in 2007-2013 or 2014-2020 can be taken into account under this category of EFA (Reg. 1307/2013, Art 32. ii)

The answer to EQ1 analysed the extent to which M8.1 and 8.2 resulted in the creation of EFAs declared as ‘Hectares of agroforestry’ and ‘Afforested areas’.

5.2.2 Method and limitation

5.2.2.1 Analysis of land use and changes in management practices

The method developed to answer this part of the question was to compare (1) the area which was (and is expected to be) converted to forest by means of the afforestation measures (M221, M223 and M8.1), with (2) the global evolution of the forest area over the same period.

- For the 2007-2013 period: (1) the output indicators of M221 and 223 provided a quantified assessment of the area of land which was converted to forest by means of the 2007-2013 RD measures. (2) The evolution of the forest area over the 2007-2013 period was provided by the National Inventory Reports (NIRs).

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97 Ecological focus areas (EFAs) are areas that are targeted to bring benefits for the environment, improve biodiversity and maintain attractive landscapes within agricultural land (Recital 44 of Regulation (EU) 1307/2013). Since 2015, every farmer in the European Union who claims a direct payment and has more than 15 hectares of arable land has to have 5% of his/her arable land covered by EFAs.

98 Including: land lying fallow; terraces; landscape features, buffer strips, agroforestry, strips along forest edges; areas with short rotation coppice with no use of mineral fertilizer and/or plant protection products; afforested areas; areas with catch crops or green cover established by plantation and germination of seeds; areas with nitrogen-fixing crops, etc.

99 Other kind of EFA, such as wooded landscape features (hedges or wooded strips, isolated trees, trees in line, trees in groups and field copses, field margins) can be indirectly related to the forest measure: in particular, the maintenance of some landscape features can be supported by measure 15.1, if the area is classified as forest. In this case the RD measure may theoretically be an incentive to the maintenance of EFA, but will not have any effect on the creation of additional EFA.

100 It is important to note that there is not any EU-scale monitoring indicator on land-use change between forest and agricultural lands, such as the one existing on land-use change between agricultural and artificial lands (AEI).
For the 2014-2020 period: The target values of the 2014-2020 output indicators provided insight into the area that is expected to be converted to forest. Those target values needed to be used carefully, given that the goals set may not be reached.\textsuperscript{101}

This method provided quantitative insight into the contribution of M8.1 and 8.2 to land-use change. This was cross-checked with qualitative information from the case studies (i.e. opinion of the local stakeholders on the role of the measure on land-use change) and information from the National Inventory Reports (NIRs).

The counterfactual to compare with and without situations was used only qualitatively as comparable situations were very difficult to find out.

Analysis of changes in management practices relies on information from the CS and the description of the FM in their RDPs. The typology of the operations supported by the FM was established, to identify to what extent they support innovative management practices.

5.2.2.2 Analysis of the creation of additional EFAs

The analysis under this part of the EQ relies first on the CAP monitoring data and on MS declarations regarding the EFAs in 2015 and 2016: we analysed the MS implementation choices on EFA-Agroforestry and EFA-Afforested areas and compared the area declared as EFAs with the areas supported through M8.1 and 8.2. This qualitative assessment on the contribution of M8.1 and 8.2 to the creation of EFAs was cross-checked with information for the CS, i.e. the opinion of stakeholders on the relevance of the FM to create EFAs. The drivers toward the implementation of EFAs, conducted within the framework of the evaluation of the greening of direct payment, provided additional qualitative information regarding farmers’ choices on ‘EFAs with trees’.

Apart from the general limitations mentioned in §4.5, the main limits of the analysis is that we mostly identify the ‘potential’ of the FM to contribute to land-use change and the creation of EFA, but could not obtain evidence of an actual and continuing land-use change on the afforested area. Geographical information on the area afforested, established as an agroforestry system and declared as EFA, is only available at MS level and requires a request to the LPIS national systems: hence we have not been able to:

- trace the evolution of the afforested areas over time to make sure they are still wooded land, or
- distinguish which are the plots declared as EFA among those supported by RD measures during the previous and current programming periods.

This is limit to the method is balanced by the qualitative information coming from the CS, i.e. through an assessment of the kind of land afforested (e.g. marginal lands or not) and the future of the stands overtime.

5.2.3 The implementation of forest measures 8.1 & 8.2 (and their equivalent of the previous period) resulted (or not) in changes in land use

5.2.3.1 Changes in land use by afforestation of agricultural and non-agricultural land (M8.1)

In this paragraph, we investigate the extent to which M8.1 and M221 & 223 have contributed to an evolution of land use.

The table below shows the area that was converted to forest by the means of RD afforestation measures. It is compared to the total forest area and with the forest area increase from 2007. Table 19 in Annex 8 provides the same information for every MS/Region which has implemented M221, M223 or M8.1 (53 RDPs concerned).

\textsuperscript{101} On the 2007-2014 programmes, at the EU-28 scale, the outputs in terms of afforested area from M221 reached only 46 % of the initial target value.
Table 17: Synthesis of the comparison of afforested areas with support of RD measures 221&223 during the preceding programming period, MS target for the corresponding RD measure 8.1, and existing forest lands at EU 28 level

<table>
<thead>
<tr>
<th>a. Area afforested with M221 support (output 2007-2013) (ha)</th>
<th>b. Area afforested with M223 support (output 2007-2013) (ha)</th>
<th>c. Area afforested with M221 &amp; M223 support (output 2007-2013) (ha)</th>
<th>d. Area to be afforested with M8.1 support (target 2014-2020) (ha)</th>
<th>e. Total forest land in 2006 (ha)</th>
<th>f. Share of afforested with M221 &amp; M223 support in the Total forest land (c/e)</th>
<th>g. Increment in forest area 2007-2013 (ha)</th>
<th>h. Share of afforested with M221 &amp; M223 support in the Increment 2007-2013 (g/e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>53 RDP concerned</td>
<td>203 881</td>
<td>83 609</td>
<td>287 490</td>
<td>565 277</td>
<td>94 302 688</td>
<td>0.305 %</td>
<td>NA</td>
</tr>
<tr>
<td>EU-28</td>
<td>203 881</td>
<td>83 609</td>
<td>287 490</td>
<td>565 277</td>
<td>192 940 934</td>
<td>0.149 %</td>
<td>924 270</td>
</tr>
</tbody>
</table>

Source: a. and b. Output indicators 2007-2013 (SFC extraction January 2017); d. Targets of the CMEF indicators 2014-2020 (SFC extraction January 2017); e. & g. EFI

On the 2007-2013 period, the area afforested with RD support is small when compared to the total forest land but represent an increase of 1 to 2 % of the forest area in some MS/Regions such as ES – Asturias, ES - Castilla y León, ES – Galicia, HU, LT, UK – England, UK - Northern Ireland, and of 3 % in UK – Scotland. Besides, this has to be placed into the context of long rotation periods in forestry. None of the forestry measures can change forest in one year and even over a programming period.

The comparison with the increase of the forest area over the same period shows that the area afforested (287 490 ha) by means of M221 and 223 (equivalent to M8.1) represents one third of the increase of EU forest recorded between 2007 and 2013 (924 270 ha), even though they were implemented in half of the MS/Region. This shows that these FM played a significant role in improving the afforestation of these areas, in comparison to natural afforestation coming from abandonment of agricultural land.

During the 2007-2013 period, more than 2/3 of the afforested areas was established on prior agricultural land, as most afforested areas were supported under measure 221 (71 %). Furthermore, the table below shows that almost half of the afforested areas concerned broadleaved stands, whereas a slightly less than a quarter were coniferous stands and another was mixed plantations. At the EU-28 level, fast-growing species remained marginal in the supported afforestation with less than 2 % of the acreage, although they could be significant or even dominant in some areas like HU, some Italian RDPs or GR.

Table 18: Share by type of afforestation areas supported under measures 221 & 223 of the previous period

<table>
<thead>
<tr>
<th>a. Coniferous</th>
<th>b. Broadleaves</th>
<th>c. Fast growing species</th>
<th>d. Mixed plantations</th>
<th>e. Total (ha) (a+b+c+d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure 221</td>
<td>33 829</td>
<td>16.59 %</td>
<td>117 027</td>
<td>3 756</td>
</tr>
<tr>
<td>Measure 223</td>
<td>34 118</td>
<td>40.81 %</td>
<td>26 516</td>
<td>1 167</td>
</tr>
<tr>
<td>Measures 221&amp;223</td>
<td>67 947</td>
<td>23.63 %</td>
<td>143 543</td>
<td>4 923</td>
</tr>
</tbody>
</table>

Source: Output indicators 2007-2013 (SFC extraction January 2017)

Concerning the 2014-2020 period, the target of M8.1 of 565 277 ha provides insight into the potential contribution of M8.1 to land-use change in the forthcoming years. If those

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102 The forest areas used as reference for the 2007-2013 period are extracted from EFI Forest Map of Europe, 2006
103 The afforestation over a previous 60-year period (1950-2010) represented more than 34 million ha in the EU 28, meaning on average around 570 000 ha each year. ‘Afforestation area relative to total forest area in 2010’, Vilén T., Lindner M., (2014). Effect of afforestation on the mean forest age in Europe. In Research Gate.
104 Art. 22 of Reg. 1305/2013 specifies that the species planted shall be adapted to environmental and climatic conditions of the area, and shall comply with environmental requirements.
targets were achieved, the area afforested with RD support would represent 32 to 55 % of the increase of the forest area between 2015 and 2020.\textsuperscript{105}

Considering a scenario of 2/3 of the targets achieved,\textsuperscript{106} M8.1 could contribute to the creation of 350 000 to 400 000 ha of additional forested area by 2020, which is 1.2 to 1.4 times the achievement of the previous period.

The CS showed that, in some MS/Regions, this measure is a key factor supporting afforestation: for example, in Scotland, the CS states that almost all planting is undertaken with support through FM. To a lesser but still significant extent, RD measures were estimated to account for 55 % of the increase of forested lands in LT.

On the other hand, we also noted that for some RDPs it was more difficult to achieve afforestation targets due to some restrictive conditions to afforest agricultural land.\textsuperscript{107}

This phenomenon is a wider cause of forest land increase through natural expansion. According to CS, the main drivers behind this dynamic are emigration and aging of the population, effect of the economic crises as well as other factors, all of which resulting in farm disappearance (ES-Galicia, LT). Hence, M8.1 can play a certain role in reducing depopulation of rural areas, by setting up stands in which sylvicultural activities can brings job opportunities to these areas.

5.2.3.2 Changes in land use by establishment of agroforestry systems (M8.2)

In this paragraph, we investigate the extent to which M8.2 and its equivalents in the previous period M222 have contributed to the evolution in land use.

The table below shows the area that was established in agroforestry systems by the means of RD agroforestry measures, based on the RDPs monitoring data. It is compared to the extent of agroforestry in the MS.\textsuperscript{108} Table 21 in Annex 8 provides the same information for every MS/Region which has implemented M222 or M8.2 (23 RDPs concerned).\textsuperscript{109}

Table 19: Synthesis of the comparison of agroforestry areas established with support of RD measure 222 during the preceding programming period, MS target for the corresponding RD measure 8.2, and existing UAA

<table>
<thead>
<tr>
<th></th>
<th>a. Area of agroforestry established with M222 support (output 2007-2013) (ha)</th>
<th>b. Area of agroforestry to be established with M8.2 support (target 2014-2020) (ha)</th>
<th>c. Total agroforestry (2012)</th>
<th>Target 14-20 / Total agroforestry</th>
<th>Executed 07-13 / Total agroforestry</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE (total)</td>
<td>38</td>
<td>150</td>
<td>43700</td>
<td>0.34%</td>
<td>0.087%</td>
</tr>
<tr>
<td>ES (total)</td>
<td></td>
<td>58778</td>
<td>5584400</td>
<td>1.05%</td>
<td>0.000%</td>
</tr>
<tr>
<td>FR - National</td>
<td>1112</td>
<td>4170</td>
<td>1562200</td>
<td>0.27%</td>
<td>0.071%</td>
</tr>
<tr>
<td>GR</td>
<td>2000</td>
<td>1616400</td>
<td></td>
<td>0.12%</td>
<td></td>
</tr>
<tr>
<td>HU</td>
<td>1482</td>
<td>38100</td>
<td>4.72%</td>
<td>3.890%</td>
<td></td>
</tr>
<tr>
<td>IT (total)</td>
<td>24</td>
<td>2090</td>
<td>1403900</td>
<td>0.15%</td>
<td>0.002%</td>
</tr>
<tr>
<td>PT - Continental</td>
<td>243</td>
<td>2372</td>
<td>1168300</td>
<td>0.20%</td>
<td>0.021%</td>
</tr>
<tr>
<td>UK (total)</td>
<td>546</td>
<td>551700</td>
<td>0.10%</td>
<td>0.000%</td>
<td></td>
</tr>
</tbody>
</table>

\textsuperscript{105} Based of the projections provided by the EFISCEN model, EFI: the lowest estimation corresponds to an increase of the FAWS area of 1 million ha between 2015 and 2020, in the hypothesis of a scenario described as “fragmented world with modest economic growth, high population growth, high growth of food and feed demand, weak regulation on land use change”. A highest estimation corresponds to an increase of the FAWS area of 1.7 million ha, in the hypothesis of a nature protection scenario.

\textsuperscript{106} This ratio is based on the 46 % ratio between the target value established at the beginning of the programming period and the targets really achieved, over the 2007-2013 period.

\textsuperscript{107} E.g. in ES-Galicia, the CS states that the Forest Laws are not favourable to afforestation of agricultural lands, as this is forbidden unless the land has been abandoned and listed on a ‘land bank’ for at least two years. But even in this case the achievement under M221 and M8.1 is still significant (72 % of the target reached), mainly because agricultural land abandonment is high.

\textsuperscript{108} Established by AGFORWARD, WP1: Current extent and trends of agroforestry in the EU27, based on LUCAS data, 2012

\textsuperscript{109} 77 RDP concerning part of totality of 25 MS have chosen not to programme M8.2, hence in these areas, the agroforestry FM have not or will not resulted in any change in land use.
During the 2007-2013 period, 2 900 ha of agroforestry areas were established by means of M222: this represents 0.024% of the area of agroforestry systems in the EU in 2012. In four of the five MS/Regions that supported the establishment of agroforestry systems under M222 in the EU-27, the measure resulted in an increase of under 0.1% in agroforestry surface area. HU stands out as having achieved a fairly high rate compared to the area of existing agroforestry systems there (3.9% of the national agroforestry area in 2012).

For the present programming period, M8.2 is planned in 27 RDPs within eight MS. As for the previous programming period, the implementation of the measure is concentrated in Mediterranean countries with a tradition of agroforestry management systems (ES, IT, GR, PT). The M8.2 targets provide insight into the potential contribution of M8.2 to land-use change in the forthcoming years. The 2014-2017 target at the EU scale is almost 25 times higher than the achievement of the previous period: 71 906 ha are expected to be established. That would represent an increase of approximately 0.5% of the total extent of agroforestry at the EU level. But those objectives may not be reached: in the previous period, only 18% of the planned expenditure on M222 was executed.

The CS confirmed potential difficulties in implementation. In the four CS where M8.2 is programmed, three showed that M8.2 was suffering implementation delay (ES-Galicia, HU, GR). They also provide explanations for the limited achievements of M222 and targets for M8.2. Firstly, agroforestry corresponds to a very significant change in the agricultural system of farms and it is not yet a well mastered system, except in some very old systems such as dehesas in Spain and montados in Portugal. Secondly the lack of incentive of this measure, which supports only 80% of the cost of afforestation and maintenance costs for a maximum period of 5 years, is also mentioned as a significant limit. The questionnaire survey to MA provided complementary information on the implementation delays: of the sixteen respondent MA that had programmed M8.2, four had not started the implementation as of June 2017.

The above analysis of the monitoring data and of the information collected in the CS led to the conclusion that the overall effect of M222 and M8.2 in land use has been and will remain limited, even if this measure remains relevant in the evaluators’ point of view.

5.2.4 Forest measures 8.3, 8.4, 8.5, 8.6 and 15.1 implementation over the two studied periods resulted (or not) in the evolution of management practices of forests

The analysis of the contribution of M8.3-6 and 15.1 to the evolution of management practices was based on the identification of the different types of operations (TO) that may receive RD support, in the RDPs of the CS areas. The table below shows the number of CS in which each type of operations is planned to be granted, under each of the relevant sub-measures.

<table>
<thead>
<tr>
<th>a. Area of agroforestry established with M222 support (output 2007-2013) (ha)</th>
<th>b. Area of agroforestry to be established with M8.2 support (target 2014-2020) (ha)</th>
<th>c. Total agroforestry (2012)</th>
<th>Target 14-20 / Total agroforestry</th>
<th>Executed 07-13 / Total agroforestry</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU 28</td>
<td>2900</td>
<td>71906</td>
<td>15421000 (excluding Croatia)</td>
<td>0.47%</td>
</tr>
</tbody>
</table>

Source: a. b. SFC database (extraction January 2017); c. AGFORWARD, based on LUCAS data (2012 survey)

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110 Namely BE–Flanders, FR– National, HU, IT–Veneto, PT–Continental Portugal

111 For example, CS on ES–Galicia showed difficulties linked to the eligibility conditions, as in this region afforestation on agricultural lands is forbidden unless the land has been abandoned and listed in a ‘land bank’ for at least two years

112 This table shows a great variety of types of operations by sub-measure, which is confirmed by several publications treating the previous period, such as: ‘Support for Innovation in Forestry in Rural Development
Table 20: Occurrence of types of operations by sub-measure in the 14 case studies RDPs

<table>
<thead>
<tr>
<th></th>
<th>8.3</th>
<th>8.4</th>
<th>8.5</th>
<th>8.6</th>
<th>15.1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Production planting</strong></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>Ecological – climate conversion / planting</strong></td>
<td>1</td>
<td>6</td>
<td>12</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td><strong>Replantation or restoration of stands</strong></td>
<td></td>
<td></td>
<td></td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td><strong>Sylviculture – Improvement of stands for economic purpose</strong></td>
<td>6</td>
<td>1</td>
<td>6</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td><strong>Sylviculture – Management of stands for ecological/climate purpose</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Maintenance or creation of forest reserve</strong></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td><strong>Payment for natural commitments</strong></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Source: Alliance environnement, based on RDPs contents

Among those practices the effects on the management of stands are different:

- **Production planting** (supported in 4 out of 14 CS) are plantations for timber production purpose. Most of the time it consists in the reconstitution of forest stands with no major change in the orientation of the stand. However, in most the cases this support is conditional to the existence of a forest management plan or an equivalent instrument as for all M8 support. This rule can lead to some changes in practices (e.g. exclusion of exotic species).

- **Ecological – climate conversion / planting** (supported in 7 out of 14 CS) can of course significantly change the management of the concerned stands from 'light' operations of shade plantation of broadleaves trees under coniferous, up to conversion of coniferous monoculture stands to mixed or broadleaves species.

- **Replantation or restoration of stands** (supported in 13 out of 14 CS) normally does not lead systematically to significant changes in management; however, in the two case studies in which significant reforestation was done, they have led to the improvement of the quality of the stand and of their resilience (e.g. FR-Aquit. and UK-Scot).

- **Sylviculture – Improvement of stands for economic purposes** (supported in 5 out of 14 CS) mostly maintains the management goals as they were, but clearly increases the economic value of stands, the quantity of wood on the market and the adaptation of the final stand to market requirements.

- **Sylviculture – Management of stands for ecological/climate purposes** (supported in the 14 CS) should lead to changes in the management practices tending towards more extensive production, notably by the removal of invasive plant species, the preservation of rare and dead woods or even withdrawal of some tree species from the market, and preservation of rare and dead woods or even withdrawal of some stands from the market (DE-Meck), as shown below.


114 This kind of intervention goes from 'light' operations of under shade plantation of broadleaves trees under coniferous (e.g. in DE – Mecklenburg), up to conversion of coniferous monoculture stands or coppice forest to mixed or broadleaves high-stem forest (BG, HU)

115 AT, IT, SW, UK.

116 HU, UK.

117 AT, DE-Mecklenburg.
• **Maintenance or creation of forest reserves** (supported in 2 out of 14 CS: AT, IT-Camp.) are dedicated to forests to be removed from production. In this case, changes in management practices should be significant.

• **Payment for natural commitments** are difficult to interpret, as their description is based on the payment of additional costs or income foregone, but with no specific operation linked. Nevertheless, they should lead to more extensive practices preserving the ecosystems services provided by the concerned forests.

Hence, the types of operations included in the FM can have various effects on the future management of the concerned stands. As this typology did not exist in the monitoring system of the previous period, it was not possible to get sufficient detail to weight financial share.

Nevertheless, the equivalents of M8.5 (227) and 15.1 (225) which respectively accounted for 8 and 1 % of the EAFRD expenses between 2007 and 2014 are now budgeted at 20 % and 4 % of public expenditures, showing a greater focus on environmental operations in the present period.

Furthermore, the RD horizontal measures such as 1 (training), 2 (advice) 4.3 (infrastructure), 12.2 (Natura 2000 in forest) and 16 (cooperation) allow RDPs to provide forest holders with a large range of tools supporting changes in management practices toward sustainable forest management and the enhancement of the multifunctionality of forests. Nevertheless, there is not any breakdown in the budget allowing us to measure to what extent they concern forest.

5.2.5 Forest measures implementation of the present programming period resulted (or not) in the creation of additional ecological focus areas (landscape features, agroforestry, etc.)

5.2.5.1 Information from the MS choices regarding the area to be considered as EFA

Member States have to establish the list of the types of management or features, among the features listed in the previous paragraphs, which farmers are permitted to choose to meet their EFA obligations. The choices of MS to record ‘Hectares of agroforestry’ and ‘Afforested areas’ as EFAs, gathered in the framework of the Evaluation of the CAP greening measures (Alliance Environnement, 2017) give an initial view of whether measures 8.1 and 8.2 resulted in changes in land use and in the creation of additional ecological focus areas. The MS/Region choices for the 2017 implementation year are shown in Annex 8 (Table 22). The result at the EU-28 level is summarised in the table below:

<table>
<thead>
<tr>
<th>EU-28</th>
<th>a. 221 and/or 8.1 programmed</th>
<th>b. Afforested areas can be declared as EFAs</th>
<th>c. 222 and/or 8.2 programmed</th>
<th>d. Hectares of agroforestry can be declared as EFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 MS</td>
<td>15 MS</td>
<td>10 MS</td>
<td>10 MS</td>
<td></td>
</tr>
</tbody>
</table>

Source: a. and c.: RDP content; b. and d.: MS implementation choices for 2016, compilation produced by Alliance Environnement for the evaluation study on the 'greening' of direct payments, 2017.

• Concerning afforested areas:
  - In 10 MS (CY, CZ, DE, ES, FR, HU, IT, PL, PT, RO) and 3 Regions (BE-FL, UK-NI, UK-WA), the areas afforested through measures 221 or 8.1 may have contributed to the creation of additional EFAs. The extent to which the measures contributed to the evolution of the EFA area is analysed in the following paragraph.
  - In 9 MS/Regions (AT, BG, DK, GR, LT, LV, SK, UK-EN and UK-Scot.), afforestation measures have been implemented, but the afforested area cannot contribute to EFA according to the choice of the MS.

118 We determined from our counterfactual analysis that, in MS/Regions in which neither these measures nor equivalent state aids were implemented, such operations have rarely been set up.
In IE and LU, afforested areas can be declared as EFA, but afforestation has not been supported by RD measures. However, afforestation may have been supported by equivalent national schemes.

Concerning agroforestry:
- In a large majority of MS and Regions, areas established as agroforestry systems with the support of RD are not considered as areas eligible as EFA.
- In 5 MS (ES, FR, HU, IT, PT) and 2 Regions (BE-FL, UK-NI), the areas established as agroforestry systems through measures 222 or 8.2 may have contributed to the creation of additional EFA. The extent to which the measures contributed to the evolution of the EFA area is analysed in the following paragraph.
- In 3 MS (CY, DE, LU), the area that received or are receiving support from EAFRD in 2007-2013 or 2014-2020 are considered as EFA by MS, but the corresponding RD measures (222 and/or 8.2) have not been implemented in the areas. Thus, while the measures may have led to the creation of areas contributing to safeguard and improve biodiversity on farms, those areas cannot be identified as additional EFAs.

5.2.5.2 Estimation of the area of EFA created by means of M8.1 (afforestation), based on the CAP monitoring data

Based on the CAP monitoring data, the following table shows the area of EFA-Afforested areas, and the area afforested with RD support, in the 13 MS where afforested areas can be declared as EFA.

<table>
<thead>
<tr>
<th>15 MS with EFA-Af.</th>
<th>a. Area of EFA-Afforested areas in 2016 (ha)</th>
<th>b. Area afforested with M221 support (output 2007-2013) (ha)</th>
<th>c. Area to be afforested with M8.1.1 support (target 2014-2020) (ha)</th>
<th>d. Share of EFA in the area afforested with M221 support (a/b)</th>
<th>e. Share of afforested areas decl. as EFA in the Total EFA (a/Total EFA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50 805</td>
<td>137998</td>
<td>428967</td>
<td>36 %</td>
<td>0.57 %</td>
</tr>
</tbody>
</table>

Source: a. Direct payment monitoring data (‘Greening’ evaluation study, Alliance Environnement, 2017); b,c. SFC databases (extraction January 2017)

Among the 13 MS/Region concerned at the EU level, 11 declared some afforested hectares as EFA (BE-FL, CZ, DE, IE, ES, IT, HU, PL, PT, RO, UK) in 2015 and 2016. At the EU-level, 25% of the area afforested by means of M221 was declared as EFA. However, in most of those MS (BE, CZ, DE, HU, IT, PL, PT), the area declared as EFA-afforested area is far less than the afforested area. It is not the case in ES and RO, where the area respectively 94 % and 65 % of the area afforested with M211 was declared as EFA, explaining the EU average of 36%.

The analysis of EFA monitoring data showed that out of the 11 MS concerned, only 2 have EFA-Afforested area which contributed to more than 1 % of the total EFA (PT: 3.7% and ES: 2.3 %). At the EU level, EFA-Afforested areas accounted for 0.7 % of total EFA area in 2015, and 0.6 % in 2016. (the reason for the decrease between 2015 and 2016 remains unexplained). The main MS where farmers have declared afforested areas as EFA is Spain with 69 % of the EFA area declared in 2015.

The targets of M8.1 (c. in the table above) provide insight into the potential contribution of M8.1 to the creation of additional EFA-afforested area in the forthcoming years: 428967 ha are expected to be newly afforested or maintained in the . Both agricultural and non-agricultural land are eligible for measure 8.1: based on the repartition of afforestation on agricultural and non-agricultural land in the previous programming period, we can consider that 70 % of the land concerned by M8.1 by 2020 will be agricultural land. With this hypothesis, M8.1 could contribute to the creation of approximately 300 000 ha of additional EFA-afforested area over the 2014-2020 period, which would represent +3% on the basis of the total EFA area in 2016 (8.9 Million ha). However, it has to be kept in mind that, so far, only 25% of the afforested area was...
declared as EFA: this decision is up to farmers. Furthermore, on the 2007-2013 period, only 46 % of the objectives in terms of area to be afforested was achieved at the EU-28 scale. If the same rates of declaration as EFA and of achievements of the objectives occur on the 2014-2020 period, M8.1 would led to 34 500 ha of additional EFA.

5.2.5.3 Estimation of the area of EFA created by means of M8.2 (establishment of agroforestry systems), based on the CAP monitoring

In this paragraph, we investigate the extent to which the measures contributed to the evolution of the EFA area. ‘Hectares of Agroforestry’ was selected as potential EFs in 5 MS (ES, FR, IT, HU and PT) and 2 MS regions (BE-FL and UK-NI). However, as shown in the table below, only two MS declared some areas in 2015 and/or 2016: BE and UK. In these two MS, EFA Agroforestry represented 8 and 9 ha respectively in 2015, as shown in the table below. CY, DE and LU are missing in the table as agroforestry RD measures have not and are not planned to be implemented in those MS. Thus, the FM have not resulted in the creation of EFAs in those MS.

### Table 23: Comparison of Area established as agroforestry systems with support of RD measure 222 during the preceding programming period, MS target for the corresponding RD measure 8.2 and monitoring data of hectares of agroforestry areas declared as EFA

<table>
<thead>
<tr>
<th>Country</th>
<th>a. Area of EFA-Hectares of agroforestry in 2016 (ha)</th>
<th>b. Area established as agroforestry system with 222 support (output 2007-2013) (ha)</th>
<th>c. Area to be established as agroforestry with M8.2 support (target 2014-2020) (ha)</th>
<th>Share of EFA in the area established as agroforestry with RDP support (a/b)</th>
<th>Share of ha of ha of agroforestry in the Total EFA (a/Total EFA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE-Flanders</td>
<td>29</td>
<td>38</td>
<td>150</td>
<td>77%</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>ES</td>
<td>0</td>
<td>0</td>
<td>58 778</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>FR</td>
<td>0</td>
<td>1 112</td>
<td>4 170</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>HU</td>
<td>0</td>
<td>1 482</td>
<td>1 800</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>IT</td>
<td>0</td>
<td>24</td>
<td>2 090</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>PT</td>
<td>0</td>
<td>243</td>
<td>2 372</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>UK-Northern Ireland</td>
<td>6</td>
<td>0</td>
<td>52</td>
<td>11%</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>10 MS/Regions concerned</td>
<td>35</td>
<td>2861</td>
<td>698 080</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: a. Direct payment monitoring data ('Greening' evaluation study, Alliance Environnement, 2017); b,c. SFC databases (extraction January 2017)

Even though a total of 2 900 ha was established as agroforestry systems with support from measure 222 in the previous programming period, only 35 ha of those have been declared as EFA so far. Consequently, the contribution of measure 222 to the creation of EFA is negligible.

The targets of M8.2 provide insight into the potential contribution of M8.2 to the creation of additional EFA-agroforestry in the forthcoming years, keeping in mind that the declaration of the supported area as EFA is up to farmers. Considering an optimistic scenario of 2/3 of the target reached, 119 , around 45 000 ha of additional EFA-agroforestry could be created with RD support over the 2014-2020 period, representing +0.53 % on the basis of the total EFA area in 2016 (8.9 Mha).

5.2.5.4 Additional information regarding the practices of the stakeholders regarding ‘EFA with trees’

The investigations on the drivers behind the implementation of EFAs, conducted within the framework of the evaluation of the greening of direct payments, showed that the gap

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119 i.e. for measure 221 in the 2007-2013 period only 46 % of the target was achieved at the EU-28 scale.
observed between the eligible afforested or agroforestry land and the area declared as concerning EFA may be explained by several factors:

- A lack of information among the farmers on the fact that those areas are eligible as EFA, and farm advisers focusing mostly on agricultural features such as land lying fallow, catch crops or nitrogen fixing crops;
- The fact that those types of EFA are more complicated for farmers to declare than EFA corresponding to agricultural plots, and in some cases potential reluctance to declare ecological features above 5% of the UAA due to fear that additional rules may be enforced in those areas;
- Concerning more specifically agroforestry, the fact that there can be a large proportion of farms among the beneficiaries of M222 & 8.2 that are exempted from the 5% EFA rule (organic farms, very small farms (UUA<15ha) or farms with 75% of their UAA in grassland).

5.2.6 Conclusion

Only FM 8.1 and 8.2 and their equivalent in the previous programming period (221, 222 & 223) could lead to change in land use as such.

At the EU level, M221 and 223 on afforestation (equivalent of M8.1) were implemented in 53 RDPs in 19 MS. If compared to the increase of forested area over the period, M221 (equivalent to M8.1) proved to be a key measure to act on land-use change, as it supported one third of the increase of 924 000 ha of forest area between 2007 and 2013, even if programmed in only half of the RDPs. In our opinion, it could even play a more significant role if a more incentive-type approach could be established. We will come back on this point in the conclusions-recommendation chapter.

In terms of types of forest, the created stands were mostly broadleaf stands, whereas slightly less than a quarter were coniferous stands and another were mixed plantations. Fast-growing species remained marginal in the supported afforestation with less than 2% of the acreage, even if they could be significant in a few RDPs. This shows that afforestation was more oriented to broadleaf and mixed stands as coniferous cover presently 49% of the EU 28 forest area.

At the EU level, for M222 on agroforestry (equivalent of M8.2), only 5 RDPs out of 28 in which M8.2 was planned contributed to establish agroforestry systems. None of them contributed to a significant increase of agroforestry systems. To a certain extent this is logical as agroforestry corresponds to a very significant change in the agricultural system of farms, and the level of support is not high enough to push the possible candidate to make the change. The ratio of RDPs having taken the measure during the previous period and of places in which the measure was really implemented (18%) confirms the difficulty in finding farmers ready to make this significant change.

Furthermore, for both M8.1 and 8.2, it appears that in MS/Regions in which these measures were not opened or in which there were no equivalent state aids, the voluntary creation of stands or agroforestry farms was very limited. This shows that the availability of these measures had an effect.120

In terms of creation of EFAs, neither measure was implemented very much. Nevertheless, in ES and RO, the areas declared as EFA–afforested area represent a significant share of the area afforested with RD support in the 2007-2013 period. Thus, M221 significantly contributed to the creation of EFAs in those MS (ES: 93.48%, RO: 65.40%). For M8.2, the contribution of its equivalent in the previous period (M222) to the creation of EFA was negligible.

Among the measures that could lead to changes in management practices (8.3, 8.4, 8.5, 8.6, 15.1), the CS RDPs analysis shows that a wide range of operations is available, allowing forest owners to choose the type of management they want from production to production to...
conservation. The comparison between the expenses of the previous period and the budget of the present one shows an increase in the environmental measures. 121

5.3 EQ 3 – Effectiveness: To what extent have the forestry measures influenced forestry production in terms of (i) Quantity; (ii) Quality; (iii) Producer prices; (iv) Geographical distribution?

5.3.1 Understanding of the question

A significant portion of the evaluated forestry measures is dedicated directly or indirectly to the production of wood and other related forest products such as cork, fruits, mushrooms, etc. (e.g. measures 8.1, 8.2, 8.4, 8.6, etc.)

Besides these measures that have an effect on forest production, some measures relating to forest protection (8.3), cooperation (M9/M16) and genetic quality (M15.2) may also have had an indirect effect on forestry production. They have thus been included in the answer to this EQ.

Finally, some measures are dedicated to environmental, climate or social services and forest conservation (M8.5 and 15.1) and may have an effect on the reduction of the production of wood 122 by setting up reserves in which the exploitation of wood could be limited or even forbidden (even if these measures are very rarely programmed).

Hence, this question is to see whether these measures targeting plantation, improvement of existing stands and changes in management practices have influenced existing forestry production in terms of quantity, quality, producer prices and geographical distribution.

5.3.2 Method and limitation

The analysis followed different methods with regards the four subjects to be treated:

- Effect on production in terms of quantity:
  - for the FM supporting the plantation of trees (M8.1, 8.2, 8.4), the additional volume produced by the established stands was estimated based on the MS net annual increment and on the measures monitoring data (achievement 2007-2013 and targets 2013-2020). The views of the representatives of the forest sector that was collected in the CS complemented the analysis with quantitative data.
  - For the other FM: their effects have been appraised qualitatively based on an analysis of the types of operations supported by the measures and on their potential to impact on the local wood production, and on information collected in the CS.

- Effect on production in terms of quality and geographical distribution: the assessment was based on the analysis of the potential effect each sub-measures and on information from the case studies.

Besides the limits in Section 4.5, answering this question required the establishment of many assumptions on the long-term effect of the supported operations, the perspective of wood production and of changes in management practices. Actually, these stands need decades to grow before reaching the real production phase, even if some wood can be produced at intermediary stages before the final harvest. 123 Hence, the assessment bears a high level of uncertainty. For geographical distribution, it was limited by the lack

121 Increase of the budget of M8.5 from 8 to 20 % in comparison to M227 and of the budget of M15.1 from 1 to 4 % in comparison to M225.

122 Furthermore, these Restrictions on Nature and Landscape can lead to costs and losses for state budget, forest enterprises and wood processing companies. Salvage felling woods located in protected areas that are not processed can be expressed through loss of sales for the wood processing industry. Kovalcik M., Sarvasova, et al (2012), 'Financial and socio-economic impacts of nature conservation on forestry in Slovakia'.

123 The Guide to Cost-Benefit Analysis of Major Projects, In the context of EC Regional Policy (EC 1997) suggests that a time horizon of 25-35 years can be considered appropriate, but in some cases of forestry interventions it may be appropriate to extend the horizon.
of data on the location of the supported operations. CS provided some qualitative information in this domain.

The second main difficulty in answering this question was to assess the relative share of the concerned operations compared to existing forests within the EU, as no forestry measure can change the forest sector very quickly. It is thus necessary to appraise this effect in a long-term perspective. Without such assumptions, the measured effect would be systematically underestimated and considered as very marginal.

Besides, the assessment on the effect on producers’ prices was impossible: the assumptions of the evolutions of wood markets in 2060 or more would be too uncertain to come to any conclusion.

5.3.2.1 Changes in forest production in terms of quantity by afforestation of agricultural and non-agricultural land (measure 8.1 and its equivalents in the previous period 221 & 223)

The RDPs monitoring data provided the area afforested and expected to be afforested and/or maintained by means of the FM. The volume of wood produced being directly related to the forest surface, the corresponding volume of wood was estimated based on the net annual increment (in m³/ha/year) available at MS level.

### Table 24: Expected production from areas afforested under M221&223 and M8.1

<table>
<thead>
<tr>
<th>a. Area afforested with M221+223 support (2007-2013) (ha)</th>
<th>b. Area to be afforested with M8.1 support (target 2014-2020) (ha)</th>
<th>c. Net Annual Increment (m³/ha/yr)</th>
<th>d. Volume of wood potentially produced by afforested areas (a x c) (m³/yr)*</th>
<th>d. Volume of wood potentially produced by afforested areas (b x c) (m³/yr)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>53 RDP concerned by the afforestation measures</td>
<td>287 490</td>
<td>565 277</td>
<td>6.52</td>
<td>&gt; 1 483 985</td>
</tr>
</tbody>
</table>

* Missing GR and PT

Source: implementation data processed by Alliance Environnement, Net Annual Increment: FAO, FRA 2015

The volume produced on the areas supported by M221 and 223 was estimated to 1.4 million m³/year, and that the area afforested and/or maintained on the 2014-2020 period could be produced 2.3 million m³/year. This is generally limited at EU-level: it represent 0.4% of EU-28 net annual increment (approx. 720 million m³/year). However, this can be quite significant in some specific area: e.g. in the UK, 383 320 additional m³ produced per year on the areas afforested by means of M8.1 would correspond to 4% of the average annual total wood removal between 2007 and 2011 in the UK (9.2 million m³). Furthermore, afforested and maintained area can be expected to have a better production rate than the national average. Based on the hypothesis that similar measures would be implemented on the long term, in some MS/Regions in which significant afforestation has been carried out (e.g. ES-Galicia, UK-Scotland, etc.) the share of production coming from the stand afforested under this measure could represent up to 20% of the local production within some decades, if the stands are maintained properly.

In the ten CS where M8.1 have been implemented, the representatives of the sector provided the following information: in most cases, the stakeholders consider that it will have little impact on the production in terms on quantity: the additional production will be very small compared to the global production, and the effects are on very long term, which implies high uncertainty. That is also true in area where the measure have been

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124 GR and PT, where respectively 34000 and 16745 are expected to be afforested over the 2014-2020 period, are missing in the calculation because the Net Annual Increment

125 Source of the data: FAO, Forest Resource Assessment 2015
implemented in the objective to answer the need of local wood supply, including with the plantation of fast-growing trees (IT-Camp., HU, LT). UK-Scot. is the only case where M8.1 is expected to result in a significant increase in the quantity of timber available: 60% of the afforested areas (corresponding to the coniferous and 7-8% of the broadleaves stands) is intended especially for wood production.

5.3.2.2 Changes in forest production in terms of quantity by establishment of agroforestry systems (measure 8.2 and its equivalents in the previous period 222)

The RDPs monitoring data showed that M222 led to the establishment of 2,900 ha in agroforestry system and that M8.2 is expected to support the creation of 71,906 ha of agroforestry. The wood production coming from these plantations will remain very marginal. But even if this increment is low, these trees grow on agricultural land where previously there were generally no or few wood-producing trees, other forest products or new ecosystem services.

The four CS where afforestation measures have been implemented confirmed that the establishment of agroforestry systems by means of the FM is expected to have only a marginal effect on the production of wood.

5.3.2.3 Changes in forest production in terms of quantity by preventing natural disasters (M8.3 and M226/Prevention)

M8.3 and M226 have supported actions such as firebreaks construction or maintenance, the installation of surveillance towers or water points, the setting up of prevention schemes and even sylvicultural operations to reduce the inflammability of stands which help protect forests against fires and of course the surrounding areas. Those actions do not result in additional production but ensure the maintenance of the production capacities.

The RDP monitoring data gave an estimation of the area that was concerned by such actions on the 2007-2013 period: 8.6 Million ha were concerned by actions of prevention from for forest fire, and about 1 Million ha from natural disasters, which is about 5% of the EU forest area.

The opinions collected in the CS confirmed the importance of this prevention measures on the production capacities. In very productive areas such as FR-Aquit. and ES-Gal., the representatives of the sector highlighted that public investments positively impact the forest holders willingness to invest in forests.

The box below shows an example of the result of operations in FR-Aquit. that led to a very significant reduction of forest fire numbers and of damaged area over the past 60 years. Funded nationally before the availability of EU funds, they are now funded by both EAFRD and national sources. This example shows that, in the most threatened regions, protection against fires can result not only in the maintenance of production capacity, but also in the preservation of inhabited areas which finally and naturally constitutes the foremost goal in the event of forest fires, as the first goal of the firemen is to save people.

**Box 3: Example of FR-Aquit.: the indirect effect of fire protection operations over the past decades.**

After the Second World War, the pine forest of Aquitaine was severely damaged by huge forest fires due to the lack of infrastructure and firefighting organisation. This situation led to the destruction in the 1950s of almost 1/3 of the 1 million ha forest by several huge fires. In the following decades, the French state and the Aquitaine forest sector itself began work to develop firebreaks construction and maintenance, surveillance organisation and equipping of fire brigades. This led to a reduction in the effects of forest fires, despite a continual increase in their number. Over the past 10 years on average, there have been 1,204 fires per year in Aquitaine, destroying on average 1 ha per fire in highly inflammable areas. This shows that the fire protection system became highly effective in this region over the recent decades; M8.3 and 8.4 have been central in supporting this effort.
5.3.2.4 Changes in forest production in terms of quantity by restoring damaged forests (M 8.4 and M226/Restoration)

The RDP monitoring data provided the area restored by M266 and 8.4. The restoration of damaged stands over the 2007-2014 period by M226 (equivalent to M8.4) was significant, with 572837 ha restored. This represents 0.3%\(^{126}\) of the forested land of the EU-28 but a much higher percentage in the affected regions (e.g. more than 5% of the total forest area was reforested with the support of the FM in FR-Aquit. And SK). As for M8.1, the potential volume of wood produced by on those area could be calculated: using the EU average net increment of 6.52 m\(^3\)/ha/yr, the area restored on the 2007-2013 period have the potential to produce about 3,7 Million m\(^3\) per year. Besides, the implementation of a similar measure over 50 years could help restore the productive and ecological capacity of forests in at least 2 or 3 % of the EU forest, which is significant. Further, due to the forecasted increase in storm occurrence, the effect of this measure is expected to increase in the future\(^{127}\).

The CS confirmed the importance of the measures to ensure the maintenance of the production capacities. In FR-Aquit, where the forest sector is very organised and supported by research, the restoration campaigns led from 1999 (after the storm Martin) involved the use of hybrids whose growth potential is up to 30% higher than the previous stands: this is expected to have a significant effect on production in the following years and to balance the wood deficit resulting from the storm.

5.3.2.5 Changes in forest production in terms of quantity by measure 8.6 (and its equivalent M122 & 123)

The graph below shows this variety of types of action ranging from planting and sylviculture to support to operators of the sector to buy machinery, based on the analysis of the 11 CS where the measure have been implemented.

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\(^{126}\) It is important to note here that the budget of the RDPs does not change if a very significant storm occurs. In such an event, the managing authorities must find the means to restore damaged stands with the rest of their RDP budget, which entails a reduction in other activities. Additionally, state aid can be established to support the damaged regions. For example, in France, following the Klaus storm, 650 M€ was spent to restore the damaged stands and only 15 % came from the EAFRD, the rest being national support.

\(^{127}\) There is some evidence that storm intensity is increasing and that storm tracks are penetrating further into mainland Europe and along a wider swathe, increasing the risk to forests in Eastern Europe. [...] If the current build-up of growing stock continues together with predicted changes to the climate, damage levels are expected to at least double, and possibly quadruple, by the end of the century. Gardiner, B. et al. (2013) Destructive Storms in European Forests: Past and Forthcoming Impacts
Investment in sylvicultural machinery have been supported in nearly all the RDP where M8.6 have been programmed, and have a direct effect on the local capacities to mobilize wood.

Some case studies reveal a direct positive impact on harvest due to the improvement of mechanization:
- In GR, the support to forest cooperatives and forest businesses for equipment and machinery is believed to have contributed to their being able to maintain their activities and continue logging, in particular in mountainous and hard-to-access areas (animals were also eligible); however, the quantitative effect is hard to appraise.
- In FR-Aquit., the funding of 96 skidders, 85 fellers and 25 harvester heads over the 2007-2013 period is considered as having had a significant effect on logging production after the Klaus storm, for the harvesting of 200 000 ha of damaged forest.

On the other hand, in SK this support is considered as having had more impact on quality, as new equipment is considered effective in reducing losses and damages during felling operations.

Besides these operation related to harvest of production, many RDPs introduced measures supporting plantation and sylviculture (e.g. HU introduced support in 2016 for tending young stands, thinning and pruning, and the FR-Aq RDP includes measures for pruning stands, etc.

**5.3.2.6 Changes in forest production in terms of quantity due to non-productive investments and payment for environmental commitments (M8.5, M227 and 15.1 and M225)**

The typology of the operations supported under M8.5 and 15.1 in the 12 concerned CS shows and the analysis of the RDP showed that those measures support operation are will not lead to a change in the production in terms of quantity. Planting is financed in some cases, but it does not target production. Besides those measures are mostly implemented on forest areas which are not used as productive forests.

Case studies generally confirmed this point of view. In DE-MV only, where M15.1 was expected to be implemented on a large scale and where there is a lack of local wood supply, the stakeholders did questioned the impact of environmental commitments on local production.
5.3.2.7 Conclusion of the effect of FM on production in terms of quantity

The effect of the FM on EU production of wood has to be studied in a long-term perspective to avoid underestimating the effects of these measures. Currently, the rotation of EU stands ranges from 50 to 70 years or more for most of conifers, and for broadleaved trees up to one century or more. Hence, estimating the effects of the FM under a programming period of seven years automatically leads to figures showing little effect.

This means that, most of the time, the effects observed in a programming period have to be multiplied at least by 10 in order to estimate the real potential effect of the FM over the long term.

The table below shows the observed effects of the FM on production by sub-measure; however, it should be kept in mind that the present monitoring systems does not enable us to quantitatively measure most of the effects.

Table 25: Main effects of the FM over the previous period (2007-2014)

<table>
<thead>
<tr>
<th>Effect of the FM on production</th>
<th>M221/223 Equiv 8.1</th>
<th>M222 Equiv 8.2</th>
<th>M226 Equiv 8.3</th>
<th>M226 Equiv 8.4</th>
<th>M227 Equiv 8.5</th>
<th>M122/123 Equiv 8.6</th>
<th>M225 Equiv 15.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very significant in some regions and represent 1/3 of the natural increment of forest area</td>
<td>Very significant in sensitive regions but difficult to measure</td>
<td>Significant at EU level and of course in the concerned regions</td>
<td>Limited effect on production</td>
<td>Limited effect on production but effects in the harvest (see EQ 5)</td>
<td>Very little effect</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Synthesis done by Alliance Environnement

The above table shows that not all the measures have an effect on production, but the whole set is coherent so as to ensure sustainable forest management that simultaneously produces wood, other forestry products (e.g. cork, fruits, etc.), ecosystem services as well as economic opportunities for rural populations.

Besides the direct or indirect effects on production, the sylvicultural operations financed through FM (planting, thinning, pruning, etc.) of course lead to the improvement of the quality of wood which is treated in the next criteria.

5.3.3 The Forestry Measures had (or not) an effect on the quality of the produced wood

As said before, most of the effects of FM will happen in several decades. However CS showed that a number of operations supported by the FM are expected by the local stakeholders to impact on the quality of the future forest products. The following table summarises the potential effect of the operations supported by the FM on the quality of the future forest products, using the typologies of operation presented in the above section.

Table 26: Types of effects on wood quality of the operations financed by FM based on case studies

<table>
<thead>
<tr>
<th>Planting</th>
<th>Sylviculture, maintenance</th>
<th>Fencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measures mostly concerned</td>
<td>8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 15.1</td>
<td>8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 15.1</td>
</tr>
<tr>
<td>Effect</td>
<td>Genetically improved seedlings. Improved management.</td>
<td>Thinning / pruning: improved rectitude, avoiding the formation of knots</td>
</tr>
</tbody>
</table>

Source: Synthesis done by Alliance Environnement

This analysis showed that most of the FM include operations leading to an improvement of the quality of stands.

The
Nevertheless, except for restoration of damaged stands that led to replantation of more than 557 000 ha, for the other activities the monitoring that has been established does not make it possible to appraise the magnitude of the concerned areas.

Furthermore, many MS/Regions also have state aids that cover the same domain. In addition, many owners carry out sylviculture and reforestation by themselves, even without support. Hence, above and beyond the difficulty of appraising the concerned areas, it is also difficult to evaluate the relative share of these improvements coming from the FM, not to mention external factors that also influence this quality.

It is nevertheless obvious that sylvicultural operations such as thinning and pruning, etc. will in the future have significant effects on the quality of wood produced and even bring to the market some by-products (e.g. trees extracted during thinnings) that provide material to the forest operators.

### 5.3.4 The Forestry Measures had an effect (or not) on producer prices

As mentioned in the paragraph on methodology above, due to the very long-term perspective of selling of wood stemming from FM, estimation of the future effect of the FM on the price paid to producers is not possible (This assertion has been confirmed by several CS). It is nonetheless obvious that if the quality of the products is improved (see paragraph above) the price paid to producers will also be better.

Even if we cannot provide a quantitative answer to this question, it is important to note that the price paid to producers has to at least cover their costs. Otherwise, the forest would be more or less abandoned, and this could lead to a decline of the sector as well as to a degradation of the ecosystem services associated with these forests. We will come back to this topic in the last chapter on conclusion-recommendations.

### 5.3.5 Effect of the Forestry Measures on geographical distribution

The maps included in paragraph 2.2.2 ‘Implementation choices by sub-measure, in comparison with 2007-2014 achievements’ of the present report show the distribution of M8 and M15 implementation choices in the EU-28, over both the 2007-2013 and the 2014-2020 periods. The analysis conducted in this part is broadly based on these maps, as well as the outputs of EQ2 and previous EQ3 chapters, as the implementation data available at EU level do not give detailed information on the location of the actions supported under the FM.

#### 5.3.5.1 Effect of M8.1 (and its equivalent M221&223 for the previous period) on the geographical distribution

In this paragraph, we compare the share of the types of afforestation supported under M221 & 223 with the prior existing composition of forest stands in the concerned RDPs, in order to see whether FM contributed to change in forest type distribution over EU or, rather, comforted forest types.

<table>
<thead>
<tr>
<th>Table 27: Repartition by type of afforestation areas (ha) supported under measures 221 &amp; 223 of the previous period for the 19 concerned MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>----------------</td>
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<tr>
<td>AT</td>
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<td>BE</td>
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<td>CY</td>
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<td>IT</td>
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<td>LT</td>
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<tr>
<td>LV</td>
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</table>
Spain is by far the main MS in which afforestation was the most implemented (77 873 ha), followed by UK (61 112 ha), PL (36 763 ha) and to lesser extent HU (26 737 ha) and LT (25 991 ha).

Most of the operations focused on broadleaved plantations (almost 50 % of overall afforested areas), even in many countries where coniferous stands are dominant. This shows a tendency for diversification of forest composition, which is the outcome of several objectives. The most obvious of the latter would be improvement of biodiversity and adaptation of forest composition to climate change, mixed with economic objectives. A few Southern RDPs are exceptions showing the opposite tendency. In these cases the goal was clearly to primarily set up productive plantations.

Considering the possible use of productive arable agricultural lands for the implementation of afforestation under M8.1, the following comments can be made from the CS review:

- Most afforestation occurred on land with low productivity, and some RDPs even make this an eligibility criteria, so that in general M8.1 is not implemented to the cost of agricultural potentiality.
- Afforestation on agricultural lands is nevertheless made possible for a few RDPs, but because this is seen as a way of avoiding land abandonment and only after fulfilling specific requirements (e.g. ES-Galicia).
- As this kind of afforestation measure has been in place for a long time, some CS point out risks that further afforestation will now occur more often on agricultural lands. This was not the case in the previous periods, marginal land having been afforested (UK-Scotland, ES-Clim).

It should be noted that 5 RDPs, which did not activate the M221 & 223 are now planning to implement M8.1 and that, on the contrary, among the 53 RDPs which have implemented M221 & 223, 14 RDPs (26 %) do not plan to conduct more afforestation through M8.1. The effect of this measure should thus decrease but should not necessarily be considered a step back. For example, case studies showed that in Spain, where very

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128 For example, in German RDPs, a very small share of afforested areas concerns coniferous plantations (less than 8 % for DE-Sachsen and less than 2 % for the others, except for DE-Sachsen-Anhalt with 35 %). The same is observed for some mountainous countries like Austria and Slovakia, where mixed plantations have been preferred to strictly coniferous stands.

129 Three Spanish RDPs (ES-Asturias, ES-Galicia, ES-Madrid) with 67 % to 93 % of the afforested areas concerning coniferous stands having an objective of production. Four Italian RDPs (IT-Friuli-Venezia Giulia, IT-Lombardia, IT-Toscana, IT-Veneto) with 61 % to 80 % of the afforested areas concerning fast-growing species. These operations clearly pursue purely economic objectives of wood production.

130 This is confirmed by several publications indicating that forestry planting is concentrated on poorer hill land. 

131 ES-Galicia: afforestation on agricultural lands is forbidden by law, expect for areas that have been abandoned for more than 2 years / ES-Clim: M221 has been affecting mostly marginal agricultural lands / HU: most afforestation occurred in sandy regions, where the forest cover is relatively low and the site conditions are not favourable for agriculture / IT-Campania: afforestation occurred mainly in marginal parcels and in hilly and mountainous areas / UK-Scotland: planting is generally on poorer hill farms with owner/occupiers or large sporting estates, and much less planting is taking place on better agricultural land.

132 ES-Murcia, FR-Bretagne, FR-Poitou-Charentes, GR, IT-Sardigna

133 AT, DE-Baden-Württemberg, DE-Bayern, DE-Sachsen, DE-Sachsen-Anhalt, DE-Schleswig-Holstein, DE-Thüringen, ES-Andalucía, ES-Aragón, FR-National, IT-Toscana, IT-Molise, IT-Sicilia, NL.
significant afforestation has been carried out over the past periods, meaning that afforestation has still a role in developing these lands and in preventing their abandonment.

5.3.5.2 Effect of M8.2 (and its equivalent M222 for the previous period) on geographical distribution

As previously shown in EQ2, a broad share of the actions supported through M222 or planned under M8.2 concern Mediterranean countries, so that this measure clearly has a geographical differential effect. This results in enhancement of an existing tendency, as agroforestry systems traditionally are more developed in this biogeographical zone. However, as the effects of these measures (whose goal is not to change geographical distribution but to make agricultural production extensive) were shown to be limited due to the low uptake and surfaces concerned, these measures do not deeply transform EU forest geographical distribution either.

5.3.5.3 Effect of M8.3 & 8.4 (and their equivalent M226 for the previous period) on geographical distribution

As the maps included in Chapter 2 show, there is a clear geographical tendency in the share of M8.3 & 8.4 and the previous M226, which mostly follows the RDPs’ vulnerability to forest fires. Hence, these measures have more influence in the Southern countries and, to a lesser extent, in some continental countries like Bulgaria or Slovenia. This is more visible for M8.3, for which sensitive countries dedicated a significant share to prevention actions such as surveillance towers or construction and maintenance of firebreaks. Most of the time, M8.4 is opened in most of RDPs with a low share of the budget, as the fire occurrence probability over the period is not possible to anticipate.

Storm hazards seem to influence the implementation of these measures less, but they are also more difficult to link with geographical location of countries. An explanation could also be that the frequency of very damaging storms has been less regular in the past or was less expected than the annual summer fire hazards increasing in Southern countries. There are exceptions to this, for example the FR-Aquit. region, which was struck by the 2009 Klaus storm only 10 years after the 1999 Lothar and Martin storms, which represents a very small return time. Hence, in this region M8.3 & 8.4 have a significant share of the RDP budget, and we should also keep in mind that the region is also quite vulnerable to forest fires. Projections on climate change effects predict a higher frequency of this kind of natural disaster all over Europe, which may make M8.3 & 8.4 even more important in the future.

5.3.5.4 Effect of 8.5 (and its equivalent M227 for the previous period) on the geographical distribution

Considering together the type of operations supported, the small proportion of them being able to influence production, and the share of expense dedicated to them, M227 and M8.5 do not have clear influence by themselves on production in terms of geographical distribution. Consequently, the only geographical influence of this measure depends on the differences in implementation choices, but this seems to remain marginal compared to other measures like M8.1 or 8.3 & 8.4.

M227 was implemented in a large number of RDPs all over the EU-28, representing 10 % of the FM expenses. The Regions with the highest share of implementation are Spanish

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134 77 873 ha afforested over 2007-2013, mostly in Castilla-la-Mancha (38%) and Galicia (33%).
135 According to the MA met in these CS, the objectives are already or very close to being achieved. Therefore, further action would have negligible results or would have to take place on agricultural lands but it is currently forbidden, for example in Galicia except if the land has been abandoned for more than 2 years.
136 57 % of the overall Utilized Agricultural Area in the EU is classified as Less Favoured Area.
137 See the breakdown of supported operations for M8.5 based on the case studies in EQ3 chapter, criterion 1.
and Italian RDPs, and to a lesser extent German, British and Danish RDPs, so that the effect of this measure was higher in these MS.

For the 2014-2020 period, according to the objectives of implementation, the same countries are still on the top in terms of budget allocation to M8.5. However, Latvia and three central Europe RDPs (Austria, Slovakia, Croatia) have raised their objectives for this measure and reached similar planned shares of expenses as the leading MS/Regions in this domain.

5.3.5.5 Effect of 8.6 (and its equivalents M122 & 123 for the previous period) on geographical distribution

The breakdown of operations planned to be supported under M8.6 showed that almost half of the types of financed operations concern machinery, processing and marketing. This measure also concerns forest production by itself through planting and sylvicultural operations (thinning, pruning), but the geographical distribution of implemented operations is difficult to appraise, as there is no mapping system in place to locate them.

Nevertheless, M8.6 is sometimes implemented with eligibility criteria that clearly aim at making geographical differences: for example, in FR-Aquit., a priority criterion is given to Dordogne & Pyrenees during the current period to balance the previous choices for M123B that were giving priority to the Landes de Gascogne area. Also, in BG, M8.6 applied only in municipalities with over 60 % forest cover, which are mainly mountainous and less developed regions in Southern Bulgaria. In this way, this measure aims at the enhancement and balance of their economic status.

5.3.5.6 Effect of 15.1 (and its equivalent M225 for the previous period) on geographical distribution

The main possible effect of M225 and 15.1 on production concerns only some of the supported actions that aim at creation of forest reserved areas that will be withdrawn to production forest.

M15.1. usually targets either areas with less production potential\textsuperscript{138} or areas that already have more natural characteristics. In this way, there is a tendency for some RDPs to enhance existing geographical differences. For example, in HU, the measure targets especially natural and semi-natural forests, which are unevenly distributed in the country, so that the measure effects are mostly located in hilly regions. However, the overall effect will remain minor considering that little surface is concerned.

For the coming 2014-2020 period, RO, IT-Campania and UK-Scotland are the Regions/MS giving the highest importance to this measure in their RDPs. However, as M225 & 15.1 have very limited effect on production considering their very low share in FM expenditures,\textsuperscript{139} the geographical distribution effect that could result from them would remain marginal.

In addition, linked to this dimension, national regulation and particularly the one on Forest Management Plans can play an important role in developing SFM at the landscape level, especially if it is included in territorial planning to ensure all the domains of SFM are properly covered.\textsuperscript{140}

5.3.6 Conclusion

Forestry production has to be appraised in a long-term perspective, as the rotation of EU stands range from 50 to 70 years or more for most conifers to up to one century or more for broadleaved trees. Hence, estimating the effects of the FM under a programming period of seven years automatically leads to figures showing little effect. This means that, most of the time, the effects observed in a programming period have to be multiplied by at least 10 to estimate the real potential effect of the FM in the long term.

\textsuperscript{138} FI: Many conservation areas are located in Northern Finland, where the round-wood basal area is lower.

\textsuperscript{139} See EQ3 chapter, criterion 1 for measure 15.1 and its equivalent M121 & 122 in the previous period

In the absence of implementation data for the present period, and based on the results of the implementation of the FM over the previous period and on the assumption that the situation would be similar to the present one, we have shown that the effect on production in term of quantity was as follows for each measure:

- M8.1 (M221/223) on afforestation: significant in some regions and on marginal land where afforestation could be a relevant choice (M221 and 223 represented 1/3 of the increment of the forest area during the previous period);
- M8.2 (M222) on agroforestry: very limited probably because the measure does not provide enough incentive;
- M8.3 (M226) on disaster prevention: very significant in sensitive regions;
- M8.4 (M226) on restoration of damaged forests: very significant at the EU level (557 000 ha reforested between 2007-2013) and of course in the concerned regions;
- M8.5 (227) and 15.1 (M225) on environmental investments and commitments: limited on production;
- M8.6 (122/123) on forest competitiveness: varied, with the effect on production depending on the operations chosen by the MA, with clear effects in the harvesting sector (EQ 5) as well as on the improvement of stands enabling the growing of stands which will produce timber in the future but that already provide by-products supplying the local economy (e.g. wood for pulp, fire wood, etc.);
- M15.2 on genetic improvement: not yet visible, as the measure has just been implemented for the first time in the present programming period.

Whatever the effect of each FM was (including horizontal measures such as 1, 4.3, 6, 16.3; etc.), it is important to note that the full set of measures has a global effect on production, on the maintenance of the production capacity of forests and on the improvement of the stands (quality). This allows the owners and operators to grow multifunctional forests and to provide wood, ecosystems services and jobs in rural areas where economic opportunities are scarce.

In terms of geographical distribution, Spain is by far the MS in which afforestation was the most implemented (77 873 ha), followed by UK (61 112 ha), PL (36 763 ha) and to lesser extent HU (26 737 ha) and LT (25 991 ha).

In addition, linked to this dimension, national regulation and particularly the one on Forest Management Plans can play an important role in developing SFM at the landscape level, especially if it is included in territorial planning to ensure all the domains of SFM are properly covered.

**5.4 EQ 4 – Effectiveness: To what extent have the forestry measures impacted on the economic viability of the farms/forest holdings/owners as regards revenue and the levels of production cost in the holdings (forestry, farms or mixed) affected?**

**5.4.1 Understanding of the question**

Forestry measures of the RD regulation could have:

- Long-term effects on the economic viability of farms/forest holdings/owners that are difficult to appraise, as the production of wood replacing the agricultural production will occur within several decades, even if some intermediary products can be harvested over the rotation of the stands.
- Short term effects:
  - through the premiums that are given to farms/forest holdings/owners to cover the loss of agricultural income and the costs of maintenance of the stands, over a period of maximum 12 years. These premiums\(^{141}\) can directly influence the level of revenue of the concerned farms\(^{142}\)/forest holdings/owners.

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\(^{141}\) Benefits from Pillar 1 need to be deducted from the calculation

\(^{142}\) It is important to note that, besides these premiums, farmers continue to receive their direct payments from the CAP on the concerned plot during the 12 years of implementation of the measure.
On the levels of production costs in the holdings. The evaluator was thus asked to appraise these effects on the economic viability and revenue of the concerned beneficiaries. The concerned measures are only those including the above mentioned premiums, meaning M8.1 (and its equivalent in the previous period, M221) and M15.1 (and its equivalent in the previous period, M225). These premiums are distinguished in the FADN set of data (code JC900).

5.4.2 Method and limitations

Regarding long-term effects, we consider that the assumptions would be too numerous and the cases to varied to come to any reliable conclusion.

Regarding short-term effects, the FADN provided information on the premiums given to farmers concerned for M221 (equivalent of M8.1 in the previous period) which is distinguished in a single criteria (JC900) and the other forestry premiums (e.g. M12.2 Natura 2000) that are regrouped in a second one (JC910). The data were available up to 2013, hence the analysis focused on the effect of the support to afforestation on the previous programming period. The FADN also records the premium for Natura 2000 (M12.2). However, the subsample of beneficiaries was too small for a robust statistical analysis to be run. The analysis were based on the comparison of averages of the revenue and production cost of two samples of farms, corresponding to beneficiaries and non-beneficiaries of M221, through non-parametric statistical tests.

- **Analysis on the revenue**: a sample of more than 1 000 beneficiaries that have been concerned by measure 221 over the previous period was used. This has allowed us to weight the effects of the concerned premium on the revenue of the beneficiaries of the sample estimated through their Farm Net Income (FNI). This method has not allowed us to make a similar analysis of forest holdings, as the FADN is limited to farmers only. Hence, for forest owners who are not farmers, the question of economic viability has been treated qualitatively.

- **Analysis on the production costs**: for the estimation of the effect of the FM on the levels of production costs on the holdings (forestry, farms or mixed) an appraisal is possible through the FADN only for farmers who are beneficiaries of M221. Hence, for forest owners who are not farmers, the question of production costs is also treated qualitatively.

The quality of the answer highly relied on the sample size and the quality of data entered by MS in these FADN parameters, the risk being that they also included their national aids similar to M221 in criterion JC 900 and/or JC 910. Given the small size of the sample, we were not able to distinguish farmers between countries and have therefore used only zones (e.g. Mediterranean) to make some comparisons, and the analysis was done at the EU-28 level only.

Furthermore, the premiums on M222 were based on the payment of an estimate of income foregone and additional costs, meaning that normally no incentive is included in their calculation: hence the effect of the support on the revenue should normally be fairly neutral.

As mentioned above, we tried to appraise whether some of the farmers/owners had a patrimonial approach with M221/223 (and by extension with M8.1), meaning that the effect on their revenue is not the single or main reason for them to switch to forest. We have also explored this hypothesis in the case studies.

Another limitation of the method concerns the properties that are not farms, which have not been studied as the FADN only concerns farms.

5.4.3 The studied forestry measures had an impact (or not) on the economic viability of the farms as regard their revenue
5.4.3.1 The premiums represent (or not) a significant share of the Farm Net Income

The data extracted from the FADN sample are only for individuals that received a premium for afforestation for at least one year over the period from 2007 to 2014. For this sample, we have compared the amount of premiums linked to afforestation with the Farm Net Income of each individual, for each individual over the 2007 to 2014 period. The individuals that constitute the sample were selected based on the continuity of premiums for afforestation over at least three years in a row. The average subsidies amount was then calculated for each of the three consecutive years. Hence, the analysis was performed considering six series of three years (e.g. 2007 to 2009, 2008 to 2010, etc.). For the years during which they benefitted from the support, the FNI value was extracted and the same operations performed. In the end, 546 individuals were selected for this analysis. The following graph and table show the distribution of the individuals according to the proportion of the amount of forestry premiums in their FNI.

Figure 43: Distribution of individuals according to the proportion of premium for afforestation in their Farm Net Income

It can be noted that, for more than half of the individuals from the selected sample, the premium amounts to less than 5 % of their FNI. Hence, the premiums represent a very marginal part of their revenue. At the opposite end, for 5 % of farmers, the premium represents more than 70 % of their FNI, meaning that these farmers certainly have a patrimonial approach to investing on their land, probably with the aim of transferring it to their descendants after having ceased their activity.

5.4.3.2 The premiums have concerned (or not) significant afforestation investments

Besides this analysis showing the significance of the afforestation premiums in the revenue of farms that benefited from them, we have analysed how important the afforestation project was for beneficiaries. For this analysis, we took another sample for

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143 We have taken this assumption to avoid taking into account farms for which we are not really sure the premiums put under code JC 900 in the FADN were real afforestation premiums, as normally they should cover several years.

144 As it was common and logical to see individuals with average subsidy amounts for several series. For these situations, the number of the middle series was considered, as shown in the green box. However, when an average could not be extracted, the average of the subsidy for the 6 middle years was calculated as shown in the orange box. When there were no 3 consecutive years with a subsidy, the average was not calculated (see red box for the series 12,13,14).

<table>
<thead>
<tr>
<th>Individuals</th>
<th>07,08,09</th>
<th>08,09,10</th>
<th>09,10,11</th>
<th>10,11,12</th>
<th>11,12,13</th>
<th>12,13,14</th>
<th>selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>170004XXXXX</td>
<td>907</td>
<td>680</td>
<td>588</td>
<td>588</td>
<td>652</td>
<td>ND</td>
<td>588</td>
</tr>
<tr>
<td>170004XXXXX</td>
<td>1772</td>
<td>1398</td>
<td>1552</td>
<td>1100</td>
<td>ND</td>
<td>ND</td>
<td>(1 345+1 552)/2</td>
</tr>
</tbody>
</table>

145 This is supported by past literature: RIERA P et al, (2005), ’Evaluating the European policy on forest subsidies. A comparison of the social costs and benefits of Spanish and Polish afforestation programmes’, Which stated that the direct benefits do not tend to significantly contribute to forest owners’ income, even if afforestation was considered as profitable investment.
which we considered the first year of investment for each individual. This sample was of 1,026 individuals.

**Figure 44: Distribution of farms by size of their investment in afforestation projects**

It can be noted that, for more than 50% of thesampled farms, the investment project was less than 1,500 €, meaning that the project was less than or close to one hectare of afforestation. At the opposite end, 10% of the beneficiaries have made investments of more than 20,000 €, meaning afforestation above 10 ha.

### 5.4.3.3 The revenue of beneficiaries was (or not) similar before and after afforestation

As the premiums for afforestation are supposed to compensate for the agricultural income foregone and costs of maintenance, they should normally lead to the maintenance of the farm revenue before and after afforestation.

To compare the FNI before and after the individuals that benefited from the premium for afforestation, we have analyzed a sample for which we had a year ‘n-1’ before afforestation, a year ‘n’ when they received their first subvention normally dedicated to the investment, and a third and fourth years corresponding to the two following years in which they received payments for maintenance and income foregone.

For each selected farm, we have then compared the FNI before investment to its average FNI of years 3 and 4. Due to these requirements, the analyzed sample size was only of 125 individuals.

The first step of the analysis was to check whether the difference between the FNI before and after afforestation was normally distributed. As it was not, the second step consisted in performing a non-parametric test in order to assess whether the FNI amounts before and after afforestation were significantly different: the results led to the conclusion that the FNI amounts were significantly different. The FNI after afforestation was around 2,500 € or more per individual than before afforestation.

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146 As FADN data does not inform about the afforested area, this statement is based on the costs of afforestation: analysis under EQ8 estimated the public expenditure per hectare afforested to 3,377 €/ha for the 2007-2013 period (based on outputs) and 3,677 € for the current programming period (based on targets).

147 This is supported by past literature: RIERA P. et al, (2005) ‘Evaluating the European policy on forest subsidies. A comparison of the social costs and benefits of Spanish and Polish afforestation programmes’, which states that the average area planted by a landowner on private lands in Poland amounts to 0.85 ha.

148 These analyses were hence done for series of 4 years: e.g. 2007 to 2010, etc.

149 Result of the Shapiro-Wilk normality test: W = 0.5083, p-value = 1.2x10^-18.

150 Wilcoxon Signed Rank test: H0: There is no difference between the FNI before and after afforestation, If Tvalue< T crit and p-value <0.05 , H0 is rejected and the FNI are significantly different. Results: Tvalue = 2828 < Tcrit=3142; p-value = 0.006
Table 28: Changes in farm revenue before and after afforestation in the main EU sub-regions

<table>
<thead>
<tr>
<th>Sample</th>
<th>Mediterranean</th>
<th>Atlantic</th>
<th>Continental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income after afforestation (€ / farm)</td>
<td>- 3 300 €</td>
<td>+ 2 250 €</td>
<td>6 200 €</td>
</tr>
<tr>
<td>Significantly different</td>
<td>No ($T_{value} = 266 &gt; T_{crit} = 170$)</td>
<td>No ($T_{value} = 291 &gt; T_{crit} = 235$)</td>
<td>Yes ($T_{value} = 433 &lt; T_{crit} = 515$; $p_{value} = 0.0077$)</td>
</tr>
</tbody>
</table>

Source: FADN data, processed by Alliance Environnement

We can thus conclude that the premium for afforestation is one among several factors that have influenced the difference in FNI of beneficiaries over the period. Moreover, considering the initial analysis showing that afforestation premiums represented only 0 to 5% for more than 50% of the farms concerned, we can hypothesize that the premium had little influence on the FNI difference.

This is shown by the counterfactual analysis we performed. For this counterfactual, we considered the totality of the individuals from the FADN dataset. We extracted the FNI for their year ‘n-1’ of each series of year (equivalent to the year before afforestation extracted for the EU-28 sample) and compared it to the average FNI from their third and fourth years of the same series of years. The sample size was 1 118 individuals.

The Wilcoxon signed rank test showed that the FNI from year n-1 and FNI from year n+1/n+2 were significantly different.152 Hence, the EU-28 analysis that showed a significant difference between FNIs cannot be interpreted as a consequence of the aid for afforestation. In addition, we have noticed that the regional evolutions were comparable in the sample of beneficiaries and in the total population.153

The absence of significant difference in FNI when compared with the counterfactual may mean that beneficiaries have been properly compensated for the afforestation project.

5.4.4 The studied forestry measures had an impact (or not) on the economic viability of the farms as regard their production costs (forestry, farms or mixed)

The difference in total inputs before and after afforestation was analysed on the basis of the Total Inputs amount of the individuals that afforested for the same series of years as for the FNI analysis. The same operations as for the FNI analysis were performed.

As for the FNI, the sample was not normally distributed.154 The Wilcoxon test used for this case showed that the difference in TI before and after afforestation was significantly different155 with a TI per individual of approximately 16 000 € more after afforestation.

For the counterfactual, we considered the totality of the individuals from the dataset. We then compared the TI for the same years as above. The sample was not normally distributed156 and the difference between the TI was also significantly different.157 This time, the total inputs for the years ‘n+1 n+2’ per individual was approximately 20 200 € less than for the year ‘n-1’.

Table 29: Changes in farm inputs before and after afforestation in EU (€)

<table>
<thead>
<tr>
<th>Study</th>
<th>Counterfactual</th>
</tr>
</thead>
</table>

151 LV was included in the Boreal region, but given that the sample on Boreal countries was too small to be analysed, the individuals from LV were included to the the Atlantic sample.

152 Result of the Wilcoxon Signed Rank test: $T_{value} = 244 611 < T_{crit} = 291 596$; $p_{value} = 0.3x10^{-9}$.

153 Mediterranean: - 3 288 €/farm, Atlantic + 2 253 €, Continental + 6 179 € and EU 28 +2 486 €.

154 Results of the Shapiro Wilk test: $W = 0.5223$, $p_{value} = 2.222e-19$.

155 Results of the Wilcoxon Signed Rank test: $T_{value} = 2809 < T_{crit} = 3933$; $p_{value} = 1.54x10^{-05}$.

156 Results of the Shapiro Wilk test: $W = 0.3583$, $p_{value} = 2.423e-53$.

157 Results of the Wilcoxon Signed rank test: $T_{value} = 312 458 < T_{crit} = 322 647$; $p_{value} = 0.00457$.
Whereas the results are significantly different for both the sample of beneficiaries and the counterfactual, the analysis done on the criteria relating to the revenue showed that 53 % of the concerned farms have less than 5 % of their FNI coming from afforestation premiums. It was hence impossible to weight to what extent the afforestation operations influenced the costs, but it is likely to be of the same order, meaning very limited.

5.4.5 The studied forestry measures had an impact (or not) on the economic viability of the forest holdings/owners as regard their production costs (forestry, farms or mixed)

The forest holdings and forest properties are not followed by the FADN; it was thus not possible to collect any information on this topic in the case studies except the facts that:

- Afforestation was carried out in all the MS/Regions based on prices that have been checked by external bodies and represent, according most stakeholders, real prices (see also EQ 8). This means that there were no financial benefits stemming from these afforestation projects.
- These afforestation projects were also on average limited in size, which means that the effect on the revenue of forest holdings was also limited.

Furthermore, forest revenue is always long to obtain, due to the length of the rotation of stands. Hence, support to the afforestation of non-agricultural land had little effect on the owners’ revenue.

5.4.6 Conclusion of the effect of FM on the economic viability of the farms/forest holdings/owners

It was not possible to study the effect on the viability of forest holdings, as no data exist for this type of property at the EU level and CS didn’t bring any information on that. For farms, for which the FADN provides detailed information, we were able to study the effects of the studied M8.1 on their viability.

For more than 50 % of the beneficiaries, the investment project was less than 1 500 €, which means that the project was less than or close to one ha,\textsuperscript{158} and for very few of them (10 % of the beneficiaries have made investments of more than 20 000 €) the afforestation was probably above 10 ha.\textsuperscript{159}

Furthermore, the afforestation premiums represented a very small part of the revenue and costs for a large majority of the concerned farms. For 5 % of these farms, for which the premium represents more than 70 % of their FNI, the premiums have probably been used to afforest a significant part of the farms, possibly to transfer property to their descendants not continuing agriculture.

Finally, there is no significant change for beneficiaries in terms of the amount of farm revenue/costs before and after afforestation, which was exactly the goal of the premium targeting the compensation of agricultural income foregone and the additional costs of maintenance. Of course, in the long term additional revenues will come from forest.

From this we can conclude that:

\textsuperscript{158} As FADN data does not inform about the afforested area, this statement is based on the costs of afforestation: analysis under EQ8 estimated the public expenditure per hectare afforested to 3 377 €/ha for the 2007-2013 period (based on outputs) and 3 677 € for the current programming period (based on targets).

\textsuperscript{159} The FADN data does not enable to identify the concerned area.
The FM implementation had very few effects on the revenue of the concerned farms due to the small size of the operations, even though there may have been effects for a small minority. Hence most of farmers didn’t really plant to increase their revenue but just to valorise some marginal lands for free\textsuperscript{160} and to get some additional premiums over 12 years.

The premium for maintenance and income foregone played its role, as it was not possible to see any difference in revenue of the concerned farms before and after afforestation.

Hence, while it can be confirmed that there is no overcompensation through these premiums, results also show that there is not any real financial incentive in the present system. This raises an issue if there is a wish to develop afforestation in the future, for example to plant 2/3 of the increase of forest areas from agriculture land, instead of 1/3 in the previous period. As these stands are of great interest in terms of wood production and carbon sequestration in the future, as well as in provision of public goods quite quickly, it would therefore be relevant for us to study to what extent – to reach this goal of doubling the afforestation area – some incentive shouldn’t be put in place? We will come back on this point in the recommendations.

5.5 EQ 5 - Effectiveness: To what extent the forestry measures had an impact on the competitiveness of the sector?

5.5.1 Understanding of the question

The analysis of the competitiveness of the sector includes forests products (quantity and quality) and services. It covers the harvesting sector and the primary processing sector that buys round-wood (e.g. sawmills, pulp industry, energy sector) that can benefit from some RD FM. It does not include the secondary processing sector generally financed under ERDF. The evaluator was thus asked to appraise to what extent the FM and their equivalent in the previous period have led to better competitiveness of the forestry sector. The analysis included all the FM, except Support to the establishment of agroforestry systems (M8.2), whose effects mostly related to agriculture.

5.5.2 Method and limitations

For this EQ we have conducted a four-step analysis.

**Step 1** covers the effect on competitiveness of afforestation (M8.1), reforestation measures (M8.4), and sylviculture and management measures (M8.6). For afforestation, we have calculated the profitability of equivalent stands with and without this support, to show the effect of M8.1 on the profitability of stands. For the other measures the appraisal is qualitative.

**Step 2** is a quick qualitative appraisal of the possible effects on the competitiveness of the sector of M15.2 on genetic improvement, which is a new measure.

**Step 3** analyses the effect of the support for the harvesting or processing sector. For these sub-sectors M8.6 (support to investments in forestry technologies and processing, mobilising, and marketing of forest products) and its equivalent in the previous period (M123) are clearly targeted at improving the beneficiaries’ competitiveness. The analysis for this measure first gives some details of the types of operations financed by this measure (based on a typology of them coming from CS) and then identifies the potential effects on the competitiveness of beneficiaries’ products/activities mainly through examples coming from the CS and some literature.

**Step 4** qualitatively evaluates the effects of horizontal measures implemented in forests, particularly M4.3 (investment in infrastructure), as well as the operations of M8.3 on infrastructure at forest level and M8.6 on infrastructure at plot level. Actually, these measures can have a direct effect on the competitiveness of the sector (by providing

\textsuperscript{160} Even if forests can be profitable, most farmers/owners would not be able to invest and wait so long for the income to appear. So the whole premium is clearly a driver of their decision.
infrastructure making it possible, for example, to access or transport timber or shorten skidding distances, etc.) and hence reduce the costs of harvest. But because we had very few means to calculate their exact effect, our appraisal is mostly qualitative and based on CS and some publications.

The general limitations stated in the previous EQ and the main limitations in appraising the effects on competitiveness have been:

- The lack of implementation data for the present period.
- The lack of breakdown of the budgets by type of operation, which is available neither at the EC level nor, often, at the RDPs level themselves at this early stage of implementation. We have thus obtained them only at CS level (when available).
- The fact that measures leading to improvement of production of wood (at least M8.1, 8.2, 8.4 and 8.6) will have an effect on the supply of wood and on the downstream sector, only in the long term (in several decades) even if, of course, some by-products will be produced before the final harvest.

5.5.3 Measures 8.1, 8.4 & 8.6 (and their equivalent in the previous period: 122, 221, 223 and 226) had (or not) an impact on the competitiveness of the forestry sector

5.5.3.1 Effect of measure 8.1 (and its equivalent in the previous period M221 & 223) on the competitiveness of the forestry sector

EQ3 showed that M8.1 is excepted to support the afforestation of 566 404 ha, which would correspond to 2.3 million m³ of wood per year.

In some MS/Regions in which significant afforestation has been carried out (e.g. ES-Galicia, UK-Scotland, etc.), the economic benefits coming from the stands afforested under this measure could be of significance for the local economy. This is true both at their creation and then within decades by providing the local forestry sector with business opportunities and then influencing its competitiveness. In addition, the creation or maintenance of forests directly influences the creation or maintenance of jobs in the concerned rural areas. For owners, this support constitutes a significant increase in the profitability of their stands, as the cost of planting, subsidised by some FM, is the main expense of a forest cycle.

To appraise the latter effect, we have made a basic calculation of the internal rate of return (IRR) of forest stands 'with' and 'without' support of M221 & 223 or M8.1. For example, the IRR order of magnitude is usually around 3% in most of forest contexts without any support. For most of the stands, support is nevertheless often needed to make the owners open to invest in forestry instead of keeping it as agricultural land. Hence, even if the support may not be economically necessary, in most cases it seems to be the condition for shifting from agriculture, or marginal lands, to forest.

But for hybrid poplar plantations, which are among the stands with the best return on investment in forest production, the IRR rises around 5.02 % for favourable sites (i.e.

161 Swedish Ministry of Agriculture, (2008). Rural development programme of Sweden 2007-2013, 348p.: ‘Forestry, and the forest sector and wood industries, create employment in rural areas and are very important for the rural economy. […] Generally, the importance of forestry in the regional economy is greatest in sparsely populated regions. […] The forest and forestry also have an indirect effect on the rural economy and its attractiveness, through the potential for hunting, fishing and nature tourism.’

162 CONFOR (2015), Upland forestry WALES study - Welsh Analysis of Land-use Economics & Subsidies: In reality forestry planting is concentrated on the poorer hill land where farming employment is expected to be lower than average. Well-sited forestry is therefore expected to generate greater employment than agriculture.

163 For forest stands, the IRR calculation balances all expenses over the life of the stand (plantation – and related operations such as soil preparation, fencing, etc. – pruning & thinning operations, intermediary or final harvests costs) with all benefits coming from the forest production (intermediary and final harvest incomes), all of these expenses and incomes being discounted with year zero being the plantation year.

164 Riera P. et al. (2005), ‘Evaluating the European policy on forest subsidies. A comparison of the social costs and benefits of Spanish and Polish afforestation programmes’. This document indicates that, with a discount rate (less than 3%), the private profitability of the afforestation scheme in Poland appears to be positive even without fiscal support.
moist and rich sites), and this estimate increases up to 9.11 % when the installation costs are supported under M8.1.\textsuperscript{165} Hence, for such stands, (representing nevertheless only 2 % of the area afforested) that already have a very good IRR, the relevance of the aid can be questioned.\textsuperscript{166} We have made the same calculation for M8.4 in the next paragraph which shows that the support to afforest or reforest increases the IRR of stands but in more reasonable terms.

Hence, even if forests can be profitable, most farmers/owners would not be able to invest and wait so long for the income to appear. Therefore, the subsidy can clearly constitute an incentive to afforest, and one of its consequences is also to maintain a forestry sector active in these areas. This point is critical for maintaining activities and for the less competitive forest economies (e.g. the Mediterranean sector), so as to avoid their cessation and replacement by imports.\textsuperscript{167}

5.5.3.2 Effect of measure 8.4 (and its equivalent in the previous period M226) on the competitiveness of the forestry sector

The reforestation supported under M226 in the concerned RDPs positively impacted the competitiveness of forest stands and the forest sector as a whole, by restoring the production potential after natural disasters occurred.\textsuperscript{168} Even if this measure did not compensate the losses of the damaged areas,\textsuperscript{169} it helped very much in maintaining their production capacity, and therefore maintaining the forest industry and sector that will depend on this resource in the future.

Depending on the conditions of the implementation of M8.4 and M226, the plantations supported mostly use selected genetic sources, in order to reconstitute stands that would have a better production potential in terms of quality as well as productivity. For example, in FR-Aquit., the restoration campaign undertaken after the 2009 Klaus storm resulted in the introduction of new improved seedlings and hybrid trees that have a higher growth potential\textsuperscript{170} and are better shaped. Similar improvements were also carried out in UK-Scot. Hence, M226 & M8.4 would certainly result in economic gains linked to: (i) shortened forest rotations; (ii) increased unit prices of the produced wood when the harvest comes, linked with improvement of the wood quality due to the intrinsic quality of the improved genetic origin; and (iii) reduced expenses of sylvicultural operations, as better shaped trees may help obtaining better wood quality without or with less frequent pruning.

Exact gains are difficult to evaluate, as the new planted trees will only be harvested after a few decades (around 40 years for the FR-Aquit. example). However, literature mentions that gains from genetic improvement on yields can reach 10 to 25 % (see next paragraph on M15.2). IRR calculations have been made to approach the benefits of this support for forest holders in FR-Aquit. In this example, the support of reforestation costs under M8.4 allows an IRR increase from 4.31 to 6.07 %.\textsuperscript{171} But in this case the measure also had a compensation role to a certain extent, as it was dedicated to trees damaged by natural catastrophic events, from which most of the time the owner did not obtain any revenue. Furthermore, it is important to note that this measure was implemented over

\textsuperscript{165} See Annex 3, Tables 14 and 15 for the details of the calculation of on IRR and related hypothesis.

\textsuperscript{166} However, RDPs and some stakeholder opinions confirm that, due to restricted payments, less area was afforested even by fast-growing species. This indicates that the support remains effective for inducing afforestation even for such fast-growing stands. Finally, most poplar plantations are established on relatively good soil, so that these stands could still constitute environmental improvement compared to the alternative agricultural crops (annual and intensive arable crops), despite their lower environmental effect compared to other stands. This depends mainly on whether these plantations are established in places where trees and forests are rare in the landscape.


\textsuperscript{168} The restoration of damaged stands under this measure led to more than 557 000 ha being replanted.

\textsuperscript{169} This is normally covered by insurances taken by the owner.

\textsuperscript{170} According to the stakeholders, the seedlings and hybrids planted during the restoration campaign after the storm of 1999 (Martin) show a growth potential 30% higher than the former stands (FR-Aquit. Case Study)

\textsuperscript{171} See Annex 3, Table 16 for details of our own calculation of the evaluator on IRR and related hypothesis.
the last programming period on more than 572 000 ha and had critical importance in the damaged areas in terms of maintaining the sector.\footnote{In FR-Aquit., the Klaus storm destroyed 200 000 ha, meaning 1/5 of the Landes de Gascogne forest.}

### 5.5.3.3 Effect of measure 8.6 (and its equivalent in the previous period, M122 & 123) on the competitiveness of the forestry sector

This measure is the most diverse of the FM, in terms of types of operation supported. As there is no implementation data, the effect at the EU-28 level is difficult to appraise. Based on the breakdown of operations for the 14 CS on the current programming period, the actions that have potential effects on the forestry sector competitiveness are displayed in the table below.

<table>
<thead>
<tr>
<th>Type of action implemented</th>
<th>Number of occurrences under M8.6</th>
<th>Main benefits to competitiveness of forestry sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support for Forest Management Plan design</td>
<td>3</td>
<td>- FMP required for other FM support. - Reduce initial investment.</td>
</tr>
<tr>
<td>Production planting</td>
<td>1</td>
<td>- Savings in investments. - Improved growth capacity and quality.</td>
</tr>
<tr>
<td>Replantation or restoration of stands</td>
<td>1</td>
<td>- Maintenance of production capacity.</td>
</tr>
<tr>
<td>Sylvoiculture – Improvement of stands for economic purposes</td>
<td>3</td>
<td>- Savings in investments. - Increase in quality &gt; increase in selling unit prices &amp; market opportunities.</td>
</tr>
<tr>
<td>Support for infrastructure creation (roads)</td>
<td>1</td>
<td>- Allow harvest in isolated forests. - Reduce the harvest expenses (lower length for skidding).</td>
</tr>
</tbody>
</table>

Source: Alliance Environnement, based on CS RDPs contents

### Box 4: HU example of M8.6 effects on wood quality and improved profitability

The profitability of poplar growing is very sensitive to proper preparation of planting and stand maintenance. It starts with the removal of stumps of the former stand, heavy soil preparation and using quality propagation material. Maintenance needs to focus on stem protection, soil tilling, fertilization and pruning. Under normal circumstances pruning needs to be repeated 3-4 times during the rotation period. The objective of the first pruning(s) is to ensure straight and monopodial stems, of which the lower 2-m section is clear of branches. The later prunings are to increase the branch-free length of the stem. Precise timing is important, otherwise the branch scar can get too large.

Measure 8.6 supports only the high-pruning out of the whole technological process. The support is €113 per hectare, which covers the direct costs. According to the CS, at the time of the final harvest the income difference between a well-pruned stand in good condition and an untreated stand can reach up to €3 000 per ha, showing the economic importance of good practices sylviculture.

Hence, for the 2014-2020 programming period, almost half of the types of financed operations under M8.6 concern the upstream sector (the downstream sector is treated in paragraphs below). The table above shows that most of the operations planned under M8.6 can have direct influence on the profitability of forests, either by supporting direct costs of sylvicultural operations, or by financing prerequisite fees like the design of Forest Management plans, or the creation of forest roads. Thus, this measure is clearly focused on improving the competitiveness of beneficiaries' forests. This is also indirectly shown by the fact that 10 RDPs introduced the additional 2C focus area, dedicated to measures supporting competitiveness of sustainable forest management.

### 5.5.3.4 Measure 15.2 had (or not) an impact on competitiveness of the forestry sector

Genetics has long been taken into consideration by foresters, in order to improve several characteristics important to them such as growth, resistance to pest and diseases, branchiness, wood quality and more recently resistance to climate change, etc. In most
of the MS, national programmes existed or still exist to work in this domain. M15.2, which had no equivalent in the previous period, targets this goal in order to develop activities at the EU-level to improve the genetic quality of trees and stands. As the measure is very open, it can cover a wide range of operations in this domain. As mentioned in the implementation description chapter, M15.2 was taken by a minority of MS/Regions in the present programming period and generally with small budgets; some have not yet started its implementation. Nevertheless, it seems to the evaluators that the setting up of this measure at the EU level is highly relevant, as not all the MS have sufficient means to implement such activities and as the research results clearly show the strong interest of such an approach to improve the characteristics that need improvement (see list above).

Literature on the interest of genetics in forest yield is abundant. A synthesis of it was made in a report financed by DG Energy, which highlights that a potential increase in yield from 10 to 25 % or even more can be expected from genetic improvement. It also mentions that this improvement, which takes decades to observe, of course concerns the newly regenerated forests. This example focused on yields additionally shows that several relevant goals can also be targeted by genetic improvement, including climate change adaptation, which in forestry is crucial as most of the stands live many decades and even more than a century.

5.5.4 Measures 8.6 (and its equivalent in the previous period, M123) had (or not) an impact on competitiveness of the downstream forestry sector and harvesting operators

The breakdown of operations of the 14 CS on the current programming period shows the operations that have potential effects on the competitiveness of the downstream forestry sector and harvesting operators.

Table 31: Occurrence of types of operations under M8.6 in the 14 case study RDPs, for the downstream forestry sector

<table>
<thead>
<tr>
<th>Type of action implemented</th>
<th>Number of occurrences under M8.6</th>
<th>Main benefits in competitiveness for the forestry sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business plan</td>
<td>1</td>
<td>Reduction of costs &amp; increase in market opportunities.</td>
</tr>
<tr>
<td>Wood supply</td>
<td>1</td>
<td>Investment in logistics and wood mobilisation.</td>
</tr>
<tr>
<td>Sylvicultural machinery</td>
<td>10</td>
<td>Direct support to investment, reduced costs.</td>
</tr>
<tr>
<td>Primary processing machinery</td>
<td>10</td>
<td>Direct support to investment, reduced costs.</td>
</tr>
<tr>
<td>Secondary processing machinery</td>
<td>1</td>
<td>Adding value to forest products.</td>
</tr>
<tr>
<td>Commercialisation</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Non-timber machinery</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Monitoring systems</td>
<td>1</td>
<td>Reduced costs &amp; improved of market opportunities.</td>
</tr>
</tbody>
</table>

Source: Alliance Environnement, based on CS RDPs contents

For the 2014-2020 programming period, almost half of the types of financed operations focused mainly on improving the competitiveness of the harvesting and downstream operators of the forestry sector.

A broad share of RDPs chose to include direct support to forest harvest or primary processing companies (CS of AT, BG, ES-Clm, FR-Aquit., IT, GR, SK, UK-Scot.), thus

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173 See § 2132 of the description of the sector.
174 Maximising the yield of biomass from residues of agricultural crops and biomass from forestry. University of Hohenheim, Unique Forestry and Land Use GmbH), Scientific Energy Centre "Biomass" and Ecofys (2016)
175 Using clonal material for Norway spruce can immediately deliver a gain of around 25–35% in yield, and by 2050 this figure may be increased to 40% (Haapanen et al. 2015).
176 Zuzana Sarvašová et al, (2010). In Support for Innovation in Forestry in Rural Development Programmes of Six European Countries – state that: There are some small opportunities for supporting innovation within Axis II and large opportunities within Axis I. Especially Measures 122 and 123 are of high importance from this point
acting directly on their investment possibilities and cost reduction. Machinery is always
the key tool for most of them to be able to reduce their costs and add value to their
products/activities, as well as to work safer and faster, and in most of the cases with less
environmental impact (e.g. use of low-pressure tyres to limit impact on soils).

As, these types of equipment are very expensive, many companies (most of the time
SMEs) are often not able to invest and so work with old or obsolete machinery. Thus,
M8.6 has a significant potential effect on their maintenance and their competitiveness.
For example, in GR, the lack of effective processing units is considered as the main factor
for the lack of competitiveness of the sector (LKN Analysis, 2016).177 Thus, the support
to forest operators for their equipment and machinery178 has helped them maintain their
activities, in particular in mountainous and remote areas. It was the same in FR-Aquit. 
where, after the 2009 storm, it was very difficult for most the harvesters to quickly buy
expensive machinery to harvest 200 000 ha of damaged stands in a very short period of
time. Hence, this support often corresponds to real needs of local enterprises to improve
their capacities and then remain alive and competitive.179

5.5.5 Measures 4 and 8.3/8.4 on infrastructure (and their equivalent in the
previous period: 125 and 226) had (or not) an impact on
competitiveness of the forestry sector

Implementation data of the 2007–2013 period do not give information on the length of
roads built or restored during this period, so that the impact of these measures is difficult
to appraise. However, the typology of actions planned for the coming period coming from
the CS provides some qualitative information on the potential impact of these FM.

Table 32: Occurrence of types of operations on infrastructure under M8.3 & 8.4 in the 14 case study
RDPs

<table>
<thead>
<tr>
<th>Type of action implemented</th>
<th>8.3</th>
<th>8.4</th>
<th>Main benefits to competitiveness of the forestry sector</th>
</tr>
</thead>
</table>
| Firebreaks / roads construction | 9   | 4   | - Access to isolated lands and increased availability of wood.  
- Reduced costs of harvesting operations. |
| Infrastructure restoration  | -   | 4   | - Forest accessibility restored.  
- Short-time harvest in damaged areas (preservation of wood quality). |
| Erosion / flood prevention infrastructure | 1   | 4   | - Reduced damage from erosion / floods.  
- Access to isolated lands and increased availability of wood.  
- Reduced costs of harvesting operations. |
| Landing infrastructure      | 3   | -   | - Reduced damage from forest fires. |
| Storage of wood after damage | -   | 2   | - Storage of wood removed from damaged areas, in proper  
conditions to preserve quality.  
- Reduction of wood supply issues of local companies after damage. |

Source: Alliance Environnement, based on CS RDPs contents

M8.3 & 8.4 include the construction of new roads to prevent forest fires, erosion and
floods, as well as for firefighting purposes. Some of these could also be used for forest
exploitation.
The wood skidding and transporting costs are among the highest share of forest harvest
costs, and they are mostly related to the accessibility of forest stands. Hence, the
construction of news roads/tracks that could considerably reduce the skidding length
and/or facilitate the access of trucks has a huge impact on reducing these costs and thus

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177 See CS for Greece,
178 Animals were also eligible,
conditions and prospects, 6p.
improving the profitability of forest harvests. For example, reducing the skidding distance from 1.5 Km to 0.5 Km can reduce the cost of skidding by half. The opening of these roads can even provide market access to some stands that are too remote to be harvested economically. This positive effect on competitiveness is particularly important:

- in rural marginal areas, where forest incomes can be an important share of the local economy, but where funds to invest in new infrastructures could be hard to find;
- in mountainous regions, where infrastructure cost is higher due to the technicity of the construction phase and the higher maintenance costs, and where the forest road network is usually less dense than in plain regions.

M8.4 also includes the building of storage areas to keep the wood harvested from damaged areas, in proper conditions that would make it possible to preserve its quality for industrial purpose for a few years. This helps prevent the loss of the equivalent of years of harvest while continuing the supply of wood to the local economy, despite the disaster. Hence, these operations are particularly important in rural areas where the forestry sector represents a large share of the economy and employment. Furthermore, the smaller the companies are, the more effect there is, as big companies often have various sources of wood supply and buy wood from farther regions compared to small local companies that are more dependent on the local supply of the resource.

### 5.5.6 Conclusion on the effect of FM on the competitiveness of the sector

Several FM and horizontal measures are tailored to improve the competitiveness of the sector and of its operators. The main constraint in this analysis was the absence of detailed implementation data by type of operation and the difficulty of appraising the effects on the competitiveness of the sector, as some of which will occur in several decades. Nevertheless, some statements can be made about the following measures:

- **M8.1** is crucial for triggering farmers’/owners’ decision to shift from agricultural/marginal land to forest, as the cycle of the forest revenues is very long. Hence, by supporting the main costs of afforestation and maintenance, this measure clearly facilitates this conversion. This is even if M221 and 223 of the previous period had on average little impact on the revenue of most of farmers who were beneficiaries from the measure (see EQ4). Hence, for most of the afforestation projects, this support is very relevant in terms of the shift from agriculture (most of the time of marginal land) to forest that has positive socio-economic effects on the concerned rural areas.

- **M8.3-8.4**, mostly had impacts in terms of preservation of production capital from fires and pests and of its restoration after damage. Indeed, it had significant effects in the concerned areas. For example in FR-Aquit, where 200,000 ha representing 1/5 of the forest was restored after destruction by a storm or even in SK where a storm of the same magnitude happened.

- **M8.6**, concerning support for the purchase of machinery both for harvest and sylviculture, was of significant importance for many beneficiaries, most of which were small companies of rural areas with little means, as it helped them to buy such costly equipment. In addition, support for sylviculture increases the profitability of stands and incite owners that can be hesitating due to the length of forest cycles.

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180 In addition, appropriate road and skidding track networks can also significantly decrease the disturbance of forest soil as well as preserve carbon and soil flora and fauna.

181 Example of calculation made on the basis of the unit costs established by FAO: [http://www.fao.org/docrep/T0579E/t0579e07.htm](http://www.fao.org/docrep/T0579E/t0579e07.htm)

182 Nevertheless for 5 % of the beneficiary farmers, 70 % of their revenue was coming from these FM.


184 This was particularly the case where afforestation has been very significant (ES-CIM, UK,-Scot, etc.).

185 It is important to note that this measure in the previous period was open only to forest owners, which was not always relevant; it is now open to forestry entrepreneurs who can have more competitive businesses, which is very relevant as most of them are SMEs working in rural areas.
Besides these FM or their equivalents implemented over the past programming period, some measures have also had an effect on competitiveness, such as M.4.3 on infrastructure, which enables reduction in harvesting costs. And M15.2, which is dedicated to genetic improvement and was just implemented, can improve the competitiveness of the sector in the future (expected increase in productivity ranking from 15 to 25 %) as well as the resilience of the sector to climate change.

Above and beyond these FM or horizontal measures implemented in forests, it is important to mention the coherence of the whole set of RD measures (see also EQ 13) to improve the competitiveness of the sector through measures with direct effect. In addition to the FM themselves, this includes M4.3 on infrastructure, rounded out by measures with indirect effect such as M1 on training, M2 on advisory services, M9 on producers’ groups, M12.2 on forests in Natura 2000, and M16 on cooperation. This set as a whole and the programmatic approach set up in the RDPs reinforce the effectiveness of each measure in delivering a coherent approach, thereby leading to better competitiveness of the sector and its operators and products.

Therefore, even if the role of the FM in the improvement of the forestry sector is very difficult to appraise in the midst of other factors such as state aids and operations conducted by foresters on their own, etc., the evaluator believes, based on the data and information available, that this effect is significant and should be put in relation to the 7 billion euros planned to be invested in rural areas through the FM in the present programming period.

5.6 EQ 6 - Effectiveness: To what extent have supported forestry measures impacted on the environment and climate, i.a. on biodiversity conservation and restoration, forest soils, water regulation, and the health status of forest ecosystems, climate change mitigation and adaptation and on balanced territorial development including the development of the rural economy and societal deliveries?

5.6.1 Understanding the question

The question requires an analysis of the extent to which environment and climate impacts have occurred in practice as a result of implementation of the FM by Member States and beneficiaries, over and above any impacts that might have been expected in the absence of the FM being implemented. It also examines unintended effects of the measures and any factors that enable or limit the environmental and climate impact. We understand the scope of this question covers: biodiversity conservation and restoration; forest health; forest soils; water regulation; climate action, including both mitigation and adaptation; and balanced territorial development.

5.6.2 Method and limitations

The assessment follows a stepwise approach to understanding the impact and effect of the FM on environment, climate and BTD objectives. The approach followed includes first a review and identification of the relevant objectives from EU legislation against which the FM are to be assessed. It then considers what the potential impacts of the FM could be, depending on how they are implemented. This takes account of the primary literature on how forest management affects different environment, climate and BTD objectives and links this to actions supported under the FM. Implementation data and RDP programming information is then used (where possible) to assess how the measures have been implemented in practice and the types of actions supported.

The expected impacts of these programmed measures and actions are identified and compared with any observed changes in environment, climate and BTD indicators over the assessment period. Enabling and limiting factors contributing to the observed impacts
from the FM are identified where possible. The principal sources of data for this approach are the findings of EQs 1, 2, 4 and 5, the literature reviews, the 14 RDP case studies and information on implementation and RDP programming.

In addition to the general limitations applicable to the whole study, the evaluation of effects is severely limited by the lack of specific impact studies of the environmental effects of the implementation of the FM for 2007-13 or earlier periods, and by two inherent characteristics of the management of FOWL. Firstly, that environmental impact depends not just on the choice and scale of the measure design but also on how, where and when it is implemented; and secondly, the environmental effects may not become apparent for many years after the intervention. As a result, the analysis provided here is primarily qualitative in nature, relying heavily on information in the 14 case studies, the literature review and an analysis of RDPs where relevant. External data sources, such as climate accounting and reporting statistics are used to identify general trends, with expert judgement being used to attribute these, where possible, to the FM.

5.6.3 Relevance of the forest measures to the environmental remit of the EAFRD

The FM can and are required to contribute to a number of EAFRD priorities linked to EU objectives for the environment, climate and balanced territorial development, particularly Priorities 2, 4, 5 and 6. They are an essential tool in Member State delivery of the EU Forest Strategy 2013 and implementation of SFM (defined by the Ministerial Conference on the Protection of Forests in Europe of 1993\textsuperscript{187}). The FM form part of the requirement for each 2014-20 RDP to dedicate at least 30% of the EAFRD contribution to support for climate change mitigation and adaptation as well as environmental issues,\textsuperscript{188} and are one of the principle sources of funding to implement climate and environmental policies and action in the EU. The EAFRD is the primary source of EU funding for Member States’ to implement: their legal obligations for the conservation status of the Natura 2000 habitats and species of forests and other wooded land,\textsuperscript{189} the relevant targets of the EU Biodiversity Strategy 2020,\textsuperscript{190} the provisions of the Thematic Strategy for Soil Protection\textsuperscript{191} and of the Nitrates Directive,\textsuperscript{192} and the climate and energy framework to 2020. Forests are particularly important for MS in the context of reporting obligations related to the Kyoto Protocol. Moreover, under the EU LULUCF Decision (No 529/2013/EU), MS are required to set out in their initial and progress reports how they will increase carbon removals and prevent losses from the LULUCF sectors, and the associated policies and mechanisms to do so. Almost all MS report afforestation as a key measure to achieve these goals, with many citing the use of EAFRD support to enable afforestation in practice.

Annex 9 provides more detailed information on some of the specific environmental and climate pressures faced by forests or that can be addressed through the use of FM and the positive impacts and management that can be supported through them.

5.6.4 Programming the FM at RDP level - expenditure and targets


\textsuperscript{188} Article 59(6) of the Regulation (EU) 1305/2013

\textsuperscript{189} Under Directive on the conservation of wild birds (2009/147/EC, which is a codified version of the original Directive 79/409/EEC) and Directive on the conservation of natural habitats and of wild fauna and flora (92/43/EEC)

\textsuperscript{190} COM(2006) 231

\textsuperscript{191} Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources
The 2014-20 programmed expenditure against priority and focus areas shows large variations between MS as shown in Section 2.2.1. On average, MS have programmed less than 10% of their P4 expenditure to the FM (but NL, MT, DK and BG have allocated more). For P5e the average allocation is much higher, with less variation between MS. The target indicators for environmental management contracts on forest land give some indication of the scale of ambition in the 2014-20 RDPs (Figure 45). More than half the RDPs have set 2014-20 targets for biodiversity and carbon sequestration, and more than a third for soil and water, but in only a very small number of RDPs are these targets set at more than 5% of the total forest area (or agricultural and forest area in the case of carbon targets). There are some caveats about this analysis, firstly because the different types of target are not necessarily additional - in several cases the same target uptake is set against more than one focus area (recognising the benefits of multifunctional forestry) - and secondly some of these targets are unlikely to be achieved, in the light of failures to achieve uptake targets in 2007-13 and delayed implementation of measure 15.1.

Figure 45: Number of Member States and RDPs with targets for management contracts supporting environmental objectives 2014-20

Table 19 below summarises the main environmental pressures on forests and potential impacts of the FM on these, and the following sections identify how the FM are used to address each of the environmental and BTD objective objectives in the 14 RDP case studies, any observed changes in the status of the objectives over the assessment period and whether there is an identifiable link between the use of FM supported action and these changes.
Table 33: Main pressures on forest environmental objectives and potential of the FM to address these

<table>
<thead>
<tr>
<th>Objective</th>
<th>Main environmental pressures on forests</th>
<th>Main potential positive impacts of appropriate implementation of the FM</th>
</tr>
</thead>
</table>
| Biodiversity                     | Limited tree species diversity and age/structural diversity  
Dominance of non-native tree species in new plantations  
Presence of invasive alien species (trees, shrubs, mammals, insect pests, pathogens etc.)  
Low levels of deadwood and lack of veteran trees due to excessive removal of mature or dead and dying trees  
Loss of characteristic forest habitats or features of high biodiversity value e.g. grassland patches within forests, freshwater habitats, wood pastures  
Forest fragmentation  
Forest fires                                                                 | Conservation and restoration of forest and agro-forest habitats and improved conservation status of Natura 2000 forest habitats and species through better management. Expansion and buffering of existing habitats and shading and protection from weather in neighbouring habitats through afforestation or agroforestry. Provision of food and nesting habitat, improved landscape functionality, improved habitat connectivity. Conservation management of species suited to woody habitats, mixed landscapes. |
| Health status of forest ecosystems| Ongoing (though declining) damage to tree health from air pollution (sulphur, ozone, nitrates, ammoniates)  
Increasing vulnerability of trees to native and alien insect pest outbreaks and native and emerging tree pathogens  
Low resilience of monocultures and forest plantations to severe storms and wind throw                                                                 | Buffering and expansion of existing forest and woodland areas to provide more resilient and healthy forests through afforestation with locally adapted species. Safeguard and improve forest ecological health, and the functionality and resilience of forest ecosystems through more selective sylvicultural and harvesting systems, more diverse and more broadleaved tree species composition and more diverse stand structure. Improved control of pests and pathogens through biological and integrated pest and disease control, monitoring and research. |
| Soils                            | Forests are often located on soils that are vulnerable to landslides  
Forests are often located on peat rich soils  
Forest machinery and management can cause soil compaction  
Intensive forest management for biomass extraction can deplete soil nutrient levels and acidify soils                                                                 | Improved soil structure and organic matter content, reduced desertification. Protection of soil through shading and water retention. Reduced erosion and increased stabilisation of soils. Potential for reduced soil disturbance, compaction and erosion through improved harvesting and extraction techniques and technology. |
| Water                            | Forests are often located in areas with high surface runoff and therefore critical for moderating water flow and managing flood risk  
Ability of forests to retain water and stabilise seasonal water flows and groundwater levels depends on sustainable management                                                                 | Moderating fluctuations in water flow in catchments, increasing infiltration, mitigating extreme events. Improved retention of water in forests, stabilisation of water tables. Protection of water from diffuse pollution by buffering the water body from adjacent agricultural land, reducing nitrogen leakage from the crop and also soil erosion from arable land. Reduced surface run-off and leaching of nutrients through improved forest management. |
| Climate change adaptation         | Increasing winter temperatures and summer heatwaves cause increased stress for trees  
Water stress and drought  
Loss of tree genetic diversity leads to lack of traits adaptive to changing climate  
Increasing risk of uncontrolled forest fires particularly in Mediterranean forests is mainly driven by the accumulation of fuel as a result of abandonment or lack of forest management                                                                 | Forest habitat connectivity in the landscape, increased diversity of species and genotypes, forest structure, sylvicultural management and harvesting systems, more suited to local conditions. Cooling/shading effect of trees on adjacent crops, livestock and rural settlements. Improved genetic diversity and health of forest ecosystems, and improved resilience of forest and other wooded land habitats through adaptive management. Improved microclimate for certain protected species. Contribution to reducing risks of flood and fire. |
| Climate change mitigation         | Capacity of European forests to sequester carbon is declining as forests mature  
Forest management uses fossil fuels in machinery and fertilisers  
Forests are often located on peat rich                                                                 | Increasing and ensuring the continuity of carbon sequestration capacity and carbon sinks in biomass, above and below ground. Retention of carbon stocks in standing biomass through selective and targeted harvesting approaches. Increased machinery efficiency and reduced fuel |
<table>
<thead>
<tr>
<th>Objective</th>
<th>Main environmental pressures on forests</th>
<th>Main potential positive impacts of appropriate implementation of the FM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulked territorial development</td>
<td>Soils that have been drained to improve tree growth and therefore release more carbon</td>
<td>Use. Potential to mobilise forest biomass for use in other sectors to replace more GHG-intensive materials and thus reduce overall GHG emissions.</td>
</tr>
<tr>
<td>Balanced territorial development</td>
<td>Decline of traditional low-intensity agroforestry systems, with associated risks loss of non-wood forest products, cultural landscapes and skilled labour.</td>
<td>Improved landscape heterogeneity, recreational opportunities, animal welfare and health benefits (e.g. separation of flocks for biosecurity). Diversification of the rural economy through non-wood forest products and agroforestry. Maintenance and creation of employment in the sector.</td>
</tr>
</tbody>
</table>

Source: Alliance Environnement based on environmental bibliography

5.6.5 Biodiversity

EU policies for biodiversity require Member States to increase the contribution of forests and agroforestry to: maintaining and enhancing biodiversity, through sustainable forest management planning; achieving Targets 1-3 of the EU Biodiversity Strategy 2020; and to achieve favourable conservation status for Natura 2000 forest habitats and species across their whole range, not just within the Natura 2000 network. Biodiversity also underpins the other environmental and climate services considered here. At EU-28 level the target for 2014-20 under P4a is to manage 3.4% of forest and other wooded area to support biodiversity and/or landscapes, with the FM programmed to spend 6% of the RDP public expenditure 2014-20 allocated to P4 as a whole (including the P4b water and P4c soil focus areas).

The introduction of trees into farmed landscape can improve biodiversity. Three-quarters of the new woodland created in 2007-13 under measures 221 and 223 was broadleaved or mixed (ref EQ2), creating more habitat and structural diversity in the farmed landscape. For the current period several CS have scaled back their use of the afforestation measure but changed the focus in a way that should improve biodiversity benefits (for example, ES(Gal) no longer supports the use of Eucalyptus spp and ES(CIM) plans to use this FM only for micorrhized and hardwood planting. The EAFRD regulation also provides support for naturally regenerated afforestation and planting shrubs. Support for converting land now under arable, pasture, permanent crops or forest to mixed use as new agroforestry could create valuable new habitats, but this was implemented by just 5 RDPs in 2007-13 on less than 3,000ha. It is programmed in the current period by 27 RDPs in just 8 MS and even if the 2014-20 target of almost 72,000ha is achieved, agroforestry will be established on less than 0.1% of the agricultural land in these RDPs. Lack of familiarity with the concept and practice of modern agroforestry is a recognised problem which the EIP-AGRI has begun to address. In the four CS that have programmed 8.2, it is expected to have a range of positive effects (albeit over a small area), which include diversifying farm incomes (EL, ES(Gal), HU and UK(S)) and benefits for biodiversity, water quality, soil erosion and flooding (EL), soil (HU), chestnut plantations (ES(Gal)), and climate adaptation (protection of agricultural land using shelterbelts in HU). The CS were critical of the fact that M8.2 cannot be used to support the management of the estimated 15.4 million ha of existing, traditional agroforestry in the EU (Box 5). These systems are of major biodiversity value and the source of specialist forest products such as cork, but often at risk of abandonment or intensification.

193 Focus Area (FA) 4A is designed to restore, preserve and enhance biodiversity, including in Natura 2000 areas, and in areas facing natural or other specific constraints, and high nature value farming, as well as the state of European landscapes.
194 BE, EL, ES, FR, IT, HU, PT and UK
Box 5 Extent of existing traditional agroforestry systems in EU-27

A recent report, using the LUCAS database, estimates the total area of agroforestry in the EU27 to be 15.4 million ha, equivalent to 3.6% of the territorial area or 8.8% of the UAA. Livestock agroforestry is the dominant type of agroforestry in Europe accounting for 15.1 million ha. The area of sylvo-arable systems is estimated to be 358 000 ha. These totals include the grazing and intercropping of permanent crops (e.g. fruit trees and olives) (1.05 Mha) comprising 0.85 Mha of grazed systems and 0.22 Mha of intercropped systems. A hot spot analysis revealed that a high abundance of areas under agroforestry can be found in south, central and north-east Portugal, south-west, central and parts of north Spain, south of France, Sardinia, south Italy, central and north-east Greece, central and west Bulgaria, and an area in northern Romania.

Analysis of the CS’ plans to use of the FM for protection, restoration and investment (8.3, 8.4 and 8.6) include support for silvicultural management and other activities that could address both production and biodiversity needs, for example thinning, environmentally friendly methods of materials handling, purchase or lease of specialized forest soil and resource friendly machinery and reducing inflammable biomass. It appears likely that measure 8.3 is supporting structural and management changes towards more extensive mixed species production. The use of measure 16.8 to support group preparation of forest management plans should help in the longer term to increase the forest area managed to SFM standards, for holdings that are below the minimum threshold required in the legislation.

Investment in biodiversity benefits could be supported by M8.5 investments, used in the CS primarily to support planting and stand management and recreational infrastructure, and by M15.1 annual payments. Examples from the CS include improving nesting opportunities for birds, creating and restoring wetlands, landscape protection measures, encouraging selective natural regeneration, retaining deadwood and creating forest reserves (no felling), meadow conservation, and maintenance of open zones. Three CS have programmed measure 15.1 for Natura 2000 management, notably SK which has a target uptake of 24,000ha of Natura 2000 sites with a special focus on forest birds; and ES (Gal) and DE (MK) where implementation has not started. Six of the 14 CS have programmed measure 12.2 (compensation payments for Natura 2000 obligations).

Despite clear efforts to use well designed biodiversity interventions under these two measures to achieve Member States’ obligations to improve biodiversity in forests generally and for Natura 2000 habitats and species, the potential impact of M15.1 is limited. It has been programmed in only half of the MS, and allocated only 1% of the total planned RDP public expenditure on P4. There are also reports from several CS and other sources that problems in defining the baseline forest management requirements, (above which compensation payments are calculated) has made it difficult to use 12.2 and 15.1. There are no data that can be used to quantify the biodiversity effects of silvicultural management systems or management practices, nor to estimate the impact that the implementation of the FM has made or can be expected to make on forest biodiversity.

The scale of the task facing Member States, in improving forest biodiversity, is illustrated by the status of the 81 different types of Natura 2000 forest habitats. Almost 49% of the EU-27 forest area is classified by Member States as Natura 2000 forest habitats (see Annex 9.6). The EEA assessments indicate there is a serious problem for forest biodiversity. In the period 2007-2012, 76% of Annex 1 Natura forest habitats and 60%

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197 It should be noted that whilst around 21% of the EU forest area is within Natura 2000 sites, the area of Annex 1 forest habitats is much larger and includes forests and wooded land outside the Natura 2000 sites. The total area of Annex 1 designated forest habitat is 78.19 million hectares as reported by 27 Member States (excluding Croatia) in the 2007-2012 period.
of protected species other than birds have unfavourable conservation status (see Annex 9 for details).

**Figure 46:** Conservation status and trends of Annex I habitats (Habitats Directive) associated with woodland and forest ecosystems

![Conservation status and trends of Annex I habitats](image)

**Notes:** The total number of assessments is 642 and 229 for species and habitats, respectively.

**Source:** EEA, Article 17 reports and assessments

### 5.6.6 Health status of forest ecosystems

This is not defined in EU policy, but generally refers to the health status of forest trees, in terms of continued production of forest ecosystem services including timber and resilience to climate change (EEA, 2016). It also covers genetic diversity and protection of endangered genetic resources.

The CS show a clear trend of using M8.3 and M8.4 to respond to actual and perceived threats of storm damage and outbreaks of pests and diseases. In some cases, there is a recognition that existing productive species and sylvicultural systems will not be sufficiently resilient in future. Although Section 5.3 suggests that M8.4 is less likely to involve significant sylvicultural changes, restoration work is an opportunity to use accumulated knowledge to correct problems with species or forest structure, which may just require fine tuning rather than radical change. Actions contributing to the health of forest ecosystems in the CS include purchase of equipment and tools for monitoring fires, pests and diseases, the development of GIS-based information apps, protection from damage by pests, game or grazing, testing for pathogens, pheromone traps and use of phytosanitary treatments. The new FM for conservation of genetic resources M15.2 is being used for a varied range of activities in a small number of MS, including site-based interventions, data collection, studies and sharing information and experience with managing authorities in other Member States.

### 5.6.7 Forest soils and water regulation

The FM have been used in the CS in a targeted way to protect soils against risks of erosion, and the afforestation and agroforestry measures in particular are likely to improve soil organic matter and water infiltration on the agricultural land where they are implemented.

At EU-28 level the 2014-2020 targets under P4 are to have 1.4 million ha of forest land under management contracts to improve water management, and 2.4 million ha to improve soil management. Between 2005 and 2015 the carbon stock in forest soils increased in most Member States for which there is data, but the trend was less clear for soils of other wooded land (see Annex 9.8 for details). There is no data on the impact of FM on water but the CS show support for work on a range of relevant actions.
5.6.8 Climate change adaptation

Climate change adaptation is used here to mean improving the resilience of FOWL to current and future effects of climate change, including pests and diseases, storms, floods and drought, and to safeguard the long-term capacity of FOWL to provide timber, other forest products and a range of ecosystem services and to support biodiversity. FOWL also has a role to play in the adaptation of other sectors and environments to the effects of climate change, such as through the use of trees to support flood mitigation activities, provide shade and shelter and improve habitat connectivity within landscapes.

Many of the FM have a role to play in the adaptation of forests to climate change. For example, in the CS, M8.5 is used in Sweden and in DE-MK as part of an adaptive approach to the management of natural resources. The aim of the support is to allow plant and animal species that naturally belong in the forest to survive under natural conditions and in viable populations. This is achieved through specific management actions, such as maintaining open meadows within the forest, restoration of wetlands, controlled burning, thinning of deciduous stands, and long-term conversion of coniferous monocultures to mixed stands by under planting with broadleaves. The aim is to improve the natural functioning of forests and thus their ability to adapt to future changes. A similar use of the FM is seen in UK(Sc) where M15.1 is used to support low-impact silvicultural systems (LISS) that increase species and structural diversity and are normally more resilient to hazards. M8.3 and 8.4 are used to support climate adaptation in FR(Aq) and SK through the creation or maintenance of fire prevention infrastructure (e.g. fire roads, fixed or mobile water points), monitoring infrastructure (watchtowers, communication tools), the reduction of fuel in forests (biomass) and by mapping risks. Similar use of the measure is seen in other, fire-risk areas, such as ES-Gal. Across the EU various specific actions have received support in the current 2014-2020 RDPs with links to climate adaptation.

Based on the evidence presented in the 2015 State of European Environment Report (SOER), a number of adaptation benefits and challenges relating to forests can be observed. More than 20% of European forests are dedicated to the protection of water and soils, mainly in mountainous areas, and around 4.5% of European forests are defined as floodplain forests which can help to address the flow of water in extreme flood events. In recent years, an increase in the scarcity of water has led to a focus on the provision of drinking water from forests, which are home to one third of Europe's lakes. Forest fires are a particular threat to rural areas and EU forests. In 2016, eight Member States had more fires or a greater burnt area than the average for the period 2006-2015, with further significant fire outbreaks observed in 2017.

The FM have significant potential to address climate adaptation but, as with many of the objectives discussed in this EQ, identifying the contribution of the FM to adaptation responses as a whole is limited mostly to specific case examples. For example, in Lithuania the FM were used in 2007-13 to support the clearing and restoration of forests damaged in a thunderstorm in 2010. Around 412,000 m³ of wood were estimated to have been lost in the storm with fallen timber and open space increasing the risk of forest fires in the area. One specific case identifies the use of FM support of around €2,340 to clear, clean and replace 1.3 ha of damaged woodland as well as introduce new fire-breaks to improve future adaptation to potential climate risks.

Even with specific examples of where FM have been used to implement climate adaptation actions, the effect of those actions in light of other external factors, such as extreme weather events, is particularly difficult to evaluate. In many cases, adaptation benefits are implicitly linked to locations where the FM are used to support the achievement of other environmental objectives, such as stabilising habitats, reducing flood risk, etc.

200 Information obtained from the European Forest Fire Information Service (http://effis.jrc.ec.europa.eu)
5.6.9 Climate change mitigation

Climate change mitigation is used here to mean the use and management of FOWL to contribute to the reduction of GHG emissions in the forest and other sectors, increase the removal of CO₂ from the atmosphere and improve and stabilise carbon sinks.

One of the main cited measures for climate mitigation in forests is M8.1, with a clear link between the increase in forest area and potential carbon sequestration gains, for example the afforestation target of 10,000ha per year in UK-Sc and 2,500ha per year in Lithuania. In IT-Camp, M8.1 has been used to support longer-term afforestation (on a rotation of 20-40 years), in part to deliver against climate mitigation targets, as well as support for shorter-rotation afforestation (8-12 years) to improve wood supply. As noted in section 5.6.8 on adaptation, the restoration, resilience and prevention measures (M8.3-8.5) also have climate mitigation benefits and have been used to safeguard existing forest stands in Member States. Across the EU various specific actions have received support in the current 2014-2020 RDPs with links to climate mitigation (see Annex 9.4).

The LULUCF reporting framework provides a useful tool through which to assess the relative contribution of forests to climate mitigation objectives within forests, specifically the relevant removal or emission of CO₂ (and other limited greenhouse gas emissions (GHG), and the relative stability of the ‘carbon sink’ potential of forests.²⁰²

Considering a period from 2005 to 2014, the overall GHG emissions from the LULUCF sectors have marginally increased. As a net-sequestering group of sectors, this is represented by a small reduction in the overall LULUCF sink of 14 MtCO₂eq.²⁰³ The carbon stock change as a result of forest land remaining forest land (Common reporting Framework (CRF) category 4.A1) shows a high degree of inter-annual variability and differences between Member States. This is partly a result of different disturbance factors affecting different forests stands in Europe, such as forest fires (e.g. Portugal in 1990, 2003 and 2005; Italy in 1990, 1993 and 2007) and windstorms (e.g. France in 2000 and 2009, and Denmark in 2000, Sweden in 2005). Land converted to forests (CRF reporting category 4.A2) shows a general increase in forest area in 2014 compared to 1990 levels.²⁰⁴ The conversion to forest land, primarily of marginal grassland and cropland areas are estimated to result in an increased carbon sink of 53.221 KtCO₂.

The impact assessment accompanying the proposal for a LULUCF Regulation (COM(2016)479) confirms the broad trends shown in emission reporting information relating to forests. Since 1990 there has been in increasing carbon sink in forests, which slowed around 2008/9 and has been gradually decreasing, despite remaining a net-sink. The impact assessment projects that to 2030 the sink of CO₂ in forests is set to decline in real terms from -353 MtCO₂eq in 2005 to -242 MtCO₂eq in 2030 (a 30% reduction). In relation to forests this comes primarily from changes in forest management and also the change in age classes over time leading to an increase in the average age of the forests and hence a reduction of their sink capacity. In parallel to the change in the forest carbon sink, the use of forest biomass in other sectors of the economy to help reduce GHG emissions (such as from biomass energy) has increased and is projected to continue to do so.

Making a link between these observed trends on the level of GHG emissions and the FM is exceptionally difficult. The intention to use the FM to address climate action is often clear, for example, the main focus of the RDP in UK-Sc is to encourage climate change mitigation through afforestation and the management of the existing woodland so that in the longer term there will be a climate mitigation benefit. This is coupled with activities to improve the resilience of forests, such as using M8.5 to improving habitat connectivity

²⁰² The main limitation of such data is the time lag for its publication, with the most recent report available to the study containing information only from 2014.

²⁰³ Emissions decreased in the following way: from -307 MtCO₂eq in 2005; -305 MtCO₂eq in 2010, -304 MtCO₂eq in 2011, -300 MtCO₂eq in 2012, -304 MtCO₂eq in 2013 and -291 MtCO₂eq in 2014

²⁰⁴ Although a marginal decrease since 2008 (with associated emissions from the loss of biomass) consistent with broader land use trends.
(corridors). Maintaining and restoring forest area is also a key objective for Member States and encompasses broader objectives to maintain forests for the variety of societal benefits they provide. For example, the FM (in the previous and current programming periods) have clearly been used to develop afforestation programmes (e.g. in LT 61.4% of afforestation between 2008-2014 was supported through forest measures 221 and 223) or to help in remedial works following major storm damage (e.g. in FR-Aq following storm Klaus). In the case of FR-Aquit. the re-establishment of forest area following storm Klaus did not lead to an increase in the carbon sink beyond that which would have been in place prior to the storm. However, without restoration the sink would certainly have been lost. It is therefore reasonable to judge that the use of these measures (e.g. M8.1 and 8.4) and the criteria to support their implementation have contributed to some of the positive emission changes noted in the EU trend data, i.e. increase removal of CO₂ from the atmosphere and maintenance of carbon sinks.

The impact of some of the other FM on climate mitigation, or the longer-term impacts of afforestation under the FM (or through national State Aid support) is less clear. For example, one of the main drivers of forest biomass use identified in the LULUCF impact assessment and in the EU GHG inventory is that of biomass for energy. Biomass is currently the largest source of renewable energy in the EU and is projected (by the LULUCF IA) to remain so to 2030. The production of renewable energy has been used as one of the impact objectives in some RDPs as a measure of contribution towards climate mitigation. For example, in Latvia where the 2014 final consumption of energy biomass (firewood, timber and agricultural waste) including biogas exceeded the target value by 4% (22.15 ktoe). However, the ex-post evaluation noted that "the interventions of the Programme have only had a modest impact on the achievement of the target value of this impact indicator". This further illustrates the challenge of linking actions of the FM to observed environment and climate impacts.

5.6.10 Balanced territorial development

**Balanced territorial development:** the intervention logic for the forest measures 2014-20 links the general objective of the CAP of 'balanced territorial development, with the focus on rural employment growth and poverty in rural areas' to the EAFRD Priority Area 2 (farm viability and competitiveness (all type and areas), innovative farm technologies and sustainable management of forests) and Priority Area 6 (social inclusion, poverty reduction and economic development in rural areas). The benefits of the FM for employment in rural areas in the forest sector and the impacts on farm viability are covered in (EQ 3). Other societal benefits include access to forests for recreational activities, and safeguarding characteristic landscapes and cultural heritage. The CS show FM support for work on a range of relevant actions linked to this objective, for example investments in machinery, facilities and equipment to improve recreational use forests; investments in harvesting and processing a range of non-wood forest products (mushrooms, chestnuts, aromatic and medicinal plants). In addition, five RDPs specifically mention forests in their description of their proposed use of M16.9, which supports the diversification of farming activities in ways that have social benefits (AT, BE, DK, LT, IT and the UK). The use of M16.8 to support preparation of forest management plans by groups of small forest owners should help them to gain access to FM support.

5.6.11 Conclusions

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205 Which has contributed to the continued reduction of CO₂ emissions in the country that are now 16% lower in 2014 than in 1990, and a reduction of 5% since 2013 (EU Annual GHG inventory report, 2016).

206 The demand for biomass for energy from EU forests is high at around 85% of to the total volume going to energy produced in the EU, with only an additional 15% from imports. See section 1.4.2 – Table 2 in the LULUCF Impact Assessment.

207 Yet whilst contributing to potential emission reductions in the energy sector, the harvesting of biomass leads to a reduction in the forest carbon sink in the forest sector for a period of time before the biomass has regenerated.
The response to this question has been severely hampered by the lack of information and evidence of the environmental impact of management actions supported by the forest measures.

The current framework of FM in the EAFRD regulations and guidance provides Member States with the opportunity to deliver a wide range of support under EU priorities 4 and 5e. But, it may be decades before any benefits from current programming are fully realised, and the monitoring data to check progress is incomplete.

For biodiversity the renewed emphasis on SFM and forest management planning, the opportunities to use other RDP measures together with the FM and the environmental safeguards in the legislation (for example on choice of land and species for afforestation) offer great potential to improve the biodiversity performance of EU forests. There are some good examples of targeted biodiversity support from the CS, especially in the use of M15 and also in some cases M8.5. However, overall it has to be concluded that the FM have not yet been used to anything like their full potential to meet Member States’ obligations under EU biodiversity policies, even when programmed under P4. There are two major failures. The first is Natura 2000, which is one of the EAFRD priorities under P4a. Almost 49% of the EU forest area is estimated to be Natura 2000 habitats, Member State have legal obligations under EU law to improve and maintain the conservation status of these habitats and EAFRD is the main source of EU funding to support them in doing this. Recent EEA data shows that only 15% of Annex 1 forest habitats are in favourable conservation status and trends are poor. The second failure is the lack of support for the biodiversity of traditional agroforestry systems at risk of abandonment or intensification.

There is evidence of the use and targeting of several FM to benefit soil stability and organic matter, but no data on impacts attributable to the FM. There is a lack of evidence that M8.6 investment in forest technology and processing has been targeted at these objectives. The afforestation measure also has considerable potential to reduce flood risk and protect agricultural land and settlements downstream, but on the information available it is unclear to what extent this support has been spatially targeted at these objectives. There are however a few examples from the case studies of effective landscape scale targeting of support to improve fire resilience and ecological benefit.

The CS show evidence of the use of M8.3, 8.4, 8.5 and M15 in ways that will have long-term benefits for the health of forest ecosystems depending on the objective, design and targeting of the intervention – for example through more diverse forests structures, species composition and genetic diversity.

Some of the key impacts of the FM in both periods (2007-14 and 2014-20) are expected to be the contribution towards climate action, primarily in the medium to long-term. Benefits for climate actions principally include increasing the carbon sequestration potential through afforestation and forest management (including in above ground biomass and in the stabilisation of soils), preventing future damage from catastrophic events, and contributing to the continuation of resilient and sustainably managed forests. In the short term, the restoration and re-establishment of forests and forest ecosystems following catastrophic events is an important contribution from the FM to climate action, particularly where they help to stabilise forest carbon sinks, reinstate those that have been lost and improve future adaptation potential. Within the scope of this evaluation it has not been possible to quantify the extent of these benefits in terms of effect on net GHG emissions (and thus climate mitigation). Similarly determining the adaptation benefits of the FM is compounded by external and conflicting factors, such as increased frequency of extreme events that could mask the positive impacts of FM on adaptation.

In addition, some Member States have used State Aid support for the implementation of climate-relevant actions making it difficult to disaggregate the impact of the FM from other sources of intervention at the EU level.

One conclusion in relation to the potential future importance of the FM is the expected decline in the forest carbon sink as a result of forest management (as shown in the

208 There also among others Regional Funds and Life programmes.
One reason for the declining carbon sink is the transition of the EU’s forests towards more mature/older forests where removals from growth are balanced by losses due to decay as they progress towards equilibrium. Therefore, one recommendation that can be made is related to the importance of supporting the ongoing management of forests using FM. This is not specifically a result of the FM, but attributed to factors such as complicated legal regulations on land use, the legal forms of forest management, taxation etc., lack of coordination between the relevant Ministries, and the fact that the people involved in the management of private forests are not employed in this sector full time. The use of M8.5 and 15.1 to support the improved management of forests could help to address some of the climate-related issues in forests following their establishment, in a way consistent with the broader climate and environment objectives of the EU. The potential environmental, climate and economic benefits of introducing appropriate new agroforestry to diversify farming systems will not be realised while M8.2 remains so underused.

Benefits for the rural economy and society are difficult to assess but include some degree of maintaining employment within the primary sector as a result of RD support (see EQ5). Many of the FM, not just M8.2 M8.5 and M15.1, can have direct or indirect benefits for the rural economy and society, especially if schemes are designed and targeted with this in mind. Other RDP measures such as M16 (cooperation and innovation) can also be used for the benefit of rural communities with a significant forest sector.

Key factors affecting implementation of the FM supporting new agroforestry (M8.2) and investment or management for environment and climate resilience (M8.5 and 15) include: a lack of interest among beneficiaries; cultural differences between Member States in attitudes to environmental priorities; lack of environmental data for design and targeting environmental measures; and unfamiliarity among beneficiaries, compounded in some cases by poor quality technical advice.

5.7 EQ 7 - Efficiency: To what extent has the implementation of the forestry measures led to a change in the administrative burden: at the level of the beneficiaries; at the level of the Member States administration; at the level of the Commission services?

5.7.1 Understanding of the question

This EQ aimed to establish whether the FM implementation and execution during the 2014-2020 period led (or not) to some additional administrative burden (AB), compared to the 2007-2013 period. Indeed, the simplification of policies, of the implementation scheme and of the legal framework was one of the underlying objectives of the new CAP reform. Consequently, the EC required that beneficiaries ‘should be relieved from red-tape and requirements that are not needed to reach political objectives or to ensure proper management of taxpayers’ money’. And, in a continuous matter of effectiveness, the AB at EU and MS levels should be reduced and optimised.

Changes in AB can occur in three main domains: the administrative arrangements, the control and the monitoring. It should be examined for the three levels of stakeholders working on the implementation of the RD measures: the EC, the MS/Regions and the Beneficiaries, keeping in mind that each stakeholder is concerned differently by each domain (see Annex 10, Table 56).

5.7.2 Method and limitation

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209 In accounting terms, this means the emissions and removals from established forests, not necessarily from the active management of such forests in FM terms (although these are a factor).
For each level of stakeholders, the methodological approach involved in a first time the identification of the evolutions in the legislation and in management practices in order to set the framework of the reduction/increase of AB. This was based on the review of the EU legislation and on information collected in the fourteen CS.

The consequences of the evolutions in terms reduction or increase of AB were estimated on the basis of the information collected in the fourteen CS, and through the questionnaire survey to Managing Authorities.

The CS investigated the opinion of the EU desk officers, MA and beneficiaries regarding the general evolution of the administrative burden related to the measures, and on the consequences of each specific evolution in management practices. The investigation at EU level were quite limited by the fact that most of the EU desk officers in charge of the CS RDPs had not been in charge yet on the previous programming period: hence they couldn’t assess on the changes between the two periods. The opinions of the MA and beneficiaries were quantified over the fourteen CS, to get an insight of the situation at EU level.

The questionnaire survey asked the MA two questions relating to the change in AB for each of forest sub-measures.²¹⁰

Quantitative data on key indicators (e.g. workload in full-time equivalent, time to grant, time to pay) were collected in the CS and through the QS. They refer to the current situation only and were difficult to analyse, given the variety of organisation and the difficulty for MA to distinguish the workload specifically connected to the FM, from those concerning the whole RDP.

The main limitations the evaluator faced in answering this EQ were the difficulties in distinguishing the following two points:

- Firstly, the workload and the changes specifically connected to the FM, from those concerning the whole RDP. Specific effort was made in the CS to collect quantitative data on the workload exclusively created by the implementation measures at the level of the MA and at the level of beneficiaries. Nevertheless, it was difficult for the MA to make a distinction. Comments on control, monitoring and evaluation were often broadly formulated by the stakeholders and not specifically on the FM or for a specific level of the implementation.

- Secondly, the AB deriving from EU rules and procedures, from the one generated by national/local rules or by the national/local interpretation of EU regulations. Furthermore, it can be noted that AB was often generated by the conjunction of EU and local regulations and their possible inconsistency. The analysis distinguished, as much as possible, changes in AB linked to the EU policy design from changes linked to the implementation choices made by MS.

In addition, the possibilities for simplification of administrative and control arrangements to reduce AB, based on stakeholders’ suggestions, were synthetized. They are synthetized in the conclusion of this EQ.

5.7.3 The implementation of the forestry measures has led (or not) to a change in the AB at the EU level

The analysis of the EU legislation and literature showed that the changes in the EAFRD regulations concerning the FM were relatively minor between the two periods. The main changes identified with potential effects on the AB at the EU level, for the implementation of the FM were:

²¹⁰ 1) “Compared to the previous period, would you say the implementation of [the sub-measures] is, for the Management Authority, leading to a higher, lighter or equal administrative burden?”: the number of answering MA depended on the sub-measure concerned: 10 MA gave their opinion on this question regarding M15.2, and up to 32 MA on 8.1. 2) “From your point of view, do the beneficiaries have difficulties to access this support?”: depending on the sub-measure concerned, this question got answers from 6 to 32 MA.
the evolution of the framework for the RDPs, toward the introduction of the 6 EU priorities and 18 focus areas, and the strategic programming framework;

• the evolution of the monitoring framework, with the introduction of results indicators, that increased the pressure on producing criteria, data on transparency and traceability.

Concerning the process of designing the RDPs, first interviews at the EU level showed different views: some people consider that the current programming period is more complex than the previous one (increasingly detailed programming texts, stricter rules, new framework, new SFC, etc.) but others stated that the two periods cannot be compared strictly and that the workload stayed the same. The EU desk officers interviewed to supplement the CS mentioned that the complexity of the procedures in the ongoing period have delayed the implementation of the measures, but that the administration and monitoring have been generally better prepared than in the previous period, and should be facilitated in the end. The evolution they perceived between the two programming periods were mostly related to evolution in local legislation or implementation practices.

To conclude, over the two programming period, the change in administrative burden related to the FM at EU level have been limited so far, but a reduction in the administrative burden is foreseen by the EU officers.

5.7.4 The implementation of the forestry measures has led (or not) to a change in the AB at the level of the MS/Regions administration

As the AB can have direct consequences on the programming choices of the FM (cf. EQ1), it was important to assess the evolution of the AB at the MS/Regions level, to report on the workload generated and the main difficulties encountered.

5.7.4.1 General evolution in the workload related to the measures, based on information from the CS and the QS

The evaluation collected the number of full time equivalent (FTE) involved in the administration, control and monitoring of the FM, in the CS areas and in the QS. This included people working in the MA as well as in Paying Agencies and public advisory services, etc. The data collected are available in Annex 10, Table 57. This analysis showed that there are very significant differences from one MS/Region to another in the workload dedicated to the FM and that it was difficult to conclude on this particular point due to these highly different contexts.

To round out this information, the CS and survey also investigated the trends in the evolution of the AB: 6 MS/Regions among the 10 with the experience of implementing the FM over the two periods, as well as the interviews with the MA and other stakeholders (e.g. Paying Agencies and public experts) revealed that they perceived an overall increase in the workload for the 2014-2020 period. In 3 other MS/Regions, the MA considered that the workload was similar to the 2007-2013 situation.

The survey also investigated the evolution of the AB at sub-measure level. Generally speaking, it showed a rather negative evolution of the AB, as shown in the figure below.
A large share of the respondent MA indicated that the AB was equal or heavier for equivalent measures of the previous period. However, it showed, like the CS, that the administrative burden was nevertheless reduced in very few cases.

### 5.7.4.2 Main evolutions and consequences identified in the CS

The following table provides a summary of the main evolutions in the management of the measures identified in the CS, and of how they were perceived in the MS/Regions, in terms of their impact on the AB at MA level. The full analyse is available in Annex 10, Table 58.

<table>
<thead>
<tr>
<th>Table 34: Evolutions in AB mentioned by MS/Region administration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main evolutions in the implementation rules &amp; management practices</strong></td>
</tr>
<tr>
<td>Use of the new strategic programming framework</td>
</tr>
<tr>
<td>Switch from continuous application systems to open calls</td>
</tr>
<tr>
<td>Introduction of the simplified cost options</td>
</tr>
<tr>
<td>Dematerialization / Digitalization of the applications and payments</td>
</tr>
<tr>
<td><strong>Control</strong></td>
</tr>
<tr>
<td><strong>Monitoring</strong></td>
</tr>
</tbody>
</table>

Source: Analysis of the Case studies

This analysis showed that similar evolutions in management practices may have different effects in terms of AB.

Concerning the process of designing the RDPs, the MA often pointed out the difficulty of understanding the new strategic programming framework, which made the design of the RDP more complex than in the previous programming period. On the FM specifically, the fact that no Focus Area mentioned forestry under P2 (competitiveness) was confusing for MA wishing to address economic needs of the forest sectors, even though at the EU level 11 RDPs in 8 MS were supported by the COM in managing this issue by introducing Focus Area ‘2C+‘. However, the survey showed that most MA considered that this new framework had an added value (Annex 6, Figure 17). It can be noted that the simplified eligibility criteria and the increase of some thresholds introduced in the EU regulation were not spontaneously mentioned by the MA as a facilitating evolution for the design of the measures. However, the impact on those evolutions is connected to the implementation of the measures, which was not very advanced in most CS areas.
Concerning the administration of the measures, EU regulations included increasing requirements in transparency and traceability, by requesting eligibility and selection criteria. Consequently, most of the MS/MA switched from continuous application systems to open calls for FM implementation. This is a key evolution for this period with consequences on the AB. This method was chosen by all the CS MS/Regions to deal as flexibly as possible with stricter transparency and eligibility criteria requested by the EC. But setting up calls took time and engaged funds from the MS/MA. Hence, it has been very difficult for MS/MA with restricted human resources volume (DE, GR) and even more for MA representatives with no forest background (GR, LT). At the MA level this resulted mainly in implementation delays.

The monitoring was globally perceived as an increasing source of AB because human and financial resources needed to set up the monitoring system and manage databases were quite high and also required IT equipment and training. Monitoring was not a focus of the first programming period, which was busy with starting FM implementation; however, the CS indicated that it has become more and more demanding. No specific evolution occurred between the two periods in terms of monitoring requirements despite the level of pressure to improve monitoring capacities and transparency on each MS/MA.

In addition to the evolutions between the two periods, the MA also mentioned the following factors that had important consequences in terms of AB:

- obligation for local counterparts of the FM to be registered and validated as state aids while they are connected to EU scheme (e.g. DE, FR-Aquit.);
- weakness or lack of competent human resources with forestry background to support the development of coherent and efficient secondary national legislations to put these measures into force (e.g. BG, GR).

5.7.5 The implementation of the forestry measures has led (or not) to a change in the AB at the level of beneficiaries

5.7.5.1 Workload/cost related to the measures and its evolution

The time spent by beneficiaries in the application process was summarized from CS and is available in Annex 10, Table 59. Even if these data cannot be strictly compared, as they are not all referring to the same application types, we can note that several CS recorded that the workload for application have been higher than one month work (ES-Galicia, LT, UK-Scotland), and that, among the 11 MS/Regions implementing these measures in the CS areas, 9 indicated the workload increased and 2 considered that it had not changed between the two periods.

5.7.5.2 Main evolutions and impact in terms of AB

The following table presents the main evolutions gathered in the CS, and how they impacted the AB at beneficiaries’ level.

<table>
<thead>
<tr>
<th>Evolutions</th>
<th>Cited in...</th>
<th>Impacts on the AB</th>
</tr>
</thead>
</table>
| Complexification of the application process, increasing use of calls for projects | 9 CS | (-) Required documentation and ‘bureaucracy’ are significant barriers (IT, ES-CLM, AT, UK, SK, BG).  
(-) Procedures are laborious (AT, BG).  
(-) Calls for projects are not planned well enough and not easily accessible for all (BG, ES-CLM, SW).  
(-) Applications are time-consuming and costly in terms of collecting all new attached documents needed even before having confirmation of eligibility (DE, ES-GA, SK).  
(-) So many authorisations to comply with to access subsidies (IT).  
(-) Lack of transparency in the submissions evaluation process (ES-CLM, SK).  
(-) Only beneficiaries with solid technical capacity could afford to apply for support (BG, FR, GR, SK, SW, UK-SC). |
| Increase in the time-to-grant and time-to- | 10 CS | (-) Only beneficiaries with solid financial capacity to handle payment advance, considering they would be paid almost two years after (ES- |
The analysis showed that there was an overall increase in the AB between the two periods. It is mostly related to increasing requirements in the applications process (mentioned in 9 CS) and to the introduction of systematic and annual controls (mentioned in 9 CS). The increased requirement to select the projects on the basis of traceable criteria, managed in most MA through calls for projects, increased the complexity and cost of the applications. Furthermore, the administrative burden is especially high for small holders with no sufficient means to handle the situation (as mentioned in 10 CS).

The main bottlenecks identified for the reduction of the AB were the difficulty in accessing the information for the potential beneficiaries, the lack of transparent planning for the applications calendar and the implementation of an online system.

5.7.5.3 Additional information regarding the evolution of the time-to-grant and time-to-pay periods

Large delays of engagement and payment stand out as an important issue for beneficiaries. It does not strictly impact the workload but generates insecurity and sometimes financial difficulties. Data collected from 5 CS showed delays of up to 2 years for the programming (UK-Scotland) and for the payment (FR-Aquit.) (see Annex 10, Table 60). An increase in the time-to-grant and time-to-pay periods between the two programming periods was noted in most CS (ES–CIM, ES–Gal, FR-Aquit.) and can be explained by:

- the increasing use of calls for projects: all the applications have to be reviewed at the same time by MA;
- the increasing requirements and documents to fill in to apply (mandatory certifications, management plans, necessity to use the services of consultants, several financial propositions, etc.) that need to be checked by the MA and the Paying Agency;
- technical delays to instrument the measures (e.g. FR-Aquit.).

3 MS/regions mentioned that there was no difference between the two periods (GR, HU, UK). LI and BU stated that the introduction of an online application system should reduce processing time.
5.7.6 Conclusion

The evolutions in AB related to the FM implementation and execution between the 2014-2020 period and the 2007-2013 period are different for the three levels of stakeholders involved (e.g. Commission services, MS/MA administrations and beneficiaries).

At the EU level, we can conclude that the implementation of the FM has globally led to little change in the AB since 2007, but that a decrease in the AB is expected in the following years.

At the MS/MA level, although the changes in the EAFRD regulations concerning FM were relatively minor between the two periods, substantial evolutions in the AB were perceived. Some evolutions like the use of open calls, the Standard Cost Options and the digitalization have positive consequences in terms of AB, but others (i.e. reinforced control, systematic double-check) weighed negatively. It nevertheless appears from the QS that the AB has been considered as rather constant at the MA level since 2007.

At beneficiaries’ level, we found that both the workload and the time-to-grant and to-pay periods increased compared to the previous period, and that evolutions in the implementation practices increased the complexity of the process at beneficiaries’ level. Hence, we can conclude that the implementation of the FM has led to a general increase in the AB at the beneficiaries’ level since 2007.

The EC reinforced the requirements for transparency and traceability between the two programming periods: this resulted in adaptations at the MS/Regions level, but it seems that the additional workload was mostly transferred to the beneficiaries. The AB is especially high for small holders with low financial and/or technical capacities.

Some good practices and improvements that decreased the AB were collected in the CS. According to the evaluators, the most relevant are the following:

- The electronic submission of applications, to facilitate the transmission of information between all the stakeholders and the management of the application by the MA and Paying Agency.
- The provision of beneficiaries with, and application files pre-filled with, information from the previous year or from other administrative procedures, in order to save time and avoid mistakes for the beneficiaries (e.g. ES-Gal).
- The establishment of a common database for applicants to obtain certificates from different authorities (e.g. LT).
- The fact to base M8.5 entirely on flat-rate compensations, reduced costs and AB for Paying Agencies and beneficiaries from all receipts submissions and controls (SE).
- The early publication of a clear planning of the calls for applications (FR-Aquit., UK-SC) increased the beneficiaries’ motivation and helped them to better organise the submittal of their applications.

5.8 EQ8 – Efficiency: To what extent have the forestry measures been efficient in achieving their objectives?

5.8.1 Understanding of the question

This EQ focuses on analysing to what extent the ratio between the support provided and the operational results achieved have been optimised. This was investigated through three aspects. The first was to determine the extent to which the operations supported were conducted at a fair price compared to market prices of similar operations, and whether the premiums were calculated based on a relevant method. The second aspect was to investigate whether the premiums were incentive enough for the potential beneficiaries to get involved, which is necessary for the programmes to reach their targets. The third aspect, given the pressure existing on EU budgets, has considered the issue of deadweight effects, asking to what extent the option applied led to a change in management or replicate activities that would have taken place even without the FM.

5.8.2 Method and limitations
The first step was to establish the direct costs of the FM. Unit-cost per hectare was identified based on the CMEF indicators at the EU level. This enabled a comparison between the cost observed in the 2007-2013 period and that planned from the 2014-2020 period. For area-based measures, a more accurate estimation of the cost per ha has been inferred from the methods of calculation extracted at the CS level. This two-part analysis included first the establishment of a typology of the criteria determining the premiums and secondly test cases established for each bioclimatic area, which could be representative of a common situation of the given Regions. Finally, total premium granted per committed ha has been calculated, enabling a basic benchmark between MS/Regions.

The second step was to investigate the incentive of the measures: this built on the drivers at the beneficiaries level analysed in EQ1, on the stakeholders’ opinion collected in the CS, and on the comparison between the targets and the results for the 2007-2014 programmes.

Finally, in Step 3, we have investigated the extent to which the FM applied led to a change in management or replicate activities that would have taken place even without them. Following a theory based analysis of the ‘level of risk’ on each sub-measure, the deadweight effect observed has been extracted from the CS and from information from the previous EQs, concerning mainly the level of incentive of the sub-measures. The analysis of the different cases led us to build a typology of situations to analyse the efficiency of the FM.

Apart from the limits already set in Section 4.5, the main limit that was faced in answering this EQ was that, given that financial details of the projects supported are not available at the EU level, the direct cost of the operations supported had to be estimated from indicators at the sub-measure and MS/Region level, without any distinction between the different types of operations. This limited the analysis of the cost of the operations to the FM limited to one type of operation and on which unit cost/ha can be calculated, i.e. M8.1, M8.2 and M15.1.

5.8.3 Costs of the forestry sub-measures’ implementation are (or not) identifiable and at market price

5.8.3.1 Unit cost identified from the CMEF indicators

The CMEF indicators (output of the 2007-2013 and targets for 2014-2020) enabled the calculation of the public expenditure per supported ha (noted PE/ha), on the measures supporting Afforestation, Agroforestry, Prevention, Restauration and Environmental payments. The figures in the table below give an overview of the average public expenditure necessary to act on 1 ha, over the two programming periods. This calculation does not take into account the fact that some supported areas generate payments for 1 to 6 years, depending on the date of commitment (i.e. on afforestation, agroforestry and environmental payments), and the diversity of potential operations (i.e. on prevention and non-productive investments). However, the average, when weighted by the area concerned, gives a good indication of the cost of the operations, confirmed by the fact that the average PE/ha are very similar over the two periods.

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211 The study focused mostly on the direct costs and on the area-based FM, given that the indirect cost such as IT systems and salaries are very hard to identify in a comparable way between MS and Regions (cf.EQ7) and that the other FM supported a large range of operations whose costs are not comparable.
Table 36: Unit cost (€), per supported hectare, of the implementation of the FM212

<table>
<thead>
<tr>
<th></th>
<th>Afforestation: PE/ha</th>
<th>Agroforestry: PE/ha</th>
<th>Prevention: PE/ha</th>
<th>Restoration: PE/ha</th>
<th>Non-productive investments</th>
<th>Environmental payments: PE/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-20131</td>
<td>Average</td>
<td>4 457 €</td>
<td>1 002 €</td>
<td>6 167 €</td>
<td>4 500 €</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Weighted average</td>
<td>3 377 €</td>
<td>866 €</td>
<td>5 008 €</td>
<td>1 768 €</td>
<td>NA</td>
</tr>
<tr>
<td>2014-20202</td>
<td>Average</td>
<td>6 566 €</td>
<td>5 130 €</td>
<td>NA</td>
<td>9 251 €</td>
<td>952 €</td>
</tr>
<tr>
<td></td>
<td>Weighted average</td>
<td>3 677 €</td>
<td>1 190 €</td>
<td>NA</td>
<td>184 €</td>
<td>202 €</td>
</tr>
</tbody>
</table>

Sources: 1) Output indicators 2007-2013; 2) SFC database, extraction January 2017

The PE/ha afforested includes the costs of investment, maintenance and premiums for income forgone. For the two periods, the costs per unit are very dispersed, especially in MS and Regions where the afforested area is beyond 5 000 ha. Above 5 000, the PE/ha are less dispersed and gathered around 3 000 €/ha. However, regressions showed that the cost/ha is not correlated with the area afforested (no scale effect), the type of stand, or the geographical distribution. The average cost of afforestation (average weighted per area afforested) was 3 377 €/ha for the 2007-2013 period and 3 677 €/ha based on the targets for 2014-2020.

Concerning agroforestry, for the two periods the weighted average of the PE/ha was around 1 000 €/ha.

Annex II of Reg.1305/2013 set up the payment for environmental commitments to a maximum of 200 €/ha, that can ‘be increased in duly substantiated case’. The analysis of the public expenditure per ha on M225 and 15.1 showed that the average premium granted was above this maximum for the previous programming period, while the targets for the current period shows an average premium very close to 200 €/ha (see table 36), which is coherent with the regulation.

5.8.3.2 Cost per hectare calculated on the basis of the methods set in the RDPs

The support granted per ha on M8.1, M8.2 and M15.1 on the current period can also be inferred from the methods of calculation of the premium as set up in the RDPs. The following paragraphs give the result of this calculation, which enables a comparison of the methods and thresholds between the CS MS/Regions.

**Afforestation (M8.1)**

The evaluation included a review of the methods of calculation of the premiums: this is available in Annex 10, Table 61.

The 10 CS concerned showed as many methods to determine the premiums on 8.1. Tree species is the criterion most commonly used to make distinctions on the premium. The use of differentiated scales or thresholds enables the MA to foster some specific forest practices (low density of plantation in GR, non-industrial plantation in HU), species (relevant for biodiversity and climate change mitigation in UK-Scot) or area (AT: areas with high environmental value; UK-Scot: areas identified as relevant for afforestation, areas where afforestation is likely to provide multiple benefits for natural flood management and water quality, or native woodland, etc.). One can note that, when there is a payment to compensate the loss of agricultural income, the payment takes account of the previous crops in GR only. In some cases, no distinction is made even between former agricultural and non-agricultural use, and when the premiums are calculated on standard scales, payments for income foregone and for the maintenance of stands are sometimes merged, even though – based on the Regulation payment for loss of income – they should only be paid if there was a real income loss.

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212 Afforestation: M221+223: 55 RDP; M8.1: 45RDP - Agroforestry: M222: 5 RDP; M8.2
The calculation of the premiums has usually included a third party, which provided the data (e.g. IT-Camp, UK-Scot), ran the calculation (AT, GR, LT) or only validated the method (HU, FR-Aquit.). According to the interviews held in all the above-mentioned MS/regions, the threshold or standard scale of unit costs used for the calculation of the premiums are coherent with costs observed at field level. Standard scales are used in half the cases (BG, HU, LT, SK, UK-Scot).

Given the diversity of methods, the benchmark between MS/Regions was based on typical cases in each biogeographical region. The maximum total premium granted for the afforestation of one ha was calculated in each test case. The results are shown in the table below.

<table>
<thead>
<tr>
<th>Biogeographic regions</th>
<th>Test case214</th>
<th>MS/Region</th>
<th>Establishment</th>
<th>Maintenance</th>
<th>Income foregone</th>
<th>Cost/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic</td>
<td>Pine, private owners, afforestation of 10 ha, in standard area</td>
<td>ES-Gal.</td>
<td>1 853 €</td>
<td>NA</td>
<td>0 €</td>
<td>&gt; 1 853 €</td>
</tr>
<tr>
<td></td>
<td>UK-Scot.</td>
<td>£1 840 (2 090 €) for native Scot Pines</td>
<td>272 L x 5 years = £1 360 (1 550 €)</td>
<td>£3 200 (3 646 €)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boreal</td>
<td>Pine</td>
<td>LT</td>
<td>1 097 €</td>
<td>363 € x 12 years = 4 356 €</td>
<td>5 453 €</td>
<td></td>
</tr>
<tr>
<td>Continental</td>
<td>Hard broadleaves, bare roots</td>
<td>AT</td>
<td>NA</td>
<td>NA</td>
<td>750 €/y. until 2020</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BG</td>
<td>2 758 €</td>
<td>1 289 €</td>
<td>4 047 €</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>HU</td>
<td>2 103 €</td>
<td>2 651 €</td>
<td>5 623 €</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SK</td>
<td>2 788 €</td>
<td>763.46 €</td>
<td>8 368 €</td>
<td></td>
</tr>
<tr>
<td>Mediterranean</td>
<td>All species, on former soft wheat, on marginal areas</td>
<td>GR**</td>
<td>9 090 €</td>
<td>5 385 €</td>
<td>17 511 €</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ES-CIM</td>
<td>NA</td>
<td>235 € x 12y. = 2820</td>
<td>&gt; 2 820 €</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IT-Camp</td>
<td>NA</td>
<td>4 250 (over 12y.)?</td>
<td>4 800 (over 12y.)?</td>
<td>&gt; 9 050 €</td>
</tr>
</tbody>
</table>

* Accompanying structures (e.g. fencing) are excluded of the calculation; **Fencing and irrigation are included in the premiums. Source: Alliance Environnement, based on RDPs and Case Studies

The calculation of the maximum premium in the test-cases showed a wide range of support between cases, ranking from 1 800 up to 17 500 €/ha. Generally speaking, the evaluators confirm, based on the benchmark and on their experience, that the support (including preparation of the land, supply of seedlings, plantation, maintenance – in some cases fencing – and premiums for income foregone over 12 years) is coherent with the market prices of similar operations provided by forest experts and the examples found the literature215 and with real costs observed in public tenders. However, in GR the support seems significantly high from the evaluator’s point of view, in comparison to other MS/Regions.216

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213 In accordance with Art.62.2 of Reg.(EU) No1305/2013: Where aid is granted on the basis of standard costs or additional costs and income foregone, Member States shall ensure that the relevant calculations are adequate and accurate and established in advance on the basis of a fair, equitable and verifiable calculation. To this end, a body that is functionally independent from the authorities responsible for the programme implementation and possesses the appropriate expertise shall perform the calculations or confirm the adequacy and accuracy of the calculations. A statement confirming the adequacy and accuracy of the calculations shall be included in the rural development programme.

214 The test cases were defined as to present a situation of reference in each biogeographic area, taking into account the criteria set in each MS/Region for the calculation of the premium.

215 Equivalent State Aids implemented in FR-Aquit. (Lot-et-Garonne) provided a grant of 2 400€/ha for coniferous and 1 400€/ha for broadleaves (see Annex 5, Table 33). In Thulsfelde, Germany, the planting costs were 5 000-6 000€/ha. In Alborg, costs of cultivation and woodland planting were evaluated at between 300 and 6 000€/ha (Forest research, 2014).

216 It should nevertheless be noted that the support in GR ca not be strictly compared to the other cases because it may cover expensive operations such as fencing, watering facilities or preliminary studies.
Establishment of agroforestry systems (M8.2)

As for Measure 8.1, the methods to establish the premiums are different in every MS/Region of the four concerned CS. They are presented in detail in Annex 10, Table 63. Density of plantation is the most common criterion used to distinguish the payments. We have calculated the maximum total premium granted for the establishment of 1 ha in agroforestry, for two typical cases presented in the table below.

<table>
<thead>
<tr>
<th>Case n°1: 250–200 trees/ha, on former pasture</th>
<th>Establishment</th>
<th>Maintenance</th>
<th>Total cost/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES-Gal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GR</td>
<td>6 670 €</td>
<td>1 420 €</td>
<td>8 090 €</td>
</tr>
<tr>
<td>HU</td>
<td>1 682 €</td>
<td>156 € + up to 497 € for replantation of perished trees</td>
<td>1 838–2 335 €</td>
</tr>
<tr>
<td>UK - Scot</td>
<td>£1 860 (2 110 €)</td>
<td>£48 x 5y. = 270 €</td>
<td>2 380 €</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case n°2: 100 trees/ha, on former arable land, with grafted plants</th>
<th>Establishment</th>
<th>Maintenance</th>
<th>Total cost/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES-Gal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GR</td>
<td>2 200 €</td>
<td>400 €/ha x 3y. = 1 200 €</td>
<td>3 400 €</td>
</tr>
<tr>
<td>HU</td>
<td>3 660 €</td>
<td>570 €</td>
<td>4 230 €</td>
</tr>
<tr>
<td>UK - Scot</td>
<td>872 €/ha</td>
<td>156 € + up to 497 € for replantation of perished trees</td>
<td>1 028–1 525 €</td>
</tr>
</tbody>
</table>

* Accompanying structures (e.g. fencing) are excluded from the calculation
Source: Alliance Environnement, based on Case Studies and RDPs

The calculation shows higher premiums linked to tree density. The premium is still, by far, highest in GR, as for M8.1. These amounts include preparation of the land, supply of seedlings, plantation, maintenance (plus in some cases equipment for animals) and premiums for income foregone over 12 years. They are reliable compared to forest ones, except for GR, where they are particularly high.

Payment for environmental commitments

The evaluation included a review of the MS/Regions choices concerning the calculation of the premium/ha in seven of them. The summary of the methods is presented in Annex 10, Table 64. It shows that the premium is generally set at max. 200€/ha and often seems too low (e.g. in ES-CIM and IT–Camp.: single scale per waived production or per adopted management activities are accumulative to a max. of 200€/ha/year. In SK: the premium is a max. 49€/ha/y). The only real exception is in AT: up to 1000€/ha/y if additional commitments are made in a conservation plan to be drawn up in consultation with the forestry and nature conservation authority.

In ES and IT-Camp the premium corresponds to a strict calculation of foregone activities and saved sylviculture costs. However, in the other MS/Regions in which the premiums were examined, there was no evidence that the premium is coherent with the real extra cost or income foregone generated by the environmental commitments.

5.8.4 The premiums have (or not) been incentive enough to achieve the objectives of the measure

This criterion focuses on M8.1, 8.2 and 15.1, which introduce changes in management practices. Although the analyses were limited by the short period of implementation, some interesting views were collected from the CS and EQ4, mostly based on the past programming period.

Furthermore, those support rates have not been implemented yet, given that the implementation of the FM had not started in GR when this study was written.
Concerning M8.1 and M8.2, the CS and the previous analysis showed that the premiums are generally close to the real cost of the operation. Furthermore, afforestation or the establishment of agroforestry systems are important changes in land management. Hence, it can be stated that the premium was not decisive in the forest holders’ decisions (as stated in BG), even though it could have been a motivating factor (e.g. ES-Gal, UK-Scot.). In addition, direct payments to agricultural activities are generally more of an incentive and the holders’ first choice tends to be direct payment. The low incentive is also clearly shown by previous EQ for M8.2 and partly for M8.1 which could cover more significant areas, as natural afforestation still represents 2/3 of the increment of forest on agriculture land.

No general conclusion can be drawn on the incentive of M15.1: the CS showed that the premiums are judged too low both in AT and SK, in spite of very different levels of support (min 200€/ha vs. max 49€/ha in SK, up to 1000€/ha in AT, in case of a specific forest management plan). In DE-MV and IT-Camp, the uptake is limited by a sort of competition with the implementation of Natura 2000 (budgetary issues in DE-MV, difficulties in finding potential additional commitment in NK2000 areas in IT-Camp). In HU the stakeholders stated that the measure is an incentive mostly for small holders, whereas it appears to be more of incentive for large holders in IT-Camp.

5.8.5 The implementation of forestry measures has (or not) resulted in deadweight losses

This criterion investigated the extent to which the sub-measures applied led to a change in management or replicated activities that would have taken place even without the FM. Following a theory-based analysis of the ‘level of risk’ on each sub-measure, the deadweight effect observed was extracted from the CS and from information from the previous EQ, concerning mainly the level of incentive of each sub-measure. The analysis of the different cases led us to build a typology of situations:

- There is low probability that the operation would have taken place even without the forestry measure because...
  1. the premium provides little incentive, the operations require a significant commitment by the beneficiaries (noted L1 in Table 39, for Low situation n°1);
  2. changes of management practices are not a concern for a large majority of potential beneficiaries, there is a real need for an incentive to make practice evolve (L2);
  3. beneficiaries would not have the financial potential to do the operations without support (L3).
- There is a medium probability that the operation would have taken place even without the FM:
  1. Similar operations would have been performed, but RDP funding schemes are an opportunity for steering activities in a desired direction (e.g. specific target area, use of management practice with a better impact on the environment, etc.). (M1)
  2. Similar operations would have been carried out, but with less magnitude or would have concerned a minority of the targeted stakeholders. (M2)
  3. Similar operations would have been financed by other supports (e.g. State Aids). (M3)
- There is a high probability that the operation would have taken place even without the FM:
  1. Most beneficiaries would have carried out the actions voluntarily even without support, or such practices were already implemented. (H1)
  2. Such operations are compulsory at the local level. (H2)

The following table summarises the situations found in every MS/Region of the CS.
Concerning **M8.1**, the deadweight effect is low overall: the operations require investments and the return on investment takes a long time. In most cases, the land would most probably be left unused without support.

Concerning **M8.2**, no information could be obtained in the CS. Nevertheless, based on the theory and on information from EQ2, we can infer that M8.2 is of interest for small farms or organic farms, whose capacity of investment is general low. This is close to the situation described above as ‘L2’: the deadweight effect is low because most beneficiaries wouldn't have the financial potential to do the operations without support.

Concerning **M8.3** and **8.4**, the deadweight effect is more significant and in most cases the CS stated that the operations of prevention and restoration would have been carried out, but with less magnitude. The different situations are distributed regionally. In DE-MV and FR-Aquit. the prevention of damage and the restoration of damaged forest areas are a local priority and are also supported by local schemes. In FR-Aquit., the restoration of the damaged area after the Klaus storm (200 000 ha) has been 80 % funded by the French state. In IT and GR, on the contrary, the EU fund plays a major role compared to the national schemes, which have little investment capacities. In HU and SK, some operations are compulsory and abide by national forest laws: the deadweight effect is high and the eligibility of such compulsory operations could be questioned. However, because the forest owners often do not have the capacity to bear the costs, EU supports enable the operation to be run with more magnitude and in a more principled way. In HU, ‘arrears reforestations’ can accumulate in spite of penalties to the owners, and this situation can become problematic with the invasion of bushes, invasive species and other unwanted types of vegetation. M8.4 should avoid such situations from occurring.

Concerning **M8.5**, the CS showed a low risk of deadweight effect, which is coherent with the focus on non-productive investments, with little or no return on investments. Investment in recreational activities could theoretically be more at risk, but the CS did not mention any case where operations that would have been done without the measures were funded. In DE-MV, the conversion from pure coniferous stands to close-to-nature forestry with a higher share of mixed and broadleaved tree species is a global trend, hence such operations would have occurred without RD support, but at lower rate.

For **M8.6**, the deadweight effect is low and the measure was judged fundamental for foresters to invest in machinery. The majority of targeted beneficiaries were SMEs in rural areas with small investment capacities, and the support was critical for their decisions to invest. This is even more valid in the context of the economic crisis. In HU, it

### Table 39: Deadweight effect of the forest sub-measures in the CS areas

<table>
<thead>
<tr>
<th>Source</th>
<th>8.1</th>
<th>8.2</th>
<th>8.3</th>
<th>8.4</th>
<th>8.5</th>
<th>8.6</th>
<th>15.1</th>
<th>15.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT</td>
<td>NI</td>
<td></td>
<td></td>
<td></td>
<td>M2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BG</td>
<td>L2</td>
<td>NI</td>
<td>M1</td>
<td>L1</td>
<td>NI</td>
<td>L1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DE-MV</td>
<td></td>
<td>H2</td>
<td>M1-M3</td>
<td>M1&amp;2</td>
<td>M2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ES-CIM</td>
<td>NI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ES-Galicia</td>
<td>L2</td>
<td>Other*</td>
<td>M2&amp;3</td>
<td>M2</td>
<td>NI</td>
<td>L3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FR-Aquit.</td>
<td>Other*</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td></td>
<td>L3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GR**</td>
<td></td>
<td></td>
<td></td>
<td>H2-M1&amp;2</td>
<td>M2</td>
<td>M2</td>
<td>M2</td>
<td>M3</td>
</tr>
<tr>
<td>IT-Camp**</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>NI</td>
<td>L2</td>
<td>NI</td>
<td></td>
</tr>
<tr>
<td>LT</td>
<td>M2</td>
<td>M2</td>
<td>M2</td>
<td>M2</td>
<td>L?</td>
<td>L?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td></td>
<td>NI</td>
<td>L1&amp;2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SK</td>
<td></td>
<td></td>
<td>H2-M1&amp;2</td>
<td>M2</td>
<td>NI</td>
<td>NI</td>
<td>M2</td>
<td></td>
</tr>
<tr>
<td>UK-Sc</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>L1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NI = Not implemented. * 8.2 in Galicia is a very particular case: it supports the planting and maintenance of chestnut trees, which should fall within direct payments. 8.1 in GR is also very specific: it was reported that some areas were afforested in order to benefit from RD support but were not tended at all and often deforested once the compulsory maintenance period was over, so as to put the area back into agricultural production and get direct payments. ** based on the implementation of the measures in the previous period

Source: Alliance Environnement, based on CS
was stated that the support for the maintenance of young stands created a deadweight effect of 30 to 50 %, but those operations are marginal at the EU level. 

**M15.1** was the measure theoretically presenting the highest risk of deadweight effect: beneficiaries could receive payments without changing their management practices. In SK, after two years of implementation (2015-2016), the MA reported the target value of 24 000 ha of supported forests by 2023 (rule n+3) had already been exceeded, with 26 000 ha of supported forests having already been reached because of the strong interest among beneficiaries in this measure. However, this can be explained by the simplification of rules between 2007-2013 and 2014-2020 and considerable work by private advisory groups and PFO associations, which were able to work individually with potential beneficiaries and explain the rules. In most MS/Regions, a premium is judged to be fundamental for holders to implement new management practices, but the M15.1 premium is considered too low.

Little information was collected on M15.2. In HU, the CS indicated that similar support used to be provided by state aid.

To conclude, the analyses showed that the deadweight effect on the FM is low at EU level: the low or fairly adjusted premiums and the very long return on investment limit the deadweight effect but may also limit the uptake of the measures.

### 5.8.6 Conclusion

The analysis showed that the direct costs of the operations are fair, with various mechanisms such as public procurements and the requirement ensuring the relevant calculation of standard scale guaranteeing that the operations are conducted at market prices. The premiums of the area-based FM generally did not provide enough incentive to motivate significant change in management practices, but they did help foster evolutions. Concerning non-area-based measures, it seems that they contributed to implementation of management practices on larger areas. The deadweight effect of the FM is on average low. Hence, the FM are globally efficient from the evaluator’s point of view, except on their incentive component, which could be significantly improved to increase the uptake of the most relevant ones, in particular M8.1, 8.2 and 15.1, which concern both the economic and environmental domains. The evaluators think that with such incentive, it could be possible to significantly improve the effectiveness of these measures and consequently their efficiency.

### 5.9 EQ9 – Efficiency: To what extent have the related costs/burdens been proportionate to the benefits achieved?

#### 5.9.1 Understanding

This question considers the relationship between global inputs and outputs. It required an assessment of the extent to which the costs and burden associated with the implementation of the FM are proportionate to the results achieved in terms of their environmental/climate, economic and social performances.

Therefore, it considered the budgetary costs of the operations supported plus the workload and AB necessary to achieve the benefits identified in EQ7 and 8, and put them into perspective with the benefits achieved as identified in EQ2 to 6, insofar as they are quantifiable and at least in qualitative terms. It also assessed whether more could have been obtained with the same budget (or whether the same outcomes could have been obtained at a lower cost), and whether larger budgets could have led to greater benefits.

#### 5.9.2 Method and limitations

The first step analysed to what extent the present (and past) monitoring system established captures this proportionality relationship between the costs and the benefits achieved. For that a review of the CMEF indicators was carried out, in order to analyse

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217 Art. 62 of Reg. 1304/2013
how the monitoring systems, set up at the different levels (EU, MS or Regions) capture this proportionality.

The second step was to establish the identifiable benefits of the measures. This part built on EQ 2 to 6, also taking into account the stakeholders’ perception of the main benefits, as collected in the CS. The benefits have been identified qualitatively, with some quantitative examples for illustration.

The second step was to compare the costs, benefits and AB established in EQ 7 and 8 and to collect all the recommendations from the CS to identify when and how more benefits could have been obtained with the same budget, or how the same outcomes could have been obtained at a lower cost.

The last step was to identify the level of efficiency of the supported operations. In this step, we have focused on identifying cases (measures or operations implemented in MS/Regions) that reveal a possible lack of efficiency; these arose from the CS analysis and from the comparison between the costs and benefits previously identified.

The main limitations to the analysis have been the availability of data: there is little breakdown of the financial information on the concerned sub-measures and very little or no indicator allowing measurement of the proportionality.

5.9.3 The monitoring systems in place enable (or not) measurement of the proportionality between the costs and benefits of the forestry measures

The CMEF does not include any indicators measuring the proportionality between costs and benefits on the FM. No indicator of that kind has been found either in the CS, at the MA level.

The evaluation of the proportionality between costs and benefits would require detailed information on the supported projects, which should be classified according to the type of operations. This should include firstly the mean cost of projects per type of operation, and secondly information on the expected and/or observed benefits of each type of operation. The latter may include, for instance:

- an analysis of the expected socio-economic benefits of the project;
- the effects on local employment;
- the expected rate of use of infrastructures, etc.

This kind of information is possibly collected by the MA in the selection procedure of projects, or when the supported projects are completed. However, such information is not reported at the EU level and none of the implementation reports was available at the time of the evaluation. Hence, it can be stated that none of the monitoring and reporting systems at the time of the evaluation provided us with any information on the proportionality between costs and benefits of the FM.

5.9.4 Forestry measures implementation benefits are known (or not)

Firstly, it should be mentioned that, from the information collected in the literature, there seems to be common acceptance that:

- Projects in forestry bring benefits that are of a very large range and often multiple.
- Interventions in forestry have rather low financial rates of return\(^\text{218}\) but can nevertheless have great social, environmental and economic benefits.
- The time horizon to establish the benefits of the projects should be long: for instance, the Guide to Cost-Benefit Analysis of Major Projects, in the Context of EC Regional Policy, (1997) assesses that, for financial analysis, ‘a time horizon of 25-35 years can be considered appropriate but in some cases of forestry interventions the horizon may be opportune extended’ and that ‘the lowest values should be applied to tourism-recreational interventions and to those of a short cycle, e.g. forest fruits, etc.’. Hence, we should note that the following paragraphs mostly deal with foreseen benefits, given the long-term effects of most of the FM.

The main measures involved in each type of benefits are presented below. The typology that was used is based on the EC Guide to Cost-Benefit Analysis of Major Projects.

### Table 40: Summary of the benefits of the FM

<table>
<thead>
<tr>
<th>Type of benefit</th>
<th>Main FM involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land protection</td>
<td>8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 15.1</td>
</tr>
<tr>
<td>Water regulation</td>
<td>8.1, 8.2, 8.5, 15.1</td>
</tr>
<tr>
<td>Improvement of the countryside</td>
<td>8.1, 8.2, 8.3, 8.5, 15.1</td>
</tr>
<tr>
<td>Environmental protection</td>
<td>8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 15.1, 15.2</td>
</tr>
<tr>
<td>Species conservation</td>
<td>8.5, 15.1, 15.2</td>
</tr>
<tr>
<td>Improvement of the quality of air and climate</td>
<td>8.1, 8.4, 8.6, 15.1, 15.2</td>
</tr>
<tr>
<td>Increased production of wood, cork or other products</td>
<td>8.1, 8.2, 8.4, 8.6</td>
</tr>
<tr>
<td>Increased tourism-recreational activities</td>
<td>8.5, 15.1</td>
</tr>
<tr>
<td>Improvement in the local economy</td>
<td>8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 15.1</td>
</tr>
</tbody>
</table>

Source: Research by Alliance Environnement

The various effects/benefits of the measures were commented in detail in EQ2 to 6. This overall picture confirms that the operations supported under the FM have multiple benefits and that the FM enhanced the multifunctionality of forests.

We have provided insight into the 'level' of the benefits foreseen, to better illustrate the potential of each measure and their ability to act on different issues. Nevertheless, it is important to note that the benefits of forestry operations are very dependent on local conditions (see EQ 6). Some examples of the benefits coming from the CS are provided in the table below.

### Table 41: Example of observed benefits given in the CS

<table>
<thead>
<tr>
<th>Environmental</th>
<th>Economic</th>
<th>Social</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1 +: impact expected in the long term on biodiversity, soil, water quality and climate change adaptation and mitigation (IT, LT, Scotland)</td>
<td>+: income support (GR) Limits: not focused on making forest a resource (IT, BG)</td>
<td>+ Income support in marginal areas, contributing to retaining people (GR, IT-Camp, UK-Scot.)</td>
</tr>
<tr>
<td>8.3 +: Prevention of environmental damage, maintenance of forest health status (DE-MV, FR-Aquit., LT, SK) +: Long term effects expected on health status of forest ecosystems and climate change mitigation and adaptation (AT, LT, IT-Camp.)</td>
<td>++: Prevention from production losses and restoration of forest potential (AT, DE-MV, FR-Aquit., SK)</td>
<td>+ Maintenance of the motivation of small holders to invest in forest management</td>
</tr>
<tr>
<td>8.4 ++: Faster recovery from disturbance, prevention of secondary environmental damages (DE-MV, FR-Aquit., UK-Scot., SK) Climate change adaptation (AT, LT, UK-Scot.) 0.5 M ha restored at EU level in the previous programming period</td>
<td>++: Improved wood quality and mitigation of production losses (DE-MV)</td>
<td>+ Improved infrastructure for recreational use of forests, benefits for local population and visitors (DE-MV, SE)</td>
</tr>
<tr>
<td>8.5 +: increased naturalness of the forest ecosystem favouring biodiversity and nature conservation (DE-MV) +: Reduced risk for environmental damage (DE-MV, ES-CIM) +: Climate change adaptation (DE-MV, IT-Camp)</td>
<td>+: Monetary flow in rural areas (IT, GR)</td>
<td></td>
</tr>
<tr>
<td>8.6 +: New machinery with less impact on soils (FR-Aquit., GR, LT) +: steering tool to make beneficiaries take more into account ecosystem criticalities and climate change adaptation (AT, IT-Camp)</td>
<td>++: Direct support to SMEs or rural companies (AT, BG, ES-Cim, FR-Aquit., IT, GR, SK, UK-Scot.)</td>
<td>+ Support to SMES and Creation of job creation in rural areas (FR-Aquit., IT, GR, UK-Scot.) / -: some cases where the implementation of M123 had negative effect on jobs (SK)</td>
</tr>
<tr>
<td>15.1&amp;2 +: Biodiversity conservation (ES-CIM, IT-Camp, UK-Scot.)</td>
<td>Limited: low premium (especially in AT, SK, UK-Scot.) and sometimes low uptake (e.g. AT)</td>
<td>+ improved sustainable forest management skills and environmental awareness of forest owners and managers (SK)</td>
</tr>
</tbody>
</table>

Source: Alliance Environnement

### 5.9.5 Forestry measure implementation has been efficient (or not), in terms of a costs/benefits comparison
For **M8.1 and 8.2**, the direct costs of the operations are moderate, and various mechanisms guarantee that the operations are conducted at market price (cf. EQ8). In most cases, those measures have mostly long-term economic and environmental effects: such benefits are hard to quantify monetarily. Hence, no strict cost/benefits analysis could be conducted. However, comparison among cases revealed some situations of interest:

- The premium on M8.1 and 8.2 is apparently very high in GR (17 511 €/ha\(^{219}\)). Our opinion is that this is not especially linked to any over-costs in this country. Furthermore, the efficiency was limited by the dispersal of the afforested plots and the lack of monitoring of the afforested area, which does not guarantee the maintenance of the expected benefits in the long term.

- In HU, the standard scale is surprisingly high for ‘industrial plantations’ of fast-growing trees. This aims at fostering afforestation in the country by making forestry activities more profitable. However, the environmental benefits of such plantations are more limited than other forestry stands set up through M8.1, but also better than agricultural intensive production\(^{220}\). The main concern of the evaluator is the real necessity to support such profitable plantations (see EQ 5).

- In ES-Galicia, M8.2 supports the plantation and maintenance of chestnuts-trees, with a grant of 3 400 € over 3 years, which to our understanding is questionable compared with the grant for fruit orchards, which is significantly lower\(^{221}\).

**Concerning M8.3 and 8.4**, while the unit costs of M.8.3 were not identifiable, the benefits are known and directly observed by stakeholders. M8.3 and 8.4 showed important environmental, social and economic benefits. The average public expenditure/ha restored was 1 768 € at the EU level, which is fair from the evaluator’s point of view. Regarding 8.3, two CS (ES-CIM and LT) questioned whether the protection systems should be managed by private or public stakeholders to be more efficient. However, this was not further investigated in this evaluation study.

**M8.6** showed interesting economic benefits and environmental steering potential; however, the cost could not be identified. One case of capture of the premium by machinery sellers was found (FR-Aquit.). Furthermore, the return on investment on machinery can be limited by the obligation to retain the machine bought with EU support for five years after the payment of the support (FR-Aquit.); this actually forced the owner to keep the machinery seven years,\(^{222}\) which is too long for this type of machine.

**On all the sub-measures of M8**, the ratio between the cost and the economic and environmental benefits of the measure can be increased when an integrated approach of the measure is adopted by the managing authorities. This can be:

- by using an incentive standard scale, fostering the use of species of interest for biodiversity or adapted to climate change (e.g. UK-Scot);
- through specific eligibility criteria: e.g. use of low-impact tyres (FR-Aquit., GR, LT).
- through an integrated use of RD horizontal measures, e.g. to raise the holders knowledge on areas such as climate change adaptation or SFM (M1).

**5.9.6 More benefits could have been obtained (or not) with the same budget, or the same outcomes could have been obtained (or not) at a lower cost**

EQ8 showed that the premiums on M8 are quite efficient: a lot of effort has been put into setting a fairly adjusted standard scale or maximum thresholds for the eligible

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\(^{219}\) Vs 4 230 to 8 090 € on the test cases

\(^{220}\) Examples of eagle nests moved from an artificial nest situated in an oak forest to another one situated in an improved poplar stand [www.mme.hu/binary_uploads/2_magunkrol/heliaca/heliaca_2005_online.pdf](http://www.mme.hu/binary_uploads/2_magunkrol/heliaca/heliaca_2005_online.pdf)

\(^{221}\) Even if it could be considered that in these cases the pruning which help the development of better trunks may also partly decrease the volume of chestnut production.

\(^{222}\) Due to the excessive administrative phase duration.
expenditures, so that in almost every case the operations are efficient, in terms of their cost in public expenditure.

However, the CS showed that most stakeholders consider that there is margin for improvement in the efficiency of the FM and that some practices had direct effect on their efficiency. The full analysis of the practices mentioned in the CS is available in Annex 10, Table 65. The keys points are as follows:

- **Availability of local advisory services and information networks**: the lack of advisory services is identified in LT, AT and ES-Gal. as a factor limiting the uptake of the measures and increasing the cost of applications for stakeholders. In FR-Aquit., forest owners benefit from a network of advisors (unions or public advisory services) that enable easier and less costly applications. For the MA, this facilitates the transmission of information and helps in obtaining well-documented applications.

- **Joint application for small or medium holders**: the possibility for small holder to apply jointly is identified in ES-Gal and FR-Aquit. as a factor of efficiency and is mentioned as a suggestion for improvement in AT. The cost/benefit ratio is often quite low for small holders (this is even more valid for measures with a low premium such as 15.1). Joint application, sometimes with the support of an advisor (cooperative, public/private advisory service, etc.) limits this application cost. In DE, block applications are mandatory: this limited the uptake because it was difficult for holders to organise, but such practices ensure a larger impact of the support on every sub-measure. In GR and ES-Gal. the ‘mosaic’ distribution of the area supported for afforestation and prevention of fires were highlighted as limiting the impact of the operations conducted.

- **Appropriate thresholds** of eligible expenditure: in BG, the use of minimal thresholds of public expenditure is mentioned as one of the mechanisms ensuring the efficiency of the measures. However, minimal thresholds may exclude small holders that may contribute jointly to a very significant uptake of the FM (e.g. FR-Aquit., SE, ES-Gal). The joint application may be a way to solve this problem. In AT, it was also mentioned that maximum thresholds may limit the implementation of the measure on very large properties, which would have a bigger impact, especially concerning environmental measures.

- **Sustainability** of the support and/or of the practices implemented: several case studies mentioned that efficiency was limited by the fact that the measures were not implemented (or the operations were not maintained) on a long enough period to see effects. SE, AT and DE-MV mentioned that the environmental measures (i.e. 8.5 and 15.1) would need to be implemented on longer periods to get significant effects. In GR, some afforested areas (M8.1) were not maintained, which means that the environmental, social and economic benefits of afforestation have been very limited there and even cancelled out.

- **Cooperation** between institutions, within the forest sector and between the MA and the sector: those 3 levels of cooperation were mentioned in IT-Camp as 3 pillars to work on to improve the ratio between costs and benefits. An organized sector facilitates regular exchanges with the MA and trustful relationships ensure that the measures correspond to a need in the sector and will be correctly implemented (mentioned in ES-Gal, FR-Aquit., IT-Camp, LT). The cooperation between institutions was also identified as a key issue (GR, FR-Aquit., IT, LT), i.e. to take into account the peculiarities of the forest sector.

- **Digitalization**, automatization, joint databases: the dematerialization of applications, management and control procedures is still on-going in a significant number of MS/Regions, such as ES-Gal, GR, BG, FR-Aquit. and IT-Camp. New or improved IT systems are expected to reduce the administrative cost both for beneficiaries and MA. Besides, several CS mentioned that the mandatory documents could often be reduced because they are already in the hands of the institutions (e.g. DE-MV, ES-Gal.) or

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223 Furthermore, crossing the results of EQ7 and 8, we can note that there is no identifiable difference in efficiency among MS/Regions based on the payments of invoices, and those using SCOs, while standard scales of units costs that are used in approximately half the CS, are globally perceived as a facilitating factor.
because they could be required only once the project is accepted (FR-Aquit., SK). In the first case, the introduction of IT with a joined database enabling the beneficiaries to access certificates from different institutions was expected to reduce the cost of applications (ES-Gal, BG). Generally, the cost/benefits ratio of the controls are also questioned: the workload is very high, and some control points are checked several times according to the stakeholders (e.g. ES-Gal., FR-Aquit.). Further, the controls could be better sampled taking into account the probability of fraud, even if this is already the case in some areas.

We can also mention that the stakeholders seem to share the opinion that more benefits are obtained with the same budget when the measures are implemented on large areas, avoiding the creation of ‘mosaics’ (which is especially true for environmental measures but also for operations of prevention or restoration), and when the measures are implemented in periods which are significant in the forest cycles. Concerning this last remark, most CS mentioned the importance of the reliability and consistency of the support over time (which was also a key driver in the MS/Regions implementation choices as shown in EQ1).

The analysis of EQ9 showed that there is a significant margin for improvement in the cost/benefits ratio of small holders’ participation, e.g. through specific advisory services and joint application. Digitalization is also an important factor reducing the costs of application, management and monitoring, and the increasing use of IT and joined databases may improve the ratio between cost/burden and benefits in the following years.

5.9.7 Conclusion

EQ7 showed that the AB is especially heavy for small holders with low financial and/or technical capacities. Consequently, we found, in EQ9, that the direct economic benefit of the FM is generally low for small holders. Some MS/Regions put a higher premium on small scale activities (e.g. UK-Scot.) in order to take into account the scale effect. Hence, the cost burden has generally not been proportionate to the benefits obtained for beneficiaries.

The analysis also showed that in some cases higher outputs could have been obtained with the same budget, by reducing beneficiary AB, which generates significant indirect costs.

The use of eligibility and selection criteria has contributed to additional AB, but it seems that some criteria are critical to ensure that the effect of the FM are in line with sustainable forest management (i.e. inclusion in forest management plan, location of operation in target areas, use of machinery with less environmental impact, etc.). However, the use of competitive procedures for granting subsidies, though ensuring a transparent and egalitarian procedure, seems to lower the ratio between cost/burden and benefits. It has weighed significantly on the indirect costs of the measures, while operations bringing mostly environmental benefits and non-significant economic benefits for the beneficiaries may not need to follow the same competitive procedures as fully economic measures.

Even if a proper cost/benefit analysis could not be carried out to assess on the efficiency of the FM under RD, the various analyses under EQ7 to 9 led to the conclusion that efficiency of the implementation of the FM can be considered satisfactory. Some improvements can nevertheless be made to ensure and increase the efficiency, which concern both:

- the EC, which could through its regulation facilitate the access of small holders to RD support, establish a GIS to better locate afforestation and be sure that in the future these plots remain forest; and
- MA, which could increase the digitalisation of forest parcels and of application files to make the administration and monitoring more easy.
5.10 EQ 10 – Coherence: to what extent have the forestry measures as part of the entire set of relevant CAP-measures dedicated to the environment/climate (i) delivered a coherent and complementary contribution to achieving the general objective of sustainable management of natural resources and climate action? (ii) impacted on the other general CAP objectives (viable food production and balanced territorial development?)

5.10.1 Understanding the question

The evaluation of coherence involves looking at how well or not different actions work together. Here coherence is defined as the extent to which the FM do or do not contradict other CAP measures for the environment and climate that are expected to work alongside them\(^{224}\). EQ10 therefore tests the hypothesis that the FM for 2014-2020 are coherent with the three general objectives set out in the general intervention logic for the CAP. The objectives of the forest measures, set out in the EAFRD Regulation, are described in Chapter 3.

EQ 10 considers first the coherence and complementarity of the contribution of the FM and other relevant RDP measures to the CAP general objective of ‘sustainable use of natural resources and climate action’ and secondly the contribution of the FM to the two other general objectives of the CAP, ‘viable food production’ and ‘balanced territorial development’.

5.10.2 Methods and limitations

The assessment of the coherence of the FM with the three general objectives of the CAP is based on potential coherence in a theoretical sense at EU level, complemented with an assessment of coherence in practice, based on managing authorities’ programming of relevant measures in the CS MS/Regions.

The analytical approach is in three steps.

- **The first step** identifies other relevant CAP measures which are dedicated to the objective of ‘sustainable management of natural resources and climate action’, and/or the other two CAP objectives (viable food production and balanced territorial development). The objectives of each of these measures and the strength of their relationship with the FM are described, based on the legislative texts for the 2014-20 period.

- **The second step** involves the assessment of the coherence/complementarity of each of the other relevant CAP measures with the FM. This analysis is undertaken at the EU level, by reviewing the relevant legislative texts, paying particular attention to the degree of subsidiarity available to MS in making implementation choices. The relationship between the measures and the policy objectives is described as coherent (potentially synergistic); neutral where there are no potential synergies or conflicts; and coherent (but context dependent), for example where measures from different Pillars of the CAP interact but implementation choices are not all made within the RDP programming framework.

- **The third step** involves the assessment of the coherence of the programming and implementation choices available to the managing authorities for the 2014-20 period, illustrated by implementation data on: programming of the FM from the CS\(^ {225}\); CAP rules for Pillar 1 from the relevant legislation; EFA and protection of permanent grassland from section 5.2 (EQ2) and the evaluation of the CAP

\(^{224}\) The CAP specific objectives shared by both Pillars, include: provision of environmental public goods, pursuit of climate change mitigation and adaptation and maintenance of agricultural diversity across the EU.

\(^{225}\) The CS authors were asked
Greening measures\textsuperscript{226}; and other relevant RDP measures from the analysis of 2014-20 RDPs for this study\textsuperscript{227} and the ENRD measure fiches\textsuperscript{228}.

The main limitations of this methodology concern the scope and coverage of the data sources for the third step. The CS were the only source of information on coherence from the viewpoint of potential beneficiaries, for example through stakeholders’ views on how the implementation of FM is supported (or not) by other RDP measures, or by definitions of Pillar 1 direct payments rules for wooded land.

5.10.3 Interaction of the FM with other relevant CAP measures dedicated to the CAP objective of sustainable management of natural resources and climate action

The relevant CAP measures that can interact with the FM are:

- Pillar 1 greening requirements, specifically EFAs on afforested/new agroforestry land with RDP support, and designation of Environmentally Sensitive Permanent Grassland (ESPG);
- Pillar 1 rules on eligibility of agricultural land for direct payments;
- other RD measures, specifically for knowledge transfer and information (M1), advisory services (M2), non-productive investments (M4.4), basic services and village renewal (M7), agri-environment-climate (M10.1), Natura 2000 compensation (M12) and co-operation (M16).

These are examined in turn, in relation to specific FM with which they interact, considering the type of coherent and complementary contribution that could be made to the sustainable management of natural resources and climate action. This is supported by analysis of the coincidence and coherence of Member State implementation choices, where information is available.

5.10.3.1 Pillar 1 greening requirements

\textbf{EFAs}

The main objective of EFAs is to safeguard and improve biodiversity on farms. As described in (EQ2), agricultural land on which afforestation or new agroforestry systems have been established with RDP support can count towards a farmers’ EFA obligation, if the Member State offers these options (13 did so for afforestation and 7 for agroforestry in 2017\textsuperscript{229}). There is no conflict with the FM at EU level or in implementation, but the extent of synergy depends on the choice made by managing authorities and by those farmers who are required to define EFA areas.

\textbf{Protective designation of Environmentally Sensitive Permanent Grassland (ESPG)}

This measure is intended to contribute both to carbon sequestration and biodiversity, through designation of ESPG, where ploughing or conversion is prohibited. There is no conflict at EU level with afforestation measure, which has environmental requirements to avoid inappropriate afforestation of sensitive habitats. However, by 2016 only five MS/regions had designated ESPG outside Natura 2000 sites, which means there is potential for lack of synergy with implementation rules of M8.2 on carbon-rich soils elsewhere.

5.10.4 Pillar 1 rules on eligibility of agricultural land for direct payments

\textsuperscript{226} Evaluation study of the payment for agricultural practices beneficial for the climate and the environment, Alliance Environnement, 2017
\textsuperscript{227} The review identified which RDPs referred to support for forests under measures 1, 2, 4.3, 7, 9, 12 and 16
\textsuperscript{229} Including BE and UK are included, but not in all their RDP areas.
For Pillar 1 direct payments from 2015, the detailed rules on eligibility of agricultural land with trees or other woody landscape features are defined by Member States within parameters set in the legislation. These rules can be defined in a way that excludes traditional agroforestry systems from CAP direct payments and/or provides a perverse incentive for farmers to remove existing trees from this and other farmland, thus potentially conflicting with the objectives M8.2 and M15.1.

5.10.5 Relevant RDP measures

The other RDP measures aimed at sustainable management of natural resources and climate action which could interact with the FM are discussed below. There are no conflicts between these and the FM because firstly, all of these measures are optional for managing authorities and land managers and the legislation sets out clearly the requirements to avoid double funding. The programming approach for 2014-20 makes it much easier to use different types of measure to support environmental and climate objectives and improve SFM. The remainder of this section considers the potential for complementarity and synergy, illustrated by examples in Annex 11.1, Box 29.

- **M12.2 Natura 2000 compensation payments**: These apply to forest Natura 2000 areas and other nature protection areas which contribute to maintaining the connectivity of the Natura 2000 habitats and species. Annual payments per hectare compensate for environmental restrictions on forest management as a result of the designation, and can be used in conjunction with M15.1 and 8.5 to provide for additional habitat restoration and improvement work (beyond the restrictions) on the same land.

- **M10.1 agri-environment-climate**: These are annual payments, typically for five to seven years that can be used to support environmental management of wooded land in agricultural use, including traditional agroforestry systems. This mirrors the equivalent FM (15.1) except that the agri-environment-climate measure has much higher maximum payment rates\(^{230}\) and also allows higher transaction costs for group applications (up to 30%).

- **M4.4 non-productive investments**: These environmental investment support payments can be linked to M10.1 or used independently, and can cover a wide variety of actions, including for example restoration/creation of woody landscape features and recreational facilities on agricultural land, complementing the scope of M8.5.

- **M16 co-operation**: One of the objectives of this wide-ranging measure is to support joint approaches to help provide greater and more consistent environmental and climate benefits than could be achieved by individual operators acting on their own. Sub measures provide support for beneficiaries to work together to draw up forest management plans contributing to more sustainable forest production, joint approaches to environmental projects and practices (including efficient water management, the use of renewable energy and the preservation of agricultural landscapes and tourism development), co-operation along the biomass supply chain, operational groups focusing on innovation, and pilot projects. This measure offers an opportunity for people working in forest management and more widely in the sector to become involved in joint projects with other land users, scientists and rural businesses.

5.10.6 Coherence and complementarity of the forest measures with other CAP measures dedicated to sustainable management of natural resources and climate action

The analysis above shows that the FM are generally coherent at EU level with the other relevant CAP measures dedicated to sustainable management of natural resources and climate action. This applies particularly to other EAFRD measures (and also to the relevant EFA greening requirements) where the legislation and guidance

\(^{230}\) Maximum rate €/ha/an for M10.1 ranges from 450 (for other land uses) to 900 (for specialised perennial crops) compared to the maximum rate of 200 for M15.1.
precludes conflict between measures and offers the opportunity for managing authorities to use these measures in synergy with the FM. At the level of implementation by Member States and regions there is significant potential for synergy within RDPs, and a range of examples of how measures have been programmed in this way.

In the case of support for existing, traditional low-intensity agroforestry systems of high environmental value (but often marginal low economic viability) and other wooded farmland there is lack of coherence:

- at EU level in payment rates between the two EAFRD measures which could support sustainable management of these traditional agroforestry systems, which may be classified either as agricultural or forest land in different Member States or regions; and
- at the level of EU rules, which have scope for some flexibility and differing interpretation by risk-averse managing authorities, there is a lack of coherence between the eligibility of this land for Pillar 1 income support and the effective use of M15 and M8.5 to support environmental management on the land.

This net effect of these two issues is that if a traditional agroforestry system is defined by the Member State as agricultural land eligible for CAP direct payments, the land manager implementing appropriate environmental management may receive both CAP income support payments plus agri-environment-climate payments (the latter up to a maximum of €900/ha/yr). Yet if the same land, under the same environmental management, is classified as non-agricultural land (even although it remains in agricultural use) there will be no income support payment and only the forest – environment-climate payment up to a maximum of €200/ha/yr. Examples include the exclusion of important sylvopastoral systems from direct payments and reclassifying them as ‘forest’ in ES, which reduces their economic viability and increases the risk of abandonment.

5.10.7 Contribution of the forest measures to the general CAP objective of viable food production

This objective is broken down into sub-objectives of enhancing farmers’ incomes; improving agricultural competitiveness; maintaining market stability; and meeting consumers’ expectations.

The analysis below uses analysis of the legislation and the findings of the effectiveness sections of this study to assess if the FM are coherent with this objective.

Afforestation is the only FM which could have an impact on agricultural productivity, but the evidence from the CS indicates that most afforestation takes place on land of marginal agricultural productivity and is actively targeted at this land in some RDPs (for example UK(Sc). The relative profitability of agricultural production compared to forestry on better quality land, in most circumstances, leads to the conclusion that beneficiaries would be unlikely to select such land. However there is some evidence from HU, IT Camp, and ES-Gal, that some afforestation has replaced arable production, at least temporarily, possibly because the combination of market prices, M8.1 payments and the option to return the land to agriculture after no more than 20 years is an attractive choice for some farmers. The creation of new agroforestry under M8.2 is more likely to have a positive impact on agricultural productivity (as explained in in 3.1.2) and hence farm incomes and competitiveness, although this will be limited by the relatively small and localised uptake of this measure.

5.10.8 Contribution of forest measures to the general CAP objective of balanced territorial development

The CAP general objective of balanced territorial development has sub-objectives of encouraging the socio-economic development of rural areas, and maintaining a diverse agriculture across the EU. The lack of evidence of the impact of the FM on the rural economy makes it extremely difficult to assess this directly.

The conclusions to EQ 5 suggest that there has been a positive impact the competitiveness of the sector, and it is reasonable to conclude that a competitive forest sector helps to maintain a viable rural economy. In terms of maintaining diversity of agriculture, the limited implementation of M8.2 and support for existing traditional
agroforestry systems means that the potential beneficial impact has not been fully realised in many marginal agricultural areas, including those were abandonment and rural depopulation is already happening.

Implementation examples from the CS suggest that the FM may have had wider societal impacts, both socially and economically, but it is impossible to quantify these. For example:

- the development of rural business specialising in afforestation or restoration of damaged stands, and handling/processing timber (M8.6);
- the creation of recreational and tourism infrastructure in forests, which can both help to enhance quality of life for local residents and attract ‘green’ tourism expenditure (M8.5);
- the benefits to local communities and businesses from the protection of forest against fire, which typically give operational priority to the protection of settlements (M8.3 and 8.4);
- similar benefits both locally and further downstream of the planting and management of forests to reduce flood risk and peak flows (M8.2 and M15.1).

5.10.9 Overall coherence of the FM with the CAP objectives and measures - conclusions

The environmental objectives addressed by this question are shared by the FM and the related CAP measures, many of which apply to both agriculture and forestry. The measures are generally coherent at the level of EU legislation, especially the FM and other EAFRD measures which offer many opportunities for synergy in implementation and contribution to the sustainable management of natural resources, climate action and balanced territorial development. However, there is a real risk of incoherent implementation by MS of CAP Pillar 1 rules in a way that could affect the effectiveness of some FM.

The FM have limited impacts on food production through afforestation of farmland, and considerable potential for beneficial impacts on rural business and quality of life.

5.11 EQ 11 - Coherence: To what extent have the forestry measures as part of the entire set of relevant CAP-measures dedicated to the environment/climate delivered a coherent and complementary contribution to achieving the objective of environmental/climate legislation and strategies, in particular the EU Forest Strategy, EU Biodiversity Strategy, Nature Directives, the Water Framework Directive, Nitrates Directive, the EU Soil Thematic Strategy, the 7th Environment Action Programme, the EU Bioeconomy Strategy, the LULUCF Decision (Decision No 529/2013/EU), and the EU 2030 Climate and Energy Framework?

5.11.1 Understanding of the question

This question tests the external coherence of the set of FM in the context of the broader CAP RD measures, with other EU policies that are related to the objective of ‘sustainable management of natural resources and climate action’. It tests the hypothesis that the FM are coherent as a set of policy measures in contributing towards other related EU and policy objectives. For example, the FM should support the implementation of the EU’s climate commitments and objectives as set out in the 2030 Climate and Energy Framework and that as a set of measures they work coherently and without contradiction towards those objectives.

5.11.2 Methods and limitations

The first step is to identify the key EU policy instruments external to the CAP that are related to the objective of ‘sustainable management of natural resources and climate action’ and can be supported by the FM (Annex 11.1.1). This forms the basis of the
qualitative assessment to highlight the relationships between the EU policy instruments and FM.

The second step considers the actions that can, and where information is available, are, being supported by the FM and the relationship these actions have to the objectives of the different policies concerned. i.e. whether they are: coherent (potentially) synergistic; coherent neutral where there are no synergies or conflicts; coherent mixed - where the synergy or conflict is highly dependent on implementation; and (potentially) conflicting. This uses the development of a two-entry matrix and analysis of key interactions between the FM and policies identified and taken from the available literature (as summarised in the literature review (see Annex 1) and environmental scope of the measures described in Section 3.1.2.

This analysis is undertaken at the EU level, by reviewing the relevant legislative texts and implementation choices of Member States, through the analysis of RDPs (Annex 2). Due to the lack of collated information on the implementation of the FM in the current programming period, it was necessary to rely on case studies to provide more detailed information on which to base the assessment of coherence. The the 14 case studies were used to identify the approach taken by Member States to implement the legislation. This considers, with the limits of the information available, the way in which the forestry measures are designed and used to contribute towards EU environment and climate policy objectives using examples to illustrate the assessment.

The main limitations for the proposed methodology is that the National and Regional competence in the implementation of EU legislation can mean that the FM are used very differently in different RDP contexts. Whilst this is to be expected, information on how they are used is not well reported and limited here to case study information or existing evaluation studies. Information on coherence assessments at the level of implementation at the Member State and regional level rely, often solely, on the ex-ante (2014-20) and ex-post (2007-13) evaluations. The 14 RDP case studies found relatively little further information on coherence with other EU policies and strategies covered in this EQ with responses tending to focus on the Nature Directives (with the limitations identified in EQ 6). Therefore the assessment of whether the forest measures are coherent (or not) with other related EU and national policies with similar environmental and climate objectives relies largely on EU-level information and expert judgement. In making this assessment, particular care was taken when examining stakeholder responses to questions around coherence. In some cases, as noted in the Bulgarian case study, there is an assumption by stakeholders that ‘legality leads to sustainability’, i.e. the existence of applicable forest laws ensures sustainability and coherence in practice. In reality the interpretation of those laws and how they are implemented in practice will have bearing on whether the actions taken are coherent or not.

5.11.3 EU Regulations, policies, strategies or Directives exist (or not) with a direct or indirect relationship with the aim of delivering environmental and climate benefits through forests.

The key EU policy instruments, external to the CAP, that are related to the objective of ‘sustainable management of natural resources and climate action’ is summarised in Annex 11.1.2., and include:

- The EU Forest Strategy;
- 7th Environmental Action Programme;
- EU Biodiversity Strategy
- Birds Directive and the Habitats Directive
- Water Framework Directive
- Nitrates Directive
- EU Soil thematic Strategy
- The Kyoto Protocol and the EU’s climate and energy framework to 2020
- The LULUCF Decision and the Effort Sharing Decision;
- The Renewable Energy Directive
- The Paris Agreement and the 2030 EU climate and energy package
- The EU Strategy on adaptation to climate change

Case study experts were asked to assess the evaluation question themselves for the country or region covered. In addition, they were required to detail the environment and climate priorities in the case study area and the use of FM to address these priorities. This information was used in this assessment.
Based on a review of the legislative texts the majority of policy instruments are ‘strongly related’ to the RDP FM and have a direct relationship with the aim of delivering environment and climate objectives through forests. These include the EU Forest Strategy, the Biodiversity strategy and Birds and Habitats Directives and the majority of the EU’s climate policy, with the exception of the Effort Sharing Decision (ESD)\(^{232}\). These policies require specific action in forests and some include explicit reference to the use of RDP FM for their implementation (e.g. the EU Biodiversity Strategy and the EU Forest Strategy). Action on climate is particularly relevant to the future of EU Forests. While discussions around the accounting and implementation rules for the 2030 climate and energy framework are still on-going, it is clear that forests will play an increasingly important role in the EU’s climate ambition to 2020 and beyond. For the period to 2020 the LULUCF Decision and Kyoto Protocol (KP) targets require action in forests, improving their management and extent to increase carbon removals, stabilise sinks, and utilise forest products in a carbon positive way. As there is no attached funding to either of these requirements, support to improve forest management comes primarily from the CAP in the form of the FM and State Aid funds.

A few of the policies are assessed as ‘related’ to the delivery of environment and climate objectives through forests, but where delivery of these objectives requires action across a much broader set of rural land covers than forests alone. These include the 7th EAP, EU Bioeconomy Strategy, Water Framework Directive and Soil Thematic Strategy. Some of these policy initiatives do make explicit reference to the use of forests through the implementation of other EU Strategies and initiatives, such as the 7th EAP requiring the implementation of the EU Forest Strategy. Other examples include the Water Framework Directive where River Basin Management Plans sometimes identify afforestation and forest management actions to contribute to watershed management. Similarly, some RDPs will explicitly state the use of FM for watershed management (such as AT requiring the maintenance and enhancement of forests with water protection functions, and ES-CLM including hydrological restoration of riverside vegetation both under measure 8.5).

Two of the fourteen reviewed policies are only ‘tangentially’ related to the delivery of environment and climate objectives through forests. The Nitrates Directive focuses largely on the management of agricultural land to reduce nitrogen pollution. The use of woody vegetation along watercourses or the establishment of agro-forestry systems could help to implement these objectives, but they are secondary to efforts relating to agricultural practices. The ESD focuses primarily on non-CO\(_2\) emissions from the residential, transport, agriculture and waste sectors\(^{233}\). Forests have a minor role to play in the delivery of Member State ESD targets through the use of fuels in forest machinery and tractors, by providing potential sources of biofuels (tall oil derivatives or lignocellulosic residues), or by providing biomass for district heating in the residential sector.

### 5.11.4 The forestry measures are coherent (or not) with other related EU and national policies with similar environmental and climate objectives

Annex 11.2.2 summarises\(^{234}\) the potential coherence between the objectives of key EU policy instruments and the FM based on a review of the main legislative and supporting texts combined with the expert judgement of the study team in relation to the potential use and scope of EU FM. The term potential is used as at this level of analysis as it is only possible to identify if the design and intention of the measures are coherent with the objectives of other environmental policies.

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\(^{232}\) As the Decision covers primarily non-CO\(_2\) emissions from agriculture, as opposed to those emissions related to forests and land use change (covered under the LULUCF Decision).

\(^{233}\) Energy supply (not generation); Industrial energy use and processes; Transport energy use excluding international maritime shipping and aviation); Buildings (household energy use); Services and small industrial installations; Agriculture (non-CO\(_2\); only); Waste.

\(^{234}\) This table is a summary of the supporting evidence for this evaluation question that can be found in Annex 6 – EQ11.
Based primarily on expert judgement of what is permitted under the Regulation, and complemented with examples drawn from the case studies, the FM as a set of measures appear to be coherent with the environment and climate policies assessed. The actual coherence of FM is related to the way in which the measures are designed at the RDP level and the rules relating to them. This is particularly notable in relation to Measure 8.6, the focus of which is less explicitly tied to environment and climate objectives in its design in the Regulation than those of the other FM. The use of M8.6 to mobilise wood resources or develop processing and forest technologies could lead to a greater utilisation of the forest resource. If this is not undertaken with strict adherence to SFM, there is a risk that efforts to increase wood mobilisation and increase removals from forests could undermine some of the broader environment and climate objective of other related policies, particularly those relating to biodiversity (intensified forest management) and climate mitigation (maintaining carbon stocks). Conversely the mobilisation of wood resources for material use in a sustainable way, or for energy uses where this does not undermine the carbon sink potential of forests, such as utilising wastes from forest operations, could help to increase the volume of stored carbon (in material products) and substitute fossil and GHG-intensive materials in products and energy. In this way the measure can contribute to the development of the low carbon economy whilst also supporting other environmental objectives, such as lessening the impact of harvesting on soils and promoting a healthier stand structure through improved management and the adoption of environmentally friendly and low impact machinery. Crucially it is how the measures are implemented that determines whether they are coherent with environment and climate objectives, delivering synergies or conflicts. With the information collected in the course of this evaluation, it has not been possible to assess whether the use of the FM has led to specific conflicts with the listed EU environment and climate policies, other than through specific examples noted in the case studies.

To understand if there are explicit synergies or conflicts between the objectives of EU environment and climate policies and the FM requires a closer look at whether the policies themselves make reference to the RD FM and then if the actions permitted under the FM in a given RDP support or not these objectives.

For biodiversity the forest management plan, required of forests above a certain size, helps to ensure that RD FM are used to deliver against biodiversity objectives from related policies. Therefore at the measure design and objective level, there appears coherence between the FM and the objectives of the relevant biodiversity policies. The case studies undertaken for this evaluation identify a number of explicit cases where forest management plans take into account biodiversity objectives. For example, the implementation of the Biological Diversity Act in BG requires that forest management plans are subject to a compliance assessment with Natura 2000 guidance, undertaken by the Ministry of Environment and Waters.

The requirements of the use of the FM to support the forest management plan remains difficult to assess, however. In theory, the plans should set out the necessary management measures to achieve favourable conservation status of Annex I forest habitats. However, the required contents and standards for forest management plans are defined and controlled by Member States. Managing authorities are required to take account of the Prioritised Action Framework (PAF) in their RDP needs assessment, yet this only refers to Natura 2000 sites and not to any PAF defined forestry conservation measures that might be needed outside Natura 2000. In practice, the ex-ante assessment of RDPs should ensure that the RDP includes arrangements for the effective application of the EIA regulation, but in many Member States, forestry management practices that meet the minimum environmental requirements are excluded from EIA, even if they could be damaging to the conservation status of Annex I forest habitats. Member State responsible authorities do have the option to intervene here during the approval of forest management plans or intervention permits. Again, within the information available to this study, it was not possible to determine if such interventions were made, or if there were any potential incoherence about the intended use of RD FM in relation to the objectives of the forest management plans.

Action in forests is particularly important for the delivery of climate action objectives with many Member States utilising the CAP supported forest management (in the form of the
Evaluation study of the forestry measures under Rural Development

FM in national climate action plans and the contribution of forest measures to climate action as set out in the 2014-20 RDPs. For example, in SK all supported activities defined in sub-measure 15.1 are to be focused on mitigation and adaptation of forestry to climate change. In addition, support from M8.3 is focussed on flood protection and for forest fire protection, further supporting adaptation. In this case there is synergy between some of the FM and climate action. In ES-CLM the forest sub-measures explicitly refer to the EU Forest Strategy (JCCM, 2015a:582) with several measures complementing the Regional Strategy to tackle Climate Change (RSCC) (JCCM, 2010:74) suggesting coherence between the FM and climate action in ES.

Based on the 14 case studies, and from the perspective of Member State climate programmes, many identify the increase and maintenance of forest area as important for sequestering carbon, and thus contributing towards LULUCF goals. The climate mitigation benefit of afforestation is well established, providing that the resulting vegetation and soil structure contains a greater and more stable carbon pool than the land use it replaces. However, for forests to provide a long-term contribution to climate mitigation they need to remain in-situ for multiple decades and to be managed sustainably. There is limited evidence available on which to assess whether afforestation supported by the FM is being complemented with on-going management support (e.g. through measures 8.3, 8.5, 8.6 and 15.1) and thus providing synergistic contribution to climate action objectives in the long-term. Equally there is little evidence to suggest any of the FM are working in conflict with this objective.

In a study synthesising Member State LULUCF Article 10 reports, it was found that afforestation, forest management and protection of natural disturbances in forests (including forest fires), formed the majority of policies and measures to address LULUCF goals. For example, 26 Member States list ‘forest management’ as one of the main policies in their LULUCF reports with the main source of funding being that of the EAFRD. Afforestation and the protection of natural disturbances in forests (including forest fires) are mentioned in 26 and 24 Member States respectively, again noting that EAFRD is the primary support mechanism. The Article 10 reports themselves are insufficiently detailed to be able to establish whether these policies and measures related to the FM or other elements of EAFRD, yet there appears reasonable correlation in the wording used to suggest that FM are a key component of these actions. For example, HU makes explicit reference to the RDPs being on of the most important policy tools to maintain and increase carbon sequestration. The following forestry actions are listed: Afforestation of agricultural land (15,000 hectares expected to deliver 196,000 tCO2 removed by 2020); establishment of agroforestry systems (2,500 hectares expected to deliver 48,000 tCO2 by 2020); prevention of forest fire, monitoring and prevention measures; restoration of forest following catastrophic events; and the application of forest environment payments. In addition, the following actions are listed in relation to forest environment payments (15.1): for promoting selective cutting regime (20,000 hectares), reducing clear cutting method (200 hectares), postponement of final felling to protect biodiversity (500 hectares), leaving groups of uncut trees in fellings (500 hectares), and minimising soil damages related to transportation (10,000 hectares). Here it is clear that the FM are intended to be used synergistically to provide a coherent contribution towards the objective of climate action.

235 M8.5 regarding management plans that complement and reinforces the RSCC measure (190) on the improvement of forest managers and landowners on sustainable forest management. M8.6 in its support to certification operationalises the RSCC measure (226) on the promotion of SFM certification, and M15.2 serves the purpose of the RSCC measure (286) to boost projects and mechanisms for ex-situ conservation of flora species.

236 The environmental compliance requirements under Article 6 of the Delegated Regulation (807/2104) help to ensure coherence with climate objectives in this regard.

237 “Analysis of LULUCF actions in EU Member States as reported under Art. 10 of the LULUCF Decision - draft final study for DG CLIMA under Framework Contract CLIMA-FWC-001/FRA/2015/0014 (Unpublished at the time of drafting).

238 AT, DE, CY, CZ, EE, FI, FR, EL, HU, IE, LV, LT, LU, MT, RO, SI, ES, UK, SE, DK, BE, HR, PL, SK, BG, NL

239 Source: Hungarian progress report submitted in response to Article 10 of the LULUCF Decision
Balancing the contribution of the FM to different environmental objectives can be a challenge to using them coherently to meet EU environment and climate goals. For example, the impact of afforestation can be positive or negative on different environmental objectives depending on the location of planting, its extent, situation in the landscape and chosen species. Afforestation under the FM should take into account the protection of existing priority habitats, such as in Poland where permanent pastures, meadows, and Natura 2000 areas are excluded from afforestation, and safeguarded by the afforestation plans. In Greece the Dafis (1972) classification of forest vegetation is used to support the afforestation of agricultural lands with specific species per area, in order to ensure M8.1 is in line with the National Biodiversity Strategy. However this is not necessarily the always the case, for example, in the synthesis of the ex-ante assessments of RDPs\(^{240}\) the authors note that “All cases examined argue that one of the key elements is to ensure the environmental value of land to be afforested, but the information on different types of areas, land use and environmental value of the areas that are included in afforestation schemes is not very detailed”.

Soils and water policies or objectives in Member State case studies were found to make less explicit reference to the use of forest measures, although some references in the case studies are worth noting\(^ {241}\). Some incoherence was identified in the way measures are implemented across different environmental objectives. For example, Hungary and Italy (Campania) have supported the afforestation of Poplar plantations (M8.1) that were intended for industrial use. In Hungary, these poplar stands were intended to feed a potential growth in industrial applications (saw logs, veneer wood, cellulosic chemicals)\(^ {242}\), yet the market for these uses collapsed and has led to under-management of the plantations as a result of lack of revenue. The under-management of these forests and their regular nature could have implications for biodiversity objectives, despite Poplar being native to the country, which could have been addressed through the use of other FM (e.g. 8.5 or 15.1) to maintain management and support other environment and climate objectives, whilst new markets and uses of the timber could be established. The inconsistency here is not necessarily in relation to the FM and how they are designed, but in the way they could be better utilised to bring about the positive and sustainable management of forests.

5.11.5 Conclusion

The evaluation question seeks to understand to what extent the supported forest measures have delivered a coherent and complementary contribution to the objectives of the relevant EU environment and climate policies.

Overall, forests play a crucial role in delivering environment and climate objectives both at the EU and global level and, supported by the FM, are key components in the achievement of EU policy initiatives in this area. The FM were found to be coherent with the objectives of the 14 key environment and climate policies reviewed. The EU forest strategy, Biodiversity policies and Climate policies feature frequently in reference to the use of forest measures in RDPs as well as the reciprocal. This is supported by similar findings in the synthesis of ex-ante evaluations when considering external coherence\(^ {243}\).


\(^{241}\) Soils: EL – notes the contribution to the Nitrates directive through M8.1 (and previously 221) by reduction of nitrogen fertiliser application following a change from agricultural to forest land. SK – EU action plan for sustainable forestry, the EU Soil Thematic Strategy and the Water Framework Directive is addressed by the support of M15.1, M8.4. Water: BG - RBMPs - improving forest management in the catchments intended for drinking water supply, increasing forest cover and restoring forest potential. SK - M8.3 is focused on flood protection and for forest fire protection.

\(^{242}\) The nature of these plantations mean they can be converted back to agricultural land if market conditions becomes unfavorable.

\(^{243}\) "Whereas links between the RDPs and Europe 2020 Strategy at the level of objectives are very clear, the contribution of the actions of the RDPs to the three objectives of the Europe 2020 Strategy is not concrete and evident.”
Establishing whether or not the FM are coherent with the environment and climate objectives in the way in which they are implemented, has been more challenging. The lack of implementation data for the current programming period and limited information that could be drawn from the RDPs, has left gaps in the evidence needed to assess coherence across the EU. Despite the requirements of the measures, the cross reference to SFM and the Forest Strategy, and the conditions of the Delegated Regulation (807/2014), the implementation choices by Member States and the decisions of landowners have significant bearing on the coherence of FM in contributing to the EU’s environment and climate policies. Therefore the conclusions from this analysis rest primarily on the findings of the 14 representative case studies and other existing work analysing specific policies.

The FM are intended to work as a complementary set of measures to address the objectives of the CAP, and thus contribute to the EU’s environment and climate objectives. The appropriate use and management of forests supported by the FM can lead to the delivery of multiple environment and climate objectives simultaneously, providing that they are implemented effectively and with these multiple objectives in mind. In practice, this is not guaranteed to be the case as not all environment and climate objectives can be delivered synergistically in all cases (Burraresco et al, 2016; Hart et al, 2013). However, we lack clear evidence that this is the case in practice, particularly for objectives that require long-term commitments, such as climate mitigation. Whilst there is insufficient evidence to suggest incoherence, recommendations can be made to support the improved use of the different FM in working together as a set of measures to deliver environment and climate objectives and over the long-term. This would support the long-term management of forests and thus contribute to environment and climate objectives that take long-periods to materialise, such as the development and stabilisation of ecosystems, the reintroduction of habitats and species, and increase and maintenance of carbon sinks in forests, whilst ensuring the sustainability and continued productivity of managed forests.

5.12 EQ 12 - Coherence: To what extent have the forest measures been coherent and complementary with the interventions of the other ESI-Funds and other relevant EU-policies as research and innovation?

5.12.1 Understanding of the question

This question relates to an evaluation of the external coherence of the forestry measures with other European Structural and Investment Funds (ESIF) and other relevant EU policy initiatives such as Research and Innovation that are related to the CAP objective of ‘sustainable management of natural resources and climate action’. The evaluation tests the hypothesis that the FM are coherent with these other EU instruments, and seeks to identify any conflicts.

5.12.2 Methods and limitations

The first step in the evaluation of this coherence question is to identify the ESIF and research and innovation policy instruments outside the CAP that are considered in this analysis. Using the approach described under EQ 11 the second step analyses the coherence of the forest measures with the objectives of these policies that may be affected by the forestry measures. A qualitative assessment is undertaken to highlight the relationships between the forestry measures and the objectives of the ESI-Funds, to

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244 Such as the review of Member State LULUCF Article 10 reports for DG CLIMA - Analysis of LULUCF actions in EU Member States as reported under Art. 10 of the LULUCF Decision - draft final study for DG Clima under Framework Contract CLIMA-FWC-001/FRA/2015/0014 (Unpublished at the time of drafting).

245 Burraresco et al (2016) note the potential conflict between afforestation for climate purposes and impact on biodiversity objectives and that “joined climate and biodiversity benefits are strongly context-dependent”; Hart et al (2013) note the broader challenge of balancing production with environmental objectives “...increases in the production of food, feed or timber, therefore must be accompanied by improved resource efficiency (to avoid reducing natural capital) and improved flow of environmental services from healthier ecosystems”.

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determine whether the policy objectives are coherent or conflicting, and then separately whether they are complementary to EAFRD FM support or have replaced EAFRD support. This uses a review of the relevant objectives of the different funds and instruments, the Partnership Agreements and the analysis of the 14 case studies which were asked to assess the coherence between the FM and the ESI-Funds.

The limitations to EQ12 are similar to those of EQ11. These are in addition to those set out for the overall evaluation methodology in the first interim report, § 4.7.

5.12.3 The forestry measures are coherent (or not) with the interventions of the other relevant ESI Funds and EU policies on research and innovation

Annex 11.3.1 sets out the key ESI-Funds that are related to the CAP objective of ‘sustainable management of natural resources and climate action’ and shows an assessment of their coherence with EAFRD forest measures at the objective level, i.e. do the FM support the objectives of the ESIF.

The FM are coherent in design with all ESI-Funds and associated research and investment programmes and have potential synergies with at the measure design level, with the exception of the EMFF which is not relevant for forests. Support provided under the ESI-Funds can complement the activities of EAFRD support, such as through capacity building. Research and innovation funds can help to develop and test new and innovative approaches to forest management and set up new supply chains.

At the implementation level, the way in which the measures are implemented in practice could influence whether there are synergies of conflicts between the objectives of the ESI-Funds. The case studies provide several examples of complementary support between ESI-Funds and EAFRD support (IT-Camp, LT, SK, FR-Aquit., BG, ES-CLM). For example, in FR-Aquit., competitiveness and development of marketing opportunities supported through EAFRD are aimed at SMEs in sylviculture and logging, and the development of use of wood in construction (although not yet implemented in the RDP), this is complemented by ERDF support to wood industries and the development of fuel-wood energy. Prevention of risks to forests is also complementary in FR-Aquit., with fire prevention

Further complementarity between the ERDF and FM is illustrated in ES-CLM through sub-measure 8.6 where ERDF support is used to provide technical assistance, trans-border action and enable entrepreneurial innovation, whereas EAFRD provides support for machinery acquisition, or planning investments.

5.12.4 The forestry measures have been complemented or replaced by the use of equivalent state-aid funds

State-aid support for forestry is used in a range of countries across the EU. The most notable case study region is Finland, where the FM in the 2007-13 programming period have not been carried through to 2014-20, i.e. no RDP supported FM are used. In Finland the most important national schemes supporting forestry and forest nature are The Act on the Financing of Sustainable Forestry (KEMERA) and METSO conservation programme. These replace the use of the RD FM but are complemented through RDP support under other measures, such as M16 for cooperation.

Other uses of state aids for forests were noted in a number of case studies. In FR-Aquit. there are several examples where the use of state-aids have replaced the need for

246 Forest fire prevention has been an increasing challenge in recent years and not limited to the traditionally fire prone Mediterranean areas. In response to this (and other challenges) ERDF can be used to provide support for cross-border initiatives, such as capacity building and training exercises involving different country administrations. This has been the case recently with Austria, the Czech Republic and Germany using ERDF funds for a three-day forest fire training exercise to create a cross-border disaster prevention plan. The drill is receiving financial support from the European Regional Development Fund through the Interreg programme Austria-Germany/Bavaria. The goal is to enable transnational cooperation with local fire service units, other operational organisations as well as with the competent authorities and landowners. This could be coupled with support through EAFRD under sub-measure 8.3 in the prevention of catastrophic events.

247 In general, the ERDF, CF and EAFRD can support both flood prevention and forest fire prevention.
EAFRD support. The main area of investment support provided through state-aids in France (Aq) is the reconstruction of forests following storm Klaus. State-aid support of €450M has been used in conjunction with €52M of EUSF funding and €60M of EAFRD support (€15M on M226A, then €45M on M8.4). Other state-aid support in FR-Aquit. concern investments that could have been supported through M8.6, such as supporting new techniques, marketing and development of new product streams and improving competitiveness. In DE-MV the national framework for the improvement of agriculture and coastal protection or GAk\(^{248}\) provides support for activities that can be funded under EAFRD, but often with different objectives. For example, the construction of forest roads and infrastructure to aid in forest activities can be supported through GAk, as well as through M8.3 (in the DE-MV RDP). However, M8.3 focuses on risk prevention and mitigation, not on forest exploitation, as is the case for GAk. The case study found that there was potential overlap with other ESIF (mostly the ERDF) and the RDP supported forest measures in the region, although no explicit conflicts were found in the case studies or reviews undertaken in this study.

### 5.12.5 Conclusion

EAFRD forest measures are coherent with all ESI-Funds and associated research and investment programmes evaluated in this study and have potential synergies at the measure design level. For the ESI-Funds in the 2014-20 programming period, common rules have been set under the Common Provisions Regulation (CPR - Regulation (EU) No 1303/2013) to ensure EU funding sources are used in a more strategic and complementary manner. Each Member State produces a draft Partnership Agreement, which outlines the country's strategy and proposes a list of programmes. In addition to this Member States also present draft operational programmes. These Partnership Agreements between the Member States and the European Commission are negotiated between the Commission and national authorities. To strengthen coherence between the funds, the Partnership Agreements are aligned with the objectives of the Europe 2020 strategy through 11 thematic objectives identifying the development needs and defining the ‘Investment Priorities’ for ERDF, ESF and CF and ‘Union priorities’ for EAFRD and EMFF for the funding period. As a consequence of the new legislative requirement and the negotiation of the Partnership Agreements with the Commission, one can expect there to be an overall high degree of coherence between the thematic priorities of the funds and the territory-specific development needs. A review of all adopted Partnership Agreements was undertaken in 2015 for the European Parliament\(^{249}\). However, as with EQ11, there is limited information available to this assess whether or not this coherence is being realised in practice. In absence of such information, no further conclusions can be drawn.

State-aids have been used to replace RDP forest measures in some Member States, and in others have provided complementary support.

### 5.13 EQ13 – Relevance: To what extent the examined forestry measures matched the existing needs in the sector, the priorities established at the EU, programme and/or national level?

#### 5.13.1 Understanding

The first aspect of this EQ asked the evaluator to appraise to what extent the set of FM (M8 and M15) is in line with the needs of forest and the forest sector, from an economic, social and environmental point of view. In answering this question, the relevance of the FM have been analysed from the angles of their capacity to answer local needs at the RDP level and of how well they address the needs of the sector when analysed at EU level.

\(^{248}\) Rahmenplan der Gemeinschaftsaufgabe „Verbesserung der Agrarstruktur und des Küstenschutzes“

The second part of the question concerns the potential of the FM to contribute to the objectives established in the EU and in MS/local strategies, i.e. in terms of sustainable forest management, protection of biodiversity, water and soil protection, adaptation to climate change and mitigation, etc.

In the process of designing the RDPs, the analysis based on the theory of action that was carried out in the ex-ante evaluations, as well as the iterations between the regional and national MA and the EC, already ensured that the programmed RD measures both matched local needs and were coherent and relevant in addressing EU and national priorities. Hence, this EQ builds on the effects of the FM and goes beyond theory to investigate the relevance of the measures based on their effects at the local and EU levels. In answering this question, a focus was also made on analysing the coherence between the needs and priorities on the one hand and the resources allocated to each measure on the other.

5.13.2 Method and limitations

For each criterion, the method consisted in a first step to identify the needs and priorities concerned and then a second step to analyse the relevance of the FM in addressing the issues identified.

As regards the analysis of the match with the needs of the sector, the needs were analysed mostly based on the RDP review and on the typology of the needs identified at RDP level, which was established to analyse the share of the needs at local and EU levels and to quantify their occurrence (see §4.2.5 and Annex 2).

As regards the priorities at the EU level, we took account of the priorities whose objectives have a direct impact on the management of forests at that level, and whose objectives are established with a calendar similar to that of the programming period (i.e. targets are defined up to 2020). Hence, the priorities considered for this criterion are: 1) the 6 priorities for RD, defined in Reg. 1303/2013; 2) the priorities defined in the EU Forest Strategy; and 3) the EU Biodiversity Strategy up to 2020, which set three main objectives relevant to forests (see below), 4) the EU’s Climate and Energy Framework to 2020.

The national and local priorities were identified based on the review of the RDPs: as a matter of fact, the needs set in the RDPs highly reflect the local and national orientations. The national strategies were examined in some CS, but a general limit was the difference in the calendar of the Forest Strategies and the RDPs.

The other global limits in answering this question were:

- the lack of financial data concerning the budget allocated to forests in RD horizontal measures to investigate the extent to which there are sufficient means to address the needs of the sector and the EU/national /local priorities.
- The fact the description of the needs of the forest sector in the RDPs is often quite limited.

5.13.3 The extent to which the FM matched (or not) the existing needs of the sector

5.13.3.1 Identification of the needs of the sector

The EU forest strategy identifies the following needs of the forest sector at the EU level:

- The competitiveness and economic viability of sustainable forestry in many parts of the EU, increasingly challenged in the global marketplace.
- The increasing importance of good governance for the protection and sustainable management of forests requiring additional skills and efforts from forest owners and managers.
- The need to enhance cross-sectoral co-operation, and coordination between forest policy and other policy areas that affect forests and forestry.

The RDPs identify the needs of the sector at the local level. The following graph presents the variety of the needs and their occurrence in the 28 MS, based on a review of the
whole set of RDPs concerned (100). It is also important to note that, as a result of the logical approach that was developed in the RDPs, the needs assessments are influenced, first by the RD framework, resulting in forests needs being mostly considered from an environmental point of view by MA, and second by the focus chosen for the RDPs in addressing forests. However, it does provide good insight into the needs of the sector.

**Figure 48: Typology and occurrence of the needs of the forest sectors identified in the RDPs**

![Image of bar chart showing the typology and occurrence of the needs of the forest sectors identified in the RDPs]

Source: Alliance Environnement, based on the analysis of the RDPs

This typology confirmed the needs mentioned in the EU forest strategy and highlighted the importance for the needs in training for forest holders (identified in 62 RDPs in 17 MS). The need to improve local supply is often identified in the RDPs, but is reflected in different strategies such as improving the value of existing forests, improving the accessibility of forests, fostering new afforestation, or improving the competitiveness of the local supply chain.

We should note that, in most RDPs, the needs of the forest sector are developed to a very limited extent in comparison to the work done for the agricultural sector and rural development issues. It seems having direct consequences on the budgets allocated to address forest issues, given that the strategy and financial plan of the RDPs are based on this needs assessment.

### 5.13.3.2 Analysis of the match between each FM measure and the needs of the sector

The following figure presents the potential of the RD FM to address the needs of the sector identified in the RDPs. The matches presented there build not only on the theory but also on the effects of the measures assessed in EQ2 to 6.
The cross analysis with the assessments based on stakeholders’ opinions collected in the CS showed that:

**Regarding M8:**

- **M8.1** addresses both production and environmental focus. It was programmed with the objective of improving the wood supply in some RDPs, such as LT, IT, UK, HU. EQ3 confirmed this potential of M8.1 to impact on the production.

- By focusing on the establishment of new agroforestry systems, **M8.2** addresses mostly the needs of farmers but matches to a limited extent the needs of the forest sector because the production of wood is very limited. In addition, the sector’s needs regarding agroforestry would be mostly on the maintenance of existing traditional agroforestry systems, especially in Mediterranean countries (dehesas in

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250 In Lithuania, this specific objective resulted in M8.1 being focused on fast growing trees.

251 In UK-Scot., the sub-measure is expected to help ensure a continued supply of timber for the sector and in particular will help address the forecast dip in supply in 30 years. It also provides confidence in the interest and long-term vision of the Scottish Government for forestry, which helps to provide assurance to the forestry sector and to encourage inward investment in forestry and investment within the processing sector (e.g. new processing facilities, upgrading of existing facilities).

252 It is highly relevant i.e. in terms of climate change adaptation and mitigation.
ES, montados in PT, and similar systems in GR and in the south of France), but M8.2 does not include these types of area, and hence was not programmed in the corresponding RPDs.

- **M8.3 and 8.4** are judged crucial to maintain ecosystem services, the production capacities and the supply of wood to local industries: EQ3 confirmed their effect on the production, especially in terms of quantity and quality.

- **M8.5** match mostly the environmental needs of the sector. It is also judged important to enable forest holders to adapt their practices, to implement forest management plans, and to better enhance the value of forest multifunctionality (e.g. by creating recreational areas or setting up environmental projects).

- **M8.6** is the main measure directly addressing the economic needs of the sector. It is considered as the predominant measure matching the sector needs in the CS. It has a high potential not only to support forest companies but also to address needs for increasing the mobilisation of wood. It also proved to be highly relevant to answer the prompt need to increase the capacities of local companies to clean the damaged land after a storm. It should be noted that it nevertheless represents only 11.5% of the budget allocated the M8 and 15 while the EU is a major wood producer.

**Regarding M15:**

- **M15.1** is designed to answer societal needs more than sector needs. It was not mentioned in the CS and in the examined RDPs as contributing to meet the sector needs. On the contrary, the CS of DE-MV identified the risk that this sub-measure may worsen the lack of local wood procurement. Nevertheless, this measure allows for working on the environmental domain to grow multifunctional forests.

- In some cases (GR, FR-Aquit.), **M15.2** was not opened because it was new and not well known by the stakeholders, even though it could have matched local needs, i.e. facing the growing pressure from pests and diseases, needs for genetic improvement or for climate adaptation, etc.

**Regarding other measures:**

- **M4.3** is a key measure for answering the needs of increased mobilisation of local timber and access for protection.

- **M1** is also perceived as a key measure to support innovation transfer, contributing to increase the competitiveness of the sector. However, in some CS the stakeholders considered that it was not allocated with enough budget to meet the needs of the sector. Indeed, while the need to improve the level of training and knowledge transfer to forest holders is striking for the analysis of the RDPs (see Figure 48), it is addressed in RD measures along with the agricultural sector only. This structuration does not ensure that enough resources are allocated to the ‘forest part’ of the M1. Generally speaking, the social needs are also addressed by measures concerning both forest and agriculture. AT mentioned the fact that the uptake of environmental FM can only be increased if a focus is also given to education and awareness-raising.

5.13.3.1 **Global analysis of the relevance of the support provided to the forest sector by the RD measures**

The analysis of the RDPs and the case studies highlighted both the importance of considering the RD measures as a set of tools to address the local needs, and the importance of acting through several RD measures to provide a relevant answer to the needs of the sector.

This is illustrated by the following figures, based on the review of the description of the measures in the RDPs:

- There are 8 forest sub-measures and 22 horizontal sub-measures potentially addressing forests, meaning a total of 30 sub-measures available to address the needs of forests.

- 60% of the RDPs opened more than 4

Figure 50: Distribution of the RDPs, by number of sub-measures addressing forest
sub-measures of M8 and 15 to address forests.

- Among the RDPs in which M8 is programmed, 70% also opened at least 4 horizontal measures to address forests.
- Among the 100 RDP concerned by this study, 65 supported forest through 6 to 15 different sub-measures (see Figure 50).

This complementarity between the measures was also clearly observed in the CS, were numerous examples of synergies between sub-measures were found (e.g. M8.4 &8.6, and M8.3 and 4.3 in FR-Aq, M8.5 and M15.1 or 12;2 in DE-MV, etc.)

Besides, MA have to make compromises between the needs of the sector and the requirement to address EU and national commitments, with a limited budget. In this context, it is most of the time not possible to meet all the needs of the sector, but the analysis showed that the RD measures cover a sufficient range of operations for the MA to develop a relevant strategic approach to address specific local needs. In this context, it is very important to note that the match of the measures with the local needs is also related to the organisation of the sector and to the level of dialogue between the representatives of the sector and the MA. For example, in FR-Aquit. the close relation between the sector and the MA has resulted in a good match between the measures and the needs of the sector; further, the repartition of the budget, with a strong focus on M8.4, is judged as relevant by all the stakeholders. The case study of LT mentioned that more collaboration among stakeholders and MAs helps to find a compromise among the different interests.

5.13.3.2 Conclusion on the match with the needs of the sector

As a conclusion, the flexibility of the RDPs enabled the MA to adapt the measures to the local needs and, when the representatives of the sector have been fully involved in the design of the RDP, to the priority of the sector. Hence, there is a global feeling that the RD measures generally match the needs of the sector well and cover the range of needs that can occur at the local level. Furthermore, we found that the combination of sub-measures, including both forest and horizontal measures, is extremely relevant for providing comprehensive support to the forest sector, e.g. with M1, M2 and M4.3, playing a key role in addressing the economic and social needs of the sector.

However, it should be mentioned that, in some cases, the limited budgets and the limited access of the forest holders to the measures limits the ability of the measures to address local needs. The lack of data limited the analysis of the coherence between the needs and the means allocated, but we can nevertheless assess that there seems to be a global underestimation of the needs of the forest sector in most RDPs, leading to a limited budget allocated to meet those needs. The extent to which the FM matched (or not) the priorities established at EU level.

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253 For instance, in the case of GR, in the context of budget shortage, the measures have been focused on answering the commitments for MS as required by the EC, more than on addressing the needs of the sector. Some MA also chose to focus the RDP on specific issues, depending on the other available EU and national/local financial instruments, and on national/local views of which issues should be addressed by EU funding: for instance, SE and DE-MV have focused their RDP on environmental issues, and no support addresses the economic needs of the forest sector.

254 Due the damage of a very significant storm, which destroyed 200,000 ha in 2009.
5.13.4 Match with the EU Priorities for Rural Development

The six priorities for the Rural Development Policy are recalled in Chapter 2. The financial contribution of the FM to the RD focus areas is presented in Annex 12 (Table 81). The analysis of the SFC database showed that M8 and 15 are expected to match mostly Priority 4 (contributing to 3 790 million euros of public expenditure in the 2014-2020 period) and, to a lesser extent, under Priority 5E (contributing 2 853 million euros) as shown on the graph below. M8.6 is excepted to match different priorities depending on MS/Region, including focus area 2C, which focuses on the forestry sector, and added by 10 MA to the common framework.

**Figure 51: Contribution of the sub-measures to the RD focus areas, in number of RDPs**

As stated above, the design of the RDP itself ensures that the measures match the EU priorities for RD. Moreover, as highlighted in some CS (GR, LT, FR-Aquit.) the design process (ex-ante analysis, position paper, etc.), coordinated at the EU level, ensured that the measures are in line with the objectives of the EU.

The analysis of EQ6 showed that the effect of the FM in terms of restoring, preserving and enhancing ecosystems are limited in the short term (EQ6), but it was also mentioned in EQ 3 that forest is a sector in which it takes decades to obtain real changes in the sector. Hence, most of the effects will appear in the long term. EQ6 also showed that the main environmental impacts of the FM in both periods are expected to be medium- to long-term benefits for climate mitigation, principally through increasing carbon sequestration potential through afforestation and restoring the productive capacity of damaged forests. Hence, the expected match with P5E is confirmed.

Even if M8 and 15 are not often expected to contribute to P6, the CS confirmed that FM may play a significant social role by creating jobs in rural areas in which they are scarce (i.e. in IT-Camp, GR).

5.13.4.1 Match with the EU Forest Strategy

The guiding principles, objectives and priority areas of the EU forest strategy are presented in Annex 12, Table 82. The main strategic orientation with regards to the Rural Development Policy is that ‘MS should make use of rural development funds to 1) improve competitiveness, 2) promote the diversification of economic activity and quality-of-life, and 3) deliver specific environmental public goods’. Those orientations should be implemented toward the general objective ‘to contribute to promoting the social functions of sustainable forest management’. In summarizing the various and multiple benefits of the FM, EQ9 showed that they fully match the above mentioned orientations.

Concerning the general objective to promote sustainable forest management: The synthesis the RDPs ex-ante evaluations (Kantor, 2015) showed that, in all the twelve
case MS or Regions reviewed in this study, the thresholds for forest management plan, ensure that a majority of holding and forest area is covered by forest management plans or a comparable scheme, and that, in ‘eleven out of twelve case studies, sustainability criteria are to a more or less extent included in the FMPs’.

5.13.4.2 Match with the EU Biodiversity Strategy

The main objectives of the EU Biodiversity Strategy of relevance to forests are:

- Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them insofar as feasible.
- Setting up forest management plans (FMP) or equivalent instruments for all forests that are publicly owned and for forest holdings above a certain size so as to bring about a measurable improvement in the conservation status of species and habitats that depend on or are affected by forestry and in the provision of related ecosystem services as compared to the EU 2010 baseline.
- Fully implementing the Birds and Habitats Directives with a view to improving conservation status through the implementation of 100% more habitat assessments and 50% more species assessments under the Habitats Directive and establishing secure or improved status through the implementation of 50% more species assessments under the Birds Directive.

Table 83 in Annex 12 analyses the match of the FM with those objectives, based on the findings of EQ6. As stated before, the relevance of the FM toward the first objective is high, even though the effect of the measure in protecting biodiversity and ecosystem service could not be quantified and will probably happen in the long term.

M8.5 is the main measure matching the second objectives. The analysis of the RDP showed that FMP are supported in M16 in 33 RDPs. Furthermore, the RD support requires, for forest holdings above a certain threshold set up at MS level, the presentation of an FMP or equivalent instrument in line with sustainable forest management. This requirement should also contribute to foster the establishment of FMPs in MS forests: the synthesis of the ex-ante evaluations of RDPs concluded that the thresholds set in MS cover the majority of forest holdings.

5.13.4.3 Match with the EU targets under the 2020 Climate and Energy Package

The 2020 Climate and Energy package sets three key targets: 20% cut in greenhouse gas emissions (from 1990 levels), 20% of EU energy from renewables and 20% improvement in energy efficiency.

At present carbon emissions and removals from forests (LULUCF) are not accounted towards the “internal” EU targets under the 2020 Climate and Energy Package. However they are an important component of the agreements under Kyoto Protocol. As shown in EQ6, the whole set of FM under RD have a high potential to contribute to carbon sequestration. Hence they are highly relevant toward EU targets on Climate. Besides, the sustainable management of forest enhanced by the FM is highly relevant to foster the “optimisation” of carbon sequestration in forest, i.e. fostering a good level a wood removal to optimise carbon sequestration. The previous analysis also showed that the FM are highly relevant toward forest adaptation to climate change, which is an essential condition to forest contribution to climate change mitigation.

The FM are also highly relevant to address the target on renewable energy, on account on their potential to ensure (in particular M8.3 & M8.4) and increase (in particular M8.1, M8.6 and 4.3) the production of wood as a renewable energy source. Having in mind that these objectives can be contradictory in the implementation phase.

255 I.e. the thresholds for the size of forest holdings, set by MS, above which MB support becomes conditional on the existence or the drafting of a forest management plan
256 Seidl et al. (2014) showed that increasing forest disturbances in Europe have impact on carbon storage, and that mitigation only possible in healthy, stable forests
### 5.13.5 The extent to which the FM matched the priorities established at the programme and/or regional level

#### 5.13.5.1 Analysis at EU level

Some of the local priorities were presented in Section 4 of the RDPs along with the needs of the sector. The graph below presents the priorities identified in the RDPs and their distribution.

**Figure 52: Typology and occurrence of the priorities for forests identified in the RDPs**

The protection of forest ecosystems is a predominant priority in the RPDs: this has to be put in perspective with the EU priorities. Most RDP programmed the FM under P4, so the RD framework may have emphasised the importance of this priority for local authorities. The requirement to allocate 30% of the RDPs’ budget to environmental priorities may have resulted in a stronger ‘environmental’ focus of the measure too, even if this was not mentioned in the CS. The same remark can be made concerning carbon sequestration, which corresponds to Focus Area 5E of the RD strategic framework. The increase in the use of wood energy is an important objective at the EU level.

Table 84 in Annex 8 presents the analysis of the match between the measures and the priorities identified in the RDPs. We can note that each of the measures match at least one of the priorities. However, the priority to develop the use of bioenergy, which concerns 46 MS/Regions, is addressed by various co-operation measures including M16.8, innovation measures, etc. This priority is addressed in some MS/Regions by ERDF (e.g. FR-Aquit. See EQ12).

#### 5.13.5.2 Findings from the case studies

The CS showed that the selected RD measures are generally in line with the priorities defined at the local level. As a matter of fact, the priorities cover the same issues as the EU priorities (see §5.13.4), with the purpose of meeting MS commitments, and the needs of the local forest sector (see §5.13.3).

In the case of UK-Scot., the FM make a very direct contribution to the priorities of the Scottish Government on climate change as set out in the Climate Change (Scotland) Act 2009, to plant of 10 000 ha/annum: M8.1 should contribute up to 34 400 ha over the 2014-2020 period, among which 9 503 ha had already been committed in February 2017 (corresponding to a public expenditure of £43.1 M).

The case of SE is specific. According to the Swedish forest policy all economic subsidies for forestry are prohibited, with the exception of some environmental measures. Hence, RD support to forests is globally not in line with local policies. However, M8.4 and 8.5 are...
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expected to provide a nominal but interesting contribution to the achievement of the Swedish environmental quality objective for sustainable forests to reduce habitat loss and fragmentation to conserve biodiversity.

5.13.6 Conclusion

The analysis of the match between the needs of the forest sector and the FM measures showed that the FM have been providing a relevant and comprehensive range of support tool. The flexibility of the RDP enabled MA to programme FM and design them in accordance with the needs of the local forest sector. Indeed, the way the measures are designed at local level and in particular the collaboration of the MA with representatives of the sector has a direct effect on their relevance to address local needs.

The analysis also showed the importance of the RD horizontal measures to provide a comprehensive answer to the needs of the forest sector. In particular, technical advisory and knowledge transfer were identified as key measures to improve the competitiveness of the sector as well as to raise environmental awareness of the forest holders and contribute to the implementation of environmental measures such as M8.5 or 15.1. In the context of climate change, they are expected to have a growing importance, to raise the awareness of holders and support them in order to adapt the stands and the management practices and optimize carbon sequestration in forest while maintaining other ecosystem services.

The FM were first and foremost designed to answer the EU priorities for the Rural Development Policy. Several factors, such as the RDP framework itself, the need for MS to address their international commitments, the requirement to allocate 30% of the RDP’s budget to environmental priorities, resulted in a strong focus of the FM on the environmental priorities for the RD policy. It also seems that forest had been more entitled with this ‘environmental role’ than agriculture and rural development. Nevertheless, we found that, in relation with the multifunctionality of forests and to the multiple benefits of the operation that can be supported, the FM are also highly relevant to the priorities of the EU in terms of competitiveness (P2), climate resilience (P5) and social inclusion and economic development (P6).

The FM have also been expected to contribute to the implementation of sustainable forest management, which is one of the main objective of the EU Forest Strategy. We found that sustainable forest management is addressed horizontally by the whole set the RD measures supporting forest.

Concerning the priorities set up a national or regional level, we found that those are, for most of them, in line with the EU priorities and the MS commitments resulting from EU strategies. Hence the FM are also relevant to most of the priorities set of MS and local level. Furthermore, the flexibility and large scope of the FM enabled the MA to use of FM in comprehensive strategic approaches to address the local priorities, often in combination with local instruments. As a matter of fact, other EU and national instruments often complement the intervention on forest issues: this is the case in particular concerning the development of wood-energy and support the forest-based industries, which are mostly addressed through ERDF and local plans.

5.14 EQ 14 - Relevance: To what extent is the intervention still relevant taking into account current and possible future needs?

In answering this question, how well the objectives of the FM still correspond to the needs within the EU has to be addressed.

5.14.1 Understanding of the question

As the previous EQ concerns the present relevance of FM, the main difference of this question is that it has to take into account future needs, meaning those coming in particular from international commitments of MS and the EU (e.g. Paris agreement, EU 2030 Climate and Energy Framework, the 2030 Sustainable Development Goals, etc.).

Forests are not an EU competence, but the EU/MS commitments relating to forests directly or indirectly, (e.g. carbon sequestration, biodiversity) could lead to common
reflexion in that domain. This is particularly accurate for climate, renewable energy and biodiversity matters in which forests can play a significant role in the future.

5.14.2 Process and methodological approach and limitations

The method for this question was mainly based on a review of the main EU and MS commitments that can have a relationship with forests and particularly those relating to climate and biodiversity. This review allowed us to identify the fields in which forests could play a role in the future to match these needs. For this analysis, existing projections from modelling studies with alternative scenarios have been reviewed.

The main specific difficulty to answer EQ14 was how to get a clear picture, as the future needs of the sector at the EU level, are to be found in numerous different documents. For the modelling projections of the Efiscen projections and of the bibliography consulted, the assumptions and limitations are presented in each of them and are applicable to this part of the study.

5.14.3 The intervention is still relevant (or not) taking into account future needs of the sector

The forests within the EU provide wood to the industrial and energy sector as well as to owners themselves. Based on the past trends in the EU 28, the fellings (425 Mm$^3$) are far below the net annual increment (720Mm$^3$). This means that, on average, the resource covers the sector needs even if some specific categories of products may be produced in insufficient quantities by the EU forests or even imported (around 10% of consumption).

Nevertheless, the ratio of felling to increment increased from 51% in 1990 to 67% in 2010 in Europe, meaning that the availability of wood over the next decades should be less despite a still very significant gap between production and consumption. However, there is considerable uncertainty about future wood demand depending on the author: while some studies indicate significant shortfalls in wood supply by 2030, others expect little change in demand because of structural changes in the forest-based sector, particularly with declining demand for pulp and paper production in the EU. But, based on past trends, it can be estimated that in the near future (meaning 2040) and on average, the production of the EU forests could roughly cover most of the demand of the sector, even if coniferous production will remain below demand and broadleaf production probably above. Hence, as currently, coniferous imports as well as some tropical wood will still be necessary to cover some of the EU needs.

Nevertheless, the future supply of wood from European forests might be affected by climate change. Growth declines have already been observed in several regions across central and southern Europe, whereas growth in the North has increased. On average, forest productivity has increased so far, due to the increase of CO$_2$ concentration in the air and N deposition, but productivity increases are more and more counterbalanced by extreme events and disturbances.

It is obvious that the conditions for forest

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257 The EFISCEN models showed an expected decrease in the annual net increment, which is still higher than the current fellings.


261 Lindner, M. et al. 2014. ‘Climate Change and European Forests: What do we know, what are the uncertainties, and what are the implications for forest management?’ Journal of Environmental Management 146, 69-83.

262 There is some evidence that storm intensity is increasing and that storm tracks are penetrating further into mainland Europe and along a wider swathe, increasing the risk to forests in Eastern Europe. If the current build-up of growing stock continues together with predicted changes to the climate, damage levels are expected to at least double, and possibly quadruple, by the end of the century. Gardiner, B. et al. (2013) Destructive Storms in European Forests: Past and Forthcoming Impacts.
management are changing and that there is need to adapt management practices to these changes.\textsuperscript{264}

As stated in EQ 13, FM of RDPs cover both the sector’s needs as well as environmental and climate matters, and confirms that the present set of FM is adapted to the present needs. Hence, it will be important in the future to check whether RD FM themselves and RDPs are tailored to cover the sector’s needs as well as the environment and climate domains, at least to the same extent they cover them now. This would be particularly relevant to enable covering increased climate focus, increase in demand from different origins such as the energy sector, bioeconomy, as well as the provision of ecosystem services. But of course, the size of the budgets dedicated to these measures is a concern, as forest needs have to be anticipated long in advance in order to produce in due time the expected products and effects. In that regard, it would be important to maintain forestry measures over long periods and to dedicate appropriate budgets to them, which is not fully the case at present.\textsuperscript{265}

This has direct implications not only on the EU economy but also in terms of activity and environmental consequences abroad. As stated in the next chapter, M8.5, 15.1 and 15.2 could also help in the future for adaptation of forest to climate change. Additional horizontal measures like training and cooperation are also important to anticipate and improve the capacities of the sector to better adapt the management of their forests and/or of their companies, in a world in constant transition.

5.14.4 The intervention is still relevant (or not) for matching the future priorities established at MS and EU level

5.14.4.1 List of the future needs that are different from the current needs

At the European level, there are many documents related to the future of forest, such as the New EU Forest Strategy 2013, the EU strategy on adaptation to Climate Change, the EU Biodiversity Strategy,\textsuperscript{266} the Renewable Energy Directive (2009/28/EC)\textsuperscript{267} and the EU 2030 Climate and Energy Framework, the 2030 Sustainable Development Goals, etc. For this EQ, the main needs that we have detailed in this analysis are those related to climate change and biodiversity, as they appear to be the most critical ones (see EQ 6). For those related to water and soil concerns, forests usually play a better conservation role in comparison to agricultural, urban or industrial areas. Hence, any increase in forest area would normally on average\textsuperscript{268} result in improvement in water quality and water balance as well as in soil conservation. This is also true for recreational uses, public security and for many other ecosystem services. Nevertheless, depending on what the future will be, some precautions would nevertheless have to be taken to better preserve them. For example, ambitious bioeconomy development\textsuperscript{269} could put pressure on soil conservation in forests compared to current management practices, as harvest and intensive use of residues could cause nutrients lost.

\textsuperscript{263}Reyer et al, 2017. ‘Are forest disturbances amplifying or cancelling out climate change-induced productivity changes in European forests?’ Environmental Research Letters 12, 034027.


\textsuperscript{264}Among the factors cited in some case studies (e.g. FR-Aquit., ES-Galicia), the adaptation of the downstream sector to trees of smaller size is one of the concerns, as the increase in the risk of storms will push owners to sell their stand earlier than now.

\textsuperscript{265}Due in particular to the ‘competition’ of forests in the RDPs with agriculture and RD (see EQ 1 on drivers).

\textsuperscript{266}Even if this strategy sets out priorities and objectives to reach by 2020, it has significant long-term implications and a great effect on forestry, especially those forests under the Natura 2000 network.

\textsuperscript{267}As forest biomass is currently the most important source of renewable energy in the EU.

\textsuperscript{268}Even if the way forests are managed does affect these services and some policy instruments might be needed to avoid negative trade-offs.

5.14.4.2 Appraisal of the potential of forests to help in matching future needs

In terms of biodiversity

For biodiversity, there are quantitative targets in the EU Biodiversity Strategy and legal obligations for Member States on the conservation status of Natura 2000 habitats and species, which are clearly not being met. The current (and future) objective for the network in the EU is that it should ‘enable the natural habitat types and the species habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range’, (Habitats Directive Article 3). Therefore, the network must be sufficiently large to contain a representative share of the total habitat area or species populations, and in addition the conservation status of the habitat or species must be favourable within the Natura 2000 sites. Also, the network should be adapted to climate change, possibly including site expansions, new site designations, and site de-designation for lost habitats or species: it is therefore an ongoing objective tied to monitoring and is evidence base. For forests, this issue concerns Natura 2000 sites that are designated to protect the 81 forest habitats listed in the Habitats Directive Annex I, the 258 forest-connected species listed in Annex II of the Habitats Directive, and the 76 forest-connected birds that are trigger species for Natura 2000 designation (according to the Birds Directive).

Currently, the forest part of the network is nowhere near this objective: 80 % of the forest habitat assessments are unfavourable, 60 % of the non-bird forest species assessments are unfavourable, and 22 % of the forest birds do not have secure EU-level populations. Therefore, all MS have an obligation to improve the quality of their sites to achieve favourable conservation status for the habitats and species in their part of the network.

There is no timeline set for this in the directives, but the EU Biodiversity Strategy 2020 Target 1 sets a 2020 deadline to halt deterioration in status and achieve improved conservation status in a proportion of habitats and species – i.e. by 2020 at least 34 % of habitat assessments must be favourable or improving, at least 25 % of species assessments the same, and an additional 17 % of birds need to have secure or improving populations. This will almost certainly need to include some forest habitats and species, as they make up such a large share of the scope of EU protection for biodiversity. In addition, some MS currently have Commission infringement proceedings running that state that they need to designate additional Natura 2000 sites for certain habitats and species.

In addition to the above, how to globally manage the situation and balance decisions must be taken into account. Actually, ex-ante model-based assessments have identified key trade-offs and synergies for an increase in protection between different socio-economic sectors and land uses, like agriculture, forestry, urban development and nature protection. It was shown that a nature protection scenario would have various impacts on land-based sectors: agricultural land would be slightly reduced, wood harvest would decrease and carbon sequestration rates would increase in European forests as compared to the marker scenarios. But at the same time, these decisions have direct effect elsewhere in the world. In the same study, it is shown that agricultural production would be partly shifted to other parts of the world, which would reduce tropical forest areas and related carbon stocks and increase global GHG emissions. At the same time the increased imports of wood products from other world regions will have an impact on the forests concerned.

It is thus important to conclude that any decision at the EU level in terms of forest protection will inevitably have consequences elsewhere in the world, in the places where

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271 A cross-scale impact assessment of European nature protection policies under contrasting future socio-economic pathways. Lotze-Campel et al.
272 Which would be partly compensated for by higher management intensity.
the imported wood is harvested.\textsuperscript{273} This means that, to be fully coherent, similar regulations should concern the exploitations of these forests. This is typically the role of the EU Timber Regulation (whose goal is to avoid import of illegal wood) and of the FLEGT partnerships. But these regulations and processes mainly regulate the legality of timber exports and are slow to be implemented.\textsuperscript{274} And the sustainability of forest resource utilization in the exporting countries is not evaluated.

\textbf{In terms of climate change}
In terms of climate change mitigation, European forests are a significant carbon sink, as the carbon stock in biomass, deadwood, soil and litter, and their carbon stock changes show constantly rising stocks all over Europe and will continue to increase (Forest Europe 2015).\textsuperscript{275} In all their variety, it is estimated that EU forests and the forest sector currently produce an overall climate mitigation impact that amounts to about 13\%\textsuperscript{276} of total EU emissions.

The EU has already decided that emissions and removals from Land Use, Land Use Change and Forestry (LULUCF) are to be included in its 2030 climate policy framework. A study conducted by the EC\textsuperscript{278} compared until 2050 the emissions/removals of the LULUCF sector. It shows (see figure below) that forest is by far the main sink of all sectors but that its effect will progressively decline over the period due particularly to a higher harvesting rate for wood for material uses and energy production and to the move from the age class with highest growth rates into more mature phases with less increment.\textsuperscript{279}

![Figure 53: EU28 emissions/removals in the LULUCF sector in Mt CO2 eq. until 2050](image)


\textsuperscript{274} Evaluation of the EU FLEGT Action Plan (Terrea 2016).

\textsuperscript{275} Statement also supported by EFISCEN Models.

\textsuperscript{276} Jan Nabuurs G. et al, 2015. \textit{A new role for forests and the forest sector in the EU post-2020 climate targets.}

\textsuperscript{277} This includes both the action of forests and harvested wood products as a carbon sink and carbon stock, and the substitution effect of forest products for fossil-based raw materials and products.


However, if adequately incentivised, MS could achieve a combined additional effect of as much as 400 Mt CO$_2$/y by 2030 on top of the existing sink and substitution. With the existing sink and substitution this comes to an equivalent of about 22% of the current EU CO$_2$ emissions.\textsuperscript{280}

Some FM can certainly have an effect on increasing the sequestration (e.g. M8.1, 8.2, 15.1) or limit emissions (e.g. 8.3, 8.4). Hence, it is possible with RDPs to play a role in the mitigation of climate change, even if it is likely that the present budgets will probably not be significant enough to meet the commitments of the Paris Agreement, which was adopted in 2015 (after the start of the 2014-2020 RDP). But at least M. 8.1 afforestation, which presently covers approximately 1/3 of the forest area increase (see EQ 2) could be tailored and designed with better incentive to take on a higher share of this area, leading to better carbon sequestration.\textsuperscript{281}

5.14.4.3 Opinion of stakeholders on the relevance of each measure to local and EU needs in the future

Most of the CS mention climate change and biodiversity as the most significant challenges for the forest sector over the coming decades, both at MS and the EU level. Besides these two dominant topics, the most mentioned are wood supply, bioeconomy, other uses and capacity building of the operators of the sector. Most of the CS experts agree on the relevance of the FM in helping covering them. Some additional ideas are mentioned, such as contributing to insurance payments (like those provided by the CAP to farmers) to cover storm and other risks. Most of them mention that economic viability of holdings/properties is the basis of the entire system, meaning that the forest will provide all the ecosystem services if they are profitable to the owner meaning they are not abandoned. This also means that payments for ecosystem services could be relevant, even at a higher rate than provided presently by M15.1.

5.14.5 Conclusion

Even with high uncertainty\textsuperscript{282} \textsuperscript{283}, the projections over the next decades show that the production of wood would be on average higher than consumption, which would lead on average to good coverage of the sector’s needs in wood, even if this will not be the case for some products, which will have to be imported (e.g. coniferous products, tropical woods, etc.).

In terms of environment, literature and the CS confirm that the two main global relevant topics for the coming decades relating to the forest sector, are climate change and biodiversity.\textsuperscript{284}

In terms of climate change mitigation, forests are the most significant terrestrial sink of the EU, but their relative sink role will slightly decrease over the coming decades, due in particular to a probably slightly higher demand in wood and the move from the age class with highest growth rates to more mature phases with less increment.\textsuperscript{285} For biodiversity, there are quantitative targets in the EU Biodiversity Strategy and legal obligations for Member States on the conservation status of Natura 2000 habitats and species, which are clearly not being met (EQ 6). The area of protected forests and other wooded land within the EU is likely to have to increase over next decades (even if not sure), if EU

\textsuperscript{280} Jan Nabuurs, G. et al, 2015. ‘A new role for forests and the forest sector in the EU post-2020 climate targets’.

\textsuperscript{281} The afforested areas being more dense and more productive (particularly in their young age) than natural encroachments of forest in marginal lands

\textsuperscript{282} Lauri Hetemäk et al, 2016. Future of forest-based sector – state of the art and research needs, 16p

\textsuperscript{283} LULUCF discussions led to the conclusion of a very significant increase of energy use in a majority of MS

\textsuperscript{284} Other topics also concern forests such as water quality and water balance, soil conservation, recreational uses, public security, etc.

\textsuperscript{285} But a higher demand for wood could help to change the age structure of forests and in this way increase or maintain the sink capacity.
biodiversity policies and targets are to be achieved. This would also follow some trends seen during the CS. But, as stated in EQ 6, carbon sequestration and biodiversity conservation are not at their maximum in the same forests. Besides these roles, new concepts are emerging such as bioeconomy, which could enhance the value of forest-derived bioproducts. This would imply some systemic changes to create a less fossil-fuel-dependent society and at the same time secure economic growth through new biomass-based products (e.g. biochemicals, biomaterials, biotextiles), as well as promotion of timber as construction material, keeping in mind that this type of development would also have environmental impacts (e.g. depletion of nutrients in the soil if forest residues are also harvested). The value chain practices could also influence these impacts if the wood follows (or not) its potential lifecycle through cascade use, before ending up into energy production. Whatever the decisions and policies will be, it is important to always keep in mind that:

- When a decision is taken and applied at the EU level (which though the smallest continent has the highest wood production in the G20) these decisions have effects at a global level. This is particularly true for forest conservation, which can lead to limitation or even no harvest (e.g. DE-MV). These practices could lead to shortages in supply for local companies and importation of wood to cover EU needs. This means that protected forest in the EU could lead to some pressure on forests elsewhere, possibly in forests in which sustainable forest management is not systematically checked.

- All or most of the forest ecosystem services will be provided only if forest holdings/properties remain profitable over time to avoid abandonment. This means that some forest ecosystem services that are not profitable may have to be maintained through payments for ecosystem services.

Globally, the present RD measures are in line and sufficiently opened to match these future needs. Nevertheless, it is not fully certain that the available budgets will make it possible to cover all the needs that will increase over the period – particularly in terms of wood production, carbon sequestration, biodiversity and other ecosystem services.

5.15 EQ 15 – EU Added Value: To what extent have the forestry measures created EU Added Value, e.g. for restoring and enhancing forest ecosystems, for climate change mitigation and adaptation including carbon sequestration, building networks for exchange of best practices, etc.?

5.15.1 Understanding of the question

“EU-added value” for forestry measures (FM) relates to any value added resulting from measures initiated at the regional and/or national level by Member States (public authorities or the private sector) due to EU Regulations. This means that ”EU added value” looks for changes that result from the implementation of support to forest through a policy set at EU level, in this case the EU Rural Development Policy, and that would not have happened in the absence of such support. EU added value may result from greater effectiveness and/or promotion of complementarity, coordination gains, contribution towards agreed common objectives as well as improved legal certainty and consistency over time.

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286 Natura 2000 obligations and EU biodiversity strategy targets could be one reason, but the CS also showed that it could also be regional conservation objectives, as mentioned in the DE-Mecklenburg CS.


289 This means that, to be fully coherent, similar regulations should concern the exploitations of these forests. This is typically the role of the EU Timber Regulation (whose goal is to avoid import of illegal wood) and of the FLEGT partnerships. But these regulation and processes are slow to be implemented and do not cover the same range of topics as the EU regulations within the EU.
5.15.2 Method and limitations

The analysis builds on the CS, each having a section on EU added value (see Annex 13 for a summary of each CS), the questionnaire survey of MA, literature review, and interviews with representative organisations of the forest-based sector (see summary in Box 1). These interviews were carried out to collect supplementary information on areas of potential EU added value, including lateral measures, such as on networks for the exchange of best practices. The analysis also took into account results from the preceding EQs on efficiency and effectiveness of the FM (EQ 2 to 9) as well as the coherence and relevance of the examined FM (EQ 10 to 14).

The analysis has focused on three judgement criteria and indicators (represented by the sub-headings below). These have been answered through a systematic review of inputs from the CS and the questionnaire, as well as the literature review, interviews and preceding EQs.

One limitation was the varied results on the reported EU added value across CS, making it difficult to provide a common view shared across all CS. We thus report a variety of opinions and have tried to balance them in the synthesis.

5.15.3 Do EU policy instruments have (or not) an impact direct or indirect on forests?

Forest-related policy instruments that encompass the forest-based sector has largely remained the competency of the EU MS, but an EU forest-related policy having an impact on forests has regardless emerged (Pülzl et al., 2013). This includes the EU Forest Strategy and its implementation plan (Forest MAP), which sets general guidelines for EU forest policy, aiming to coordinate other EU forest-related policies (European Commission, 2013, 2015). However, as noted in the ex-post evaluation of the forest action plan, the lacking legal liability and limited connection to EU financial policy instruments constrain the impact from the forest strategy (Pelli et al., 2012). It furthermore includes EU policies such as forest monitoring (e.g., European Forest Fire Information System)(Commission Regulation, 1737/2006), forests within Life+290, and the 2020 Biodiversity Strategy (European Commission, 2011), having an impact on forests.

Reviewing forest-related policy instruments presents a challenge when moving from a national perspective, where there is often a clear legislative framework, to the EU level, where forest-related policies have been assessed as fragmented and not fully coherent in the literature (e.g., Pülzl and Hogl, 2013, Winkel and Sotirov, 2016, Rivera León et al., 2016, Aggestam et al., 2017). This is also apparent in the varied results presented by the CS (see Annex 8). In fact, a recent evaluation demonstrated that as many as 570 EU policy documents (and associated instruments) have an impact on the forest-based sector (Rivera León et al., 2016). However, these impacts vary significantly due to different policy instruments having an impact on different parts of the forest value chain.

This is complemented by results from EQ11 to EQ12, which reveal that forests are an inherent aspect of many EU policy domains, ranging from agriculture, environment to industry policy, that would require action in forests to achieve their objectives. There are consequently a large number of EU policy instruments that are in force and have an impact on forests, both directly, such as the EU Timber Regulation and Natura 2000 network, and indirectly, such as Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and the general product safety directive (Aggestam et al., 2017).

The FM have a role in helping to provide coordinated action to help implement some of these policies in a coordinated way and thus deliver added value to policy implementation through the use of EAFRD support. These results furthermore demonstrate that the FM adds value in other EU policy areas, delivering environmental and climate benefits through forests (e.g., climate change mitigation and the maintenance and increase of carbon stocks).

The general consensus among MA and representative organisations is also that the current framework of the RD Regulation (2013-2020) has an impact on forests and thus creates EU added value (see Figure below). This is corroborated by all CS agreeing that there is added value. Moreover, MA indicate that these impacts could not have been achieved through other initiatives.

**Figure 54: Do MS believe that the EU RDP-related FM are important in terms of bringing in additional effectiveness, efficiency or synergies for:**

<table>
<thead>
<tr>
<th>Achieving the international objectives on climate change mitigation and adaptation, and carbon sequestration (such as Paris Agreement, LULUCF…)</th>
<th>Very important</th>
<th>Important</th>
<th>Moderately important</th>
<th>Not important</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>4</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The sustainable management of forests</th>
<th>Very important</th>
<th>Important</th>
<th>Moderately important</th>
<th>Not important</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The development of forest areas</th>
<th>Very important</th>
<th>Important</th>
<th>Moderately important</th>
<th>Not important</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Source: Alliance Environnement, Survey to the Managing Authorities, July 2017

### 5.15.4 How do the RDP and other lateral measures affect (or not) forests?

Results from preceding EQs (see EQ2 to EQ6) and the MAs (see Figure above) demonstrate that the FM, and measures related to the environment and climate, are having an effect on forests. This is based on sylvicultural operations financed through FM (e.g., improved quantity and quality of wood) as well as environment- and climate-related operations (e.g., improved carbon sequestration and biodiversity conservation) as compared to if no measures would have been carried out.

Several CS emphasised that the continuity between programming periods and the 7-year cycle of the RDP programming period is advantageous compared to national programmes as well as a good basis for stability, however, it is not sufficiently stable for a forest-based sector that operates on much longer time scales (see Annex 8). Appraising effects on forests from FM is thus challenging due to the time scale under which forests operate.

The increased flexibility to select the FM means that relevant budget allocations and the design of measures reflect national perspectives to a greater extent than the 2007-2013 programming period (OECD, 2017), allowing MA to account for territorial and legislative variations and priorities. However, the CS indicate that when forests are considered to be of lower importance (e.g., in terms of economic importance and/or employment), other sectoral interests have often taken precedent over forests (see Annex 8 and EQ1 and 13). This has reduced the overall role of forests in the RDP and thus its effect (e.g., scope of actual benefits) in some countries.

The relevance of national negotiations (e.g., selecting and designing the FM) has increased substantially, in some cases resulting in serious delays in the adoption and opening of the FM (e.g., due to lack of political will). In some MS FM have not even been opened, to date (see § 2).

Some countries have chosen to include direct support to forest harvesting and/or primary processing companies (e.g., AT, BG, ES, FR-Aquit., IT, GR, SK, UK-Scot), thus acting directly on the investment possibilities of the forest-based sector. This is not the case in other countries with exceptional forest assets and conditions (e.g., SE and FI), where the FM have been designed to not affect the competitiveness of the forest-based sector (e.g., M8.6 has a potential effect on competitiveness) and where investments into technology can distort the market balance. These variations emphasise the difficulty in finding a common view on effects that is shared across all MS.
Furthermore, the administrative burden (AB) has direct consequences on the programming choices of MA (see EQ1 and 7). Results from EQ 7 demonstrate that the AB is especially high for small forest holders. Half of the CS note that state aid has been easier to implement, without the procedures, requirements and burden associated with RDPs (see Annex 8). Even the simplified eligibility and selection criteria, the increase of some thresholds introduced in the EU regulation, and improved efficiency of the administrations, have not contributed towards improving the uptake of the FM. In certain cases, countries have even closed FM for the current programming period as they created a higher workload compared to the perceived benefits generated.

Representative organisations have also noted that current rules and requirements do not adequately consider the practicability during implementation and specific conditions in the MS/Regions, emphasising that national systems can take these circumstances (e.g., different natural, economic and organizational situations and structures) more into consideration, making such systems more.

Frequent arguments in the CS, including inputs from relevant representative organisations, demonstrate that there has been little networking and exchange of best practices related to the implementation of the FM (see Annex 8). All CS note that more networking and exchange of best practices is highly desirable (e.g., exchange of experience with scientific and practice experts). Even more, the vertical exchange between the national and EU level is regularly distinguished as too formal and/or on a high political level, which does not facilitate networking or an exchange of best practices. Most MA have however engaged in extensive and inclusive consultations during the design of the FM, which is a positive development, adding value to the design process.

5.15.5 Do the RDP FM 8 and 15 create (or not) EU added value at the national level?

EU added value of RDP FM 8 and 15 differ significantly across MS due to varied national drivers having affected the selection of measures, allocation of budgets, and thus the subsequent perceived EU added value of the FM (see chapter 2.1 and Annex 13).

Due to national variations (e.g., characteristics of the forest and farming sectors, socio-cultural attitudes, and institutional frameworks), the FM play a crucial role in some MS, while for others, they have not even been implemented at all. For example, state aid has been drastically reduced since the beginning of the economic crisis in 2009 in GR, implying that other forest-relevant funding instruments are not available, aside from the EU RDP. In contrast, only M8.4 and M8.5 have been included in the Swedish RDP, with very limited funding. This is principally because the FM are not allowed to affect competitiveness according to Swedish forest policy, with the exception for some environmental measures.

The CS demonstrate that the EU RDP has allowed some MS to maintain the FM that would otherwise disappear while allowing other MS to shift the availability of financing under specific measures that are not prioritised on the national level (e.g., conservation status of species and habitats that depend on forests). Both demonstrate substantive EU added value (linked to the inherent flexibility of the RDP), but of very different types. As representatively expressed, the “quality and quantity of funding for forestry and environmental measures would decrease without EU support” by several CS. MA have however pointed out the difficulty to understand the new strategic programming framework, which made the design of the national RDP more complex as compared to the previous programming period.

There is also a general consensus that FM 8 and 15 are especially important in rural areas, where forests play a crucial and multifunctional role. Several of the CS noted that the FM contribute to socio-economic well-being and help to maintain the viability of rural areas. The FM furthermore have an important role to play in supporting the implementation of SFM and the EU Forest Strategy (European Commission, 2013) as well as other environmental and climate objectives at the EU level.
Box 6: Summary of viewpoints from representative organisations

⇒ Majority of representative organisations expressed concern over environmental and climate policy as well as agricultural priorities overshadowing the needs of the forest-based sector. Noting that forestry was often wrongly perceived by the Commission and the general public as being solely about wood production, neglecting all other aspects characterised by forestry at the EU level.

⇒ The multifunctional aspect of forestry was regularly stressed and that competing claims on forests need to be harmonised. Representative organisations stressed that the RDP needs a clearer focus on the economic viability of the forest-based sector.

⇒ Despite the perceived focus on environment and climate change objectives in the RDP, several representative organisations communicated that financial support for nature conservation and prevention of forest damages, which are most likely increasing in the future, are fundamentally needed from the EU.

⇒ Forest restoration and the protection and maintenance of forests production potential need to remain as central goals in environmental and climate policies (e.g., maintenance of ecosystem services and carbon sequestration).

⇒ EU regulated financial support is important and adds value as it for example provides the possibility to support larger projects (e.g., Danish afforestation programme). However, national support and regulations are also important as national programmes are often simpler. This is relevant for many stakeholders that do not want to be a part of complex EU-funded projects.

⇒ Forest-based industries are seen as too disconnected from the current measures of the RDP. Several interviewees pointed to the lack of measures with regards to agro-forestry systems, bioeconomy and the circular economy, which could help to improve employment in the forest-based sector.

⇒ Most representative organisations agree that EU regulations adds significant value, in particular as regards to harmonising legislation across MS. However, due to the level of implementation, it is difficult to reflect essential national priorities. This is made more difficult by a high degree of bureaucracy. Rules and requirements were designed without thinking about the practicability during implementation and specific conditions in the MS.

Source: EFI, interviews with representative organisations

5.15.6 Conclusion

The evaluation results reveal that the quality and quantity of funding for FM would decrease without EU support. This would also be the case for other climate- and environment-related measures affecting forests. In addition, the evaluation identified the direct relationship between the FM and other relevant EU policy objectives, such as targets for restoring and enhancing forest ecosystems, the EU Biodiversity Strategy, 2020/2030 climate and energy frameworks, forest monitoring and timber trade. However, the impact of the FM on these objectives and their coherent contribution has been harder to assess.

The continuity between the current and previous programming periods has allowed for a degree of consistency and regular support to the management of EU forests, and thus allowed a continuation of EU added value between periods. In addition to the evidence supporting EU added value assessments, there continues to be a perception of added value of the FM within the framework of support of the RDPs, by MA as well as by relevant representative organisations. However, views diverge significantly on what the priorities should be for rural development and, perhaps more importantly, how the EU should implement these priorities.

Networking and exchange of best practices, across and within MS to improve added value, is an area where the RDPs could be significantly improved. MS often do not utilise the option of the existing M1. Suggestions for improvement could include more exchange of experience with scientific and practice experts, improved exchange between the national and the EU level and other kinds of organised information exchange under the current RDP framework.

5.16 EQ 16 – What is the difference that the EU financing made in implementing these measures compared to Member States acting on their own?

5.16.1 Understanding of the question

291 The summary box includes some key observations expressed by different representative organizations from forest-based industries, contractors and land-owners at national and EU level.
The main consideration is whether the objectives and targets set out in EU forest-related policy continue to require action at the EU level, in contrast to MS acting on their own. This is particularly important to consider as some forest functions fall under distinct areas where the EU has competence, such as agriculture and rural development, environment and climate, while the forests themselves remain outside the realm of its (exclusive and shared) competences. Consequently, current EU forest-related policy represent a non-legally binding framework focusing on SFM, coordination and exchange (European Commission, 2013). Its impact on the development of forests on a national level is consequently limited. The EU’s agricultural policy provides the financial incentives for SFM, with a broad set of possible targets and discretion for MS to prioritize funding.

5.16.2 Method and limitations

This EQ seeks to determine whether the EU FM and comparable initiatives on the national and/or regional level overlap or complement each other, and whether the measures add value over national provisions and/or initiatives. Determining the extent to which the financing of the FM has created EU added value in comparison to MS acting on their own builds on results from the CS, each having a section on EU added value (see Annex 8 for a summary), questionnaire survey of MA, literature review, and interviews with representative organisations (see summary Box above). It furthermore takes into account results from EQ 11 to 15, seeking to answer whether MS would have supported forests without EU RD financing as part of evaluating the future needs towards application of FM at the EU level from international policy commitments taken.

The analysis is based on four judgement criteria and indicators (represented by the sub-headings below). These have been answered through a systematic review of inputs from the CS, questionnaire, interviews and preceding EQ.

One limitation was the varied results on the reported EU added value across CS, making it difficult to provide a common view shared across all CS. We thus report a variety of opinions and have tried to balance them in the synthesis.

5.16.3 Do national forest-related policies vary (or not) in their alignment with EU policies?

Coherence is often at the forefront of discussions on EU forest-related policy, including RD Regulation and the EU Forest Strategy (see EQ10-12) (European Commission, 2013). This is due to EU forest-related policy being defined by conflicting objectives and measures without clear priority setting and coordination (Pülzl et al., 2013, Edwards and Kleinschmit, 2013, Aggestam et al., 2017, Münnich and Elofsson, 2017). The result is a not fully coherent policy framework that is characterised by institutional fragmentation (Vogelpohl and Aggestam, 2011, Wolfslehner et al., 2013).

EU financing of the FM should ideally be able to address the fragmented forest-related policy landscape, to provide part of the solution to harmonising competing claims on forests and provide an instrument that helps to balance the demands on forests. This is true, to some extent, as the quality and quantity of funding for forestry as well as environmental and climate measures would decrease without EU support (see EQ 15). However, the absence of a forest-related competence limits the extent to which MS align with EU policies.

Several CS and relevant representative organisations do in fact argue for the advantage of legally binding rules and requirements in relation to forests at the EU level. They argued that this could provide a legal framework for enforcement measures and

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292 Diverse policy instruments lead to horizontal incoherence when policy goals are conflicting (e.g. biodiversity versus climate and energy targets), generating contradictory policy objectives with similar importance for forests, no set priorities and different impacts. This is the result of inconsistent enforcement, due in part to partly legally binding, partly financially incited, and mostly voluntary measures (Wolfslehner et al., 2013). For instance, the challenge remains to regulate agricultural competitiveness, regional policy, structural development and forest protection coherently, without elevating one goal over another. Promoting coherent regulation, creating, at best, synergies between different sectors, remains an ambitious aim at this point.
conditions that could benefit forests (see Annex 8). This is however not to say that an EU forest policy would be the solution. CS arguments for more vertical policy coherence and cooperation are often followed by statements related to the importance of national freedom to decide what FM to implement.

More crucially, most of the MA and representative organisations agree that it is vital to be able to consider the country specific circumstances and the FM at the national level. Stakeholders, such as national and regional officials, forest owners and advisers, stated that the EU would not be able to better understand the national context and that an EU forest policy would add more complexity. The forest-based industries have also expressed concerns over prospects that the EU will get increasingly involved in forest policy (see Box above).

The CS demonstrate that some national forest policies align with EU policies and some do not.293 Policy areas where countries align are however not those related to forest, good coherence in the design of the FM are related to policy areas where the EU has a competence, such as those towards environmental and climate objectives, both regionally and nationally. This is emphasised by EQ 11, which found that forests play a crucial role in delivering environmental and climate objectives, and is seen as a key component in the achievement of EU policy initiatives in this area.

5.16.4 Do the case studies vary (or not) as regards to the financing of forestry measures?

The main difference for some CS areas – due to EU RDP – has been a shift in the availability of financing under specific measures (see Annex 8). For instance, certain FM implemented under the current programme period would not have been implemented to the same extent without EU support (e.g., restoring cultural landscapes), and in other cases, measures would simply not have been implemented due to missing funds. The availability of EU funding has as such been quintessential in the uptake of specific FM.

The importance attached to EU financing at the national level (e.g., in terms of coherence and consistency), is moreover connected with the respective national drivers associated with the selection and design of the FM (see EQ1). For example, not all MS have the need or the possibility to create additional woodland.

These variations across the CS are thus inherently linked with national perspectives of how MA should support not only the forest-based sector but also the objectives of other environmental policies. These varying perspectives at the national level are not necessarily irreconcilable, but they provide an explanation for varied financing of FM across the CS.

5.16.5 Would EU forestry-related measures be sufficiently addressed (or not), either at national or regional level?

Implementation of measure 8 and 15 vary at the national and regional level. For instance, M8.1 on afforestation has had a limited impact on the EU level, but significant impact was reported in certain regions where it has been prioritised (E;G; UK-Scot, ES-CIM, etc.). M8.4, on the restoration of damaged forests, has had significant impact both at the EU level and in affected areas (e.g. FR-Aq, SK). In contrast, M8.2 on agroforestry has had a very limited impact on all levels (see EQ3).

Another example is the fact that the RDP financing available for FM is significantly higher in certain MS. For instance, in PT there is approximately three times higher support from the RDP FM than from the National Fund for Forests. In addition, in nearly all of the CS, the share of RDP budgets is not in favour of forestry compared to agriculture and RD.

293 Examples include variations between national RDPs, NFPs and national forest plans, national biodiversity strategies and national renewable energy plans, etc. These often align with EU policies (vertical coherence) in areas where the EU has competence, however, different approaches of MS when developing their NFPs highlight that national forest policies vary significantly across the EU (Pelli et al. 2012).
There are also issues of incoherent use of CAP funds\(^{294}\) (see EQ11). This would suggest that the lack of synergy between the EU and MA may result in a failure to achieve potential benefits from the suite of CAP support measures and payments. The effect of this lack of synergy may be that MA shift the burden of public support to already underfunded RDP FM. This would suggest that some MS may be creating a dependency on EU financing for particular FM.

In more general terms, results from EQ3 suggest that M8 and M15 have had a direct and indirect effect on the production of wood, leading to an improvement both in terms of quantity and quality of wood, as well as contributing towards other environment and climate related targets. The geographical distribution has only been marginally affected at the EU level.

However, more fundamentally, the comparison made between MS where M8 and M15 were not being implemented (including the absence of equivalent state aids), indicate that no or little comparable measures are implemented. Inputs from MA as well as industry and other relevant stakeholders confirm that the FM would not have been implemented by MS individually. Arguably, the EU FM are as such adequately addressed in some areas, particularly for measures that would not have been implemented or designed in the same way or to the same extent if there was no EU support. This is equally applicable to other sectors.

5.16.6 Will EU forestry-relevant measures continue (or not) to require action at the EU level?

Most MA think that the FM are important due to the fact that they provide additional support at the national level. For approximately 50% of the responses, it is also important that the RDP provides a coherent framework of support to the sector at EU level. This suggests that the FM continue to require action at the EU level. However, the increasing reliance on EU funding is also creating a catch-22 situation, whereby the dependency on EU funding is also creating an artificial added value, based on the presumption that these measures would stop being implemented if EU financing stopped. It is also relevant to consider the RD legislative in this instance, particularly, as EU added value has been more substantial in areas where it has competence (e.g., habitats and birds directives) and biodiversity, climate and energy targets, timber trade and the protection of cultural heritage. These commitments would not have been adequately and consistently addressed across all MS, without the RD measures.

Examples of enduring impact include educational and advisory services under the current and preceding programmes, as these have contributed to changing forest management practice in some CS. This has contributed towards a more diverse forest landscape. In many cases, it was articulated that without these FM in place, the situation would have been worse, including for example the preservation and development of natural and cultural values as well as recreational values in the forest. These FM have thus helped to create an impact on the forest-based sector that will last beyond the availability of financing.

These impacts demonstrate that the EU FM merits continued action at EU level, the more relevant question is how the current and future FM can be improved. As suggested by one representative organisation, "EU measures should support FM that otherwise would not have been implemented and not hinder the realization of additional benefits. The EU FM should not try to restrict possible benefits but engage in the fact that forestry, in contrast to most other forms of cultivation, can provide different kinds of benefits on the

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\(^{294}\) The two groups of CAP measures appear coherent at the EU level, and there are synergistic or neutral relationships in most cases, but for CAP direct payment rules on eligibility of land with trees for direct payments and the freedom in defining these rules means that coherence is context dependent, particularly for low intensity pasture land, including large areas of traditional agroforestry (see sub-chapter 2.10).
same land”. This statement encapsulates the overall message conveyed through the CS and representative organisations as regards the need for continued action.

**Figure 55: Importance of the EU RDP FM for the national forest-based sector**

![Importance of the EU RDP FM for the national forest-based sector chart]


### 5.16.7 Conclusion

The results demonstrate that forests and the FM have an important role to play in supporting not only SFM and the EU Forest Strategy but also other key EU policy objectives and priorities, such as in the area of the environment and climate. It is however also clear that the design and implementation of the FM are entirely in the hands of the EU MS/Regions. The consequence of this freedom is a mixed picture of EU added value and impacts associated with the EU FM.

The EU could become better at harnessing positive developments in areas where all MS see added value. One route for the future would be better regulation, which could strengthen the RDP FM (e.g., reducing the red-tape and AB). Another alternative would be to have more balanced FM (adhering to the principles of SFM) in future EU RDP, including measures that would leave less room for interpretation. For instance, the current RDP programming period has a significant environmental focus, while contributing less to forests as an economic sector (see EQ13) whereas the EU is a very significant producer of wood and other forest products (e.g. cork, fruits, mushrooms, etc.).

Legislative changes may however face opposition given the wide range of opinions on increased regulation by MS as well as the perceived role of the MA, the national forest sector and the emphasis on freedom of choice.

Another crucial element to consider would be the impact from other sectors, where the EU does have competence, and the (direct and indirect) effects these are having on forests. Both in terms of policy incoherence and cross-sectoral trade-offs (e.g., unsustainable and uncoordinated use of forest resources), but also in terms of the added value from the FM towards other key EU policy objectives (e.g., delivery of climate objectives). This would require a more balanced approach, in particular, when reflecting on recent cross-sectoral policy developments, such as the emerging bioeconomy. For example, the future EU RDP FM may benefit from including measures that valorise forest-derived bio-products (see EQ14). These types of cross-sectoral developments would have to recognise the environmental trade-offs (e.g. depletion of soil nutrients) that are inherent in the use of forest resources and its associated social, environmental and economic benefits.

To conclude, even though there is room for improvement, it is fundamentally clear that the EU RDP has been quintessential in the uptake of the FM by MS. In other words, there are measures (forest, environment and climate related) that would either not have been funded to the same extent, or not implemented at all, in the absence of the RDP.
6 CONCLUSION

Forest management has a long tradition within the EU, and multifunctional forests provide citizens with wood for various material and energy purposes, non-timber forest products (such as cork, berries, mushrooms and nuts) and numerous other ecosystem services (soil and water protection, carbon sequestration, recreation and many more). In addition, these products and services make an important contribution to rural employment and economic viability, as well as supporting social wellbeing and cultural values.

Even if the Treaty on the Functioning of the European Union doesn’t define forest as a competence of the Union, the tight link of forest and the forest-based sector with other areas in which shared competences between the Union and the Member States applies (such as economic, social and territorial cohesion, the environment or energy) have resulted in a strong involvement of the EU on forest-related policies, through a range of regulatory frameworks based on its shared and exclusive competencies in other sectors.

In 2013, the Commission adopted a ‘new EU Forest Strategy: for forests and the forest-based sector, providing a better framework to tackle the new challenges facing forests and the forest sector, including the growing demands on and threats to forests, as well as the increasing number of forest-related policies. The Forest Strategy is built on three guiding principles:

- Sustainable forest management and the multifunctional role of forests, delivering multiple goods and services in a balanced way and ensuring forest protection;
- Resource efficiency optimising the contribution of forests and the forest sector to rural development, growth and job creation;
- Global forest responsibility, promoting sustainable production and consumption of forest products.

The EU Forest Strategy is implemented through a variety of policies (both at the EU and national level) but the main EU-level funding to implement the Forest Strategy has been and remains the co-financing of forest measures (FM) under the Rural Development Regulation. Furthermore, as stated in the EU Forest Strategy, the Commission considers that rural development funds in particular should be used to support the implementation of sustainable forest management: Member States should make use of rural development funds to improve competitiveness, promote the diversification of economic activity and quality-of-life, and deliver specific environmental public goods, to contribute to promoting the social functions of sustainable forest management.

For the 2007-2013 period, the EAFRD offered a structured set of measures supporting forests in order to promote better integration of forest and agroforestry in rural development support. Among the 40 measures of EAFRD, 20 had direct or indirect relevance to forests and 8 specifically addressed forests. In the 2014-2020 Rural Development Regulation, a quite similar set of measures supports the implementation of sustainable forest management.

Two measures specifically target forests holders and projects in forest areas: Measure 8, supporting investments in forest area development and improvement of the viability of forests, and Measure 15, dedicated to forest-environmental and climate services and forest conservation. As for most of the RD measures, their inclusion in an RDP is left to the discretion of the RDP Managing Authorities, at national and/or regional level. These measures are implemented on a voluntary basis, following beneficiaries’ application for support. Besides these two measures dedicated to forest, a set of horizontal measures can concern forest. This is particularly the case for M1 (knowledge transfer and information), M2 (advisory services), (M4.3 (infrastructure), M12.2 (compensation payment for Natura 2000 forest areas), and M16 (cooperation).

The present study evaluates the implementation of RD FM for the current Rural Development programming period (2014-2020), focusing on these two measures. The

study also covers the use of RD horizontal measures relating to forests. Given that the evaluation covers a limited period of time (2014-2017), in some cases the 2007-2013 period was also examined, to assess the level of implementation of the forest sub-measures and to capture their mid-term effects. This approach was facilitated by the high degree of similarity of the Rural Development forest-related measures in these two programming periods.

The evaluation has covered the mandatory evaluation criteria, addressing the effectiveness, efficiency, coherence and relevance of the Rural Development FM. It also includes a study of the main drivers behind the decisions to implement forest-related measures in RDPs, and the EU added value of implementing the FM compared to Member States acting as their own. The main conclusions of the evaluation are presented here, taking into account the short period of implementing the 2014-20 RDPs, the scarcity of implementation data and the lack of any budget breakdown by forest sub-measure or operations, which are the main limiting factors of the findings.

**Drivers**

The implementation of the FM is optional for both managing authorities and potential beneficiaries. The RDP framework explains the programming choices made in terms of needs and EU priorities, and reporting data show uptake by beneficiaries, but the study sought to go beyond this and uncover the practical and institutional issues that underlie the implementation choices made by managing authorities and beneficiaries.

Key underlying drivers for both managing authorities and beneficiaries appear to be successful implementation of the FM in previous RDPs, continuity of well-established support, financial considerations and simplicity of administration. The longevity of these factors across RDP programming periods reflects the permanence of forestry as a land use, its importance in some rural economies, the long rotation cycle of many silvicultural systems and the major changes required to improve forest resilience to increasing risks of pests/disease damage, storms, floods and drought/fire, as a result of climate change. However, in some case studies there appears to be a degree of policy inertia (a ‘business as usual’ approach) and perhaps also a reluctance to try new measures. In several RDPs the budget for forestry measures was constrained for the 2014-20 period and in some case studies stakeholders felt that forestry was of lesser importance than agriculture, institutionally or politically, and this was reflected in budgets.

The most widespread drivers of uptake by beneficiaries in the case study RDPs were reported to be financial considerations and business benefits, such as improved resilience to the effects of climate change or opportunities for diversification. The availability (or lack) of information, support in applying for RDP schemes and up-to-date technical advice is also important especially for smaller beneficiaries.

**Effectiveness**

To judge the effectiveness of the forest measures, this study considered to what extent the objectives of the FM have been reached during the evaluation period. The short implementation period for the current forest measures (2014-2017), coupled with major delays in implementing them in most RDPs, has severely limited this appraisal (EQs 2 to 6). Nevertheless, potential effects could be estimated by taking into account the outputs of equivalent measures from the previous programming period, where these are sufficiently similar.

The first issue to highlight is the importance of long-term thinking when regarding forest policies and measures. It is important to realise that, given that forest cycles and stand rotations usually span decades (and for some stands more than a century), all the effects of the FM should be appraised over very long periods of time.

The effectiveness of the evaluated measures is presented firstly at sub-measure level, because each covers significantly different topics, followed by a global assessment of the whole set of forest measures, evaluating to what extent they support the multifunctionality of forests and sustainable forest management, which are key objectives of the EU Forest Strategy.
Support for afforestation (M8.1) has been programmed in half of the 2014-2020 RDPs and represents 31% of the total planned public expenditure for the FM at EU-28 level (EQ2). Over the previous period, half the area afforested with support from the equivalent measure was broadleaved stands, slightly less than a quarter was coniferous stands and a quarter was mixed. Fast-growing species remained marginal, with less than 2 % of the EU-28 hectarage. 

Based on our investigations, M8.1 proved to be a key measure affecting land use (EQ2) in the past programming period. The 287 490 ha supported under the equivalent measures corresponds to one third of the increase in the EU forest area between 2007 and 2013. Furthermore, while the supported afforestation projects could appear to be of relatively limited spatial extent compared to the area of existing EU forests, this FM played a very significant role in some RDPs such as UK-Scot and ES-Gal. In most cases, afforestation was on marginal agricultural land, and half of the area afforested with RDP support was in Spain and the UK (77 873 ha and 61 112 ha respectively). For the present period, there were not implementation data at the time of the evaluation but the target of M 8.1 at EU 28 level is 566 404 ha, which would correspond at least 30% of the 2015-2020 increase in the forest and other wooded land area. Even if it should be kept in mind that this objectives has a high probability not to be achieved (based on the experience of the previous programming period and on the fact the implementation already suffers important delays), those figures show the important potential of M8.1 to impact on land use. The afforested area could result in an increment of 2.3 million m³ of wood per year, which is not significant at the EU-level, but important in some MS such as the UK.

The FADN data (EQ 4) showed that on the 2007-2013 period, the size of the supported afforestation projects was close to one hectare in 50% of the sampled farms. Hence they are often marginal both in the farms landscape and in their revenue. However, around 10% of the projects supported afforestation of more than 20 ha. From an environmental point of view, the effects of M8.1 on biodiversity as well as on climate change mitigation is significant, but are highly dependent on the choice of location, the species mix, the objectives of management and the durability of the newly established stands. Areas afforested by means of M8.1 have been generally considered as not relevant to be declared as Ecological Focus Areas, as by the Member State administration or by beneficiaries, expect in ES and RO.

We have nevertheless shown in EQ 6 that M8.1 can provide the society with significant public goods besides wood. But we have also shown that even if forests can be profitable, most farmers/owners would not be able to invest and then wait such a long time for the income. Therefore, to increase afforestation and consequently to develop the related ecosystem services, it would be necessary to develop an incentive to afforest. This would also help to maintain an active forest sector in rural areas.

Support for the establishment of agroforestry systems (M8.2) has been programmed in one quarter of the RDPs for the 2014-2020 period and represent 2 % of the total planned public expenditure on the FM at EU-28 level. The similar measure (M222) on the 2007-2013 period was implemented in 5 RPDs. This low uptake appears to relate mainly to the significant change the establishment of agroforestry systems imply in the farming system, to a lack of familiarity with agroforestry in some Member States and possibly to the absence of an incentive in the premium calculation. Hence this measure has had little impact on land use or on the creation of additional Ecological Focus Areas. In areas with a tradition of sylvopastoral production systems (i.e. ES, PT, GR) this measure was often criticised for not supporting the restoration or maintenance of existing agroforestry systems (e.g. dehesas and montados). This sub-measure nevertheless appears to be important potential tool for the implementation of new management practices. Agroforestry could provide new economic opportunities in marginal farming areas, delivers significant additional ecosystem services.

296 Other MS has also significant afforestation such as: PL (36 763 ha), HU (26 737 ha) and LT (25 991 ha.).
297 As for 5 % of farmers the premium corresponds to 70 % or more of their farm net income, part of these farmers have probably taken afforestation to transmit a patrimony to the descendants, before ceasing activity.
services and biodiversity benefits (EQ6), and leads to better adaptation of farming systems to climate change. Hence, in the evaluator’s opinion, its importance may rise in the coming years, provided that a sufficient level of incentive is included in the premium and technical advice is readily available.

**Support for the prevention and restoration of damage to forests (M8.3 and 8.4)** have been programmed in two thirds of the RDPs, representing 31% of the total planned public expenditure on the FM at EU-28 level. Of all the FM, these have the most significant effect as they concern huge areas of forest and also bring wider societal benefits, for example by improving the fire resilience of settlements in rural areas (through firebreaks, water points, etc.). The implementation data and the interviews conducted in the 13 MS/Regions of the case studies where these two measures are implemented showed that they are of central importance to the forest sector and also support the continuity of forest ecosystem services plus adaptation to climate change. In the 2007-2013 period, they have supported large scale implementation of prevention systems (8.6 Million ha were concerned by actions of prevention from for forest fire, and about 1 Million ha from natural disasters, which is about 5% of the EU forest area) and major restoration campaigns (557 000 ha were restored, mainly after significant storms in FR-Aquit. and in central Europe). Furthermore, M8.4 has enabled restoration campaigns on a larger scale and, in some cases, fostered the use of specific species (e.g. in UK-Scot) of interest from an environmental and climate perspective, and helped to introduce improved seedlings with a higher growth rate (e.g. in FR-Aquit.), thus raising the production and carbon sequestration capacities.

**Support for productive investment (M8.6)** has been programmed in two thirds of RDPs and represents 11% of the total planned public expenditure on the FM at EU-28 level. Interviews with representatives of the forest holders and companies in 9 MS/Regions of the case studies where the measure was implemented highlighted that it is a key measure for the competitiveness of the sector. Support for investing in forestry technologies and the processing, mobilising and marketing of forest products has played an important and positive role in stimulating investment. Hence, this sub-measure has the most direct effect on the competitiveness of forest companies by supporting the purchase of machinery for harvesting and for sylviculture, and in most RDPs targeting the support at SMEs with little means to buy such costly equipment. The cases studies showed that it also played an important role in maintaining jobs in rural areas, by fostering forest production in disadvantaged areas. Some representatives of the sector identified this measure as a “positive signal” to the sector, contributing to maintaining the willingness of forest companies to invest. Furthermore, this measure had a direct effect on harvesting capacities (EQ 5), and contributed to introduce sylvicultural practices with reduced environmental impact, particularly on soils (e.g. low-pressure tyres).

The silvicultural operations financed through this measure (planting, thinning, pruning, etc.) will normally lead to improvements in the quantity and quality of wood (EQ3) in several decades time. Nevertheless, the evaluators consider that the share of the budget of the FM dedicated to supporting forests as an economic sector (M8.6 represents 11% of the FM budget), is surprisingly low, while the EU is the largest producer of round and sawnwood in the G20. and forest has a very significant role in terms of economy and employment in rural areas.

**Improving the resilience and environmental value of forest ecosystems (M8.5) and management for environment and climate services and forest conservation (M15.1)** are a key source of EU funding to achieve EU biodiversity and climate priorities identified in the EAFRD, through appropriate design and targeting of these measures at identified local needs, and to support sustainable forest management across the EU.

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298 In 2011, the sector comprised around 450 000 enterprises, employed almost 3.4 million people and generated a turnover of EUR 486 billion (380 billion in 2005), playing an important role in maintaining sustainable employment and rural livelihood in many rural areas. Small and Medium-sized Enterprises (SME) are predominant in the woodworking and printing sectors, while the manufacturing and converting of pulp, paper and paperboard is dominated by larger enterprises operating on a global scale (Eurostat).
M8.5 has been programmed in more than two thirds of the RDPs and represents 20% of the total planned public expenditure on the FM at EU-28 level. M15.1 has been programmed and allocated funds in just 25 RDPs and represents 4% of the total planned public expenditure on the FM at EU-28 level. Despite clear efforts to use well designed biodiversity interventions under these two measures, the budgets and uptake targets for M15.1 are far below the scale of intervention required for MS to meet their legal obligations under the Habitats and Birds Directives and Priority 4a of the EAFRD to restore and maintain Natura 2000 habitats and species of forests and traditional agroforestry systems. MS estimate that almost 49% of the EU-27 forest area is classified by Member States as Natura 2000 forest habitats, and more than half of this is outside designated Natura 2000 areas. Recent EEA data shows that only 15% of Natura 2000 forest habitats are in favourable conservation status and the trends are poor. The CS showed that efforts to use M15.1 in conjunction with M12.2 (compensation for legal restrictions in Natura 2000 and other nature reserves) are sometimes limited by problems in defining the payment baselines.

From a climate action perspective, the use of M8.5 and 15.1 have the potential to improve the resilience of EU forests to future climate induced changes and societal needs. Supporting the ongoing sustainable management of forests through these two measures also helps to realise the greater potential from other forest measures, such when land is afforested (M8.1) or when it is restored following a catastrophic event (M8.4). Supporting forest management through these measures (with an increased use of M15.1) will be important in the coming years to address the expected decline in the forest carbon sink as a result of increasing age structure and changes in forest harvesting regimes to meet existing and emerging markets.

The evaluation has also shown the importance of supporting uptake of both these measures through awareness raising and technical support (using M1 and M2 in particular).

**Support for the conservation and promotion of forest genetic resources (M15.2)**

was introduced in 2014, and has been little implemented so far (it is programmed in 14 RDPs and representing 1% of the total planned public expenditure on the FM at EU-28 level). This is probably because of the short implementation period and the tendency of Managing Authorities to give priority to measures that were implemented previously. Hence the assessment on the effect of this measure was difficult. However, case studies and the QS showed that there are growing needs related to genetic resources, related to forest improvement and adaptation to climate change. In that context, this measure seems highly relevant to the evaluators and its importance may increase in the following years.

Horizontal RD measures implemented in forests, such as M1 (knowledge transfer and information) M.2 (advisory services), M4.3 (infrastructure), M12.2 (compensation payment for Natura 2000) and 16 (cooperation), played a significant role in complementing the FM. The lack of specific monitoring data limited the quantified analysis of their contribution, but the analysis of the RDPs showed that, among the RDPs in which M8 is programmed, 70% also opened at least 4 horizontal measures to address forests. The case study showed that on the horizontal measures have contributed to better access to wood through building forest roads, biodiversity management, setting up forest management plans, adopting new practices and innovation.

From the analysis of effectiveness, it can be concluded that the whole set of FM (representing, at EU-28 level, 4.8% of the total planned public expenditure of RDPs) and horizontal RDP measures implemented in forests, the effect of the forest measures is generally very positive, even if often difficult to separate from other factors such as state aids and the operations funded by foresters on their own. If implemented coherently, effectively and over a sufficiently lengthy time period, the FM can contribute

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299 Based on the implementation data at EU level, fourteen case studies, the questionnaire survey to Managing Authorities, the review of the 100 RDPs concerned and a significant literature review.
significantly to delivering economic, environmental and social benefits,\textsuperscript{300} in areas where these opportunities can be rare.\textsuperscript{301} The set of forest measures covers the three pillars of sustainability, allowing Managing Authorities and beneficiaries to set up activities for multifunctional forests and \textbf{sustainable forest management} (SFM). In addition, among the key impacts the FM are expected to deliver in both programming periods is the medium to long-term contribution towards \textbf{climate action}, including increased carbon sequestration potential through afforestation and forest management; preventing future damage; and contributing to resilient and sustainably managed forests, particularly where these help to stabilise and reinstate forest carbon sinks and improve future adaptation.

Nevertheless, the evaluation identified some possible improvements for a more effective implementation of the FM. In many cases it is unclear exactly what are the MA’s objectives or priorities for designing and targeting the FM, or how they will resolve potentially competing priorities (for example increasing production, or carbon sinks, or biodiversity restoration).

Case studies show also that the payment rates for some measures such as M8.1, M 8.2, M15.1 is often too low to be an incentive enough for forest holders change their management practices or even production system. In addition, the FM budget share is also often too small to achieve targets set in the RDPs and at EU policy level. For example, if the payment rates for M8.1 were a better incentive this measure potentially could support two thirds of the increase in forest area, instead of the one third in the 2007-13 period. The calculation formula for these forest ‘compensation’ payments is driven by the rules applying to agriculture and resulting from the WTO Agreement. But according to us this agreement does not apply to forest products. So, it should be possible to revise the calculation and include a real incentive for some FM that in addition to the payments dedicated to the holder, produce significant public goods for the whole society.

\textbf{Efficiency}

The evaluation of efficiency considers whether the means are adapted to the objectives of the studied FM. It includes analysis of the changes in the administrative burden over the two periods, delays of implementation and unit costs of the operations supported.

The beneficiaries’ administrative burden (AB) in implementing the current FM was found to be a major factor affecting efficiency, compared to the previous period. For Managing Authorities, using open calls, standard cost options and digitisation helped to reduce their administrative burden have had positive consequences, but other obligations (e.g. reinforced control requirements and systematic double-checks) added to the burden. The EC reinforced requirements on transparency and traceability between the two programming periods, which resulted in adaptations at Member State level but it seems that the additional workload was mostly transferred to the beneficiaries. The AB is especially high for small forest holders with little financial and/or technical capacity to handle very complex files and procedures, resulting in low cost/benefit ratio for small holdings (EQ9).

Our analysis on the efficiency of the measure mostly focused on area-based measures (M8.1, 8.2 and 15.1). Analysis of the premiums on eight MS/Regions showed that the operations supported are paid for at market prices (EQ8), which is ensured through mechanisms such as public procurement and justification of the standard scale of unit costs. On all sub-measures, the deadweight effect of the FM is globally considered as low by the evaluators, and the cost/benefit ratio is generally low for small holdings (EQ9), even if some RDPs have put a higher premium on small scale activities to take this into

\textsuperscript{300} For the economic and social benefits, case studies and the literature review suggest that the benefits can be varied (e.g. amenity and creation of recreation economy, water regulation and filtration, creation of jobs that may be sustainable at a much lower level of public subsidy per employee than in agriculture (CONFOR, 2015).

\textsuperscript{301} This point is critical for maintaining activities and for the less competitive forest economies (e.g. the Mediterranean sector), so as to avoid their cessation and replacement by imports (Koulelis P. - 2012).
account (e.g. UK-Scot): the measures supported operations that wouldn’t have taken place without public support.

The study also showed that higher outputs could have been obtained with the same budget by reducing the administrative burden on beneficiaries where there are important transaction costs (EQ9). An integrated approach fostering synergies between measures enables to get higher benefits (EQ9). The use of eligibility and selection criteria seems critical to ensure the environmental and climate adaptation effect of the afforestation, prevention, restoration and investment measures (e.g. inclusion in forest management plan, location of operation in targeted areas, choice of species, use of machines with reduce environmental impact). Although this would contribute to raising the complexity of the measures it would mean more cost-effective use of public funds to support the achievement of EU priorities for ecosystem services (including the production of wood) and biodiversity.

In conclusion on efficiency, the greatest impact of changes in AB over the two periods fell on the beneficiaries, but also to a certain extent on Managing Authorities which led some of them to abandon the FM and address their forest needs of through State Aids with simplified procedure and sometimes higher premiums.302

Coherence

The evaluation of coherence considers how well the FM work alongside other relevant CAP measures aimed at environment and climate, and the contribution of the FM to the CAP objectives of viable food production and balanced territorial development. It also assesses coherence with external policies, instruments, plans, strategies and funds that relate to forest management within the EU.

The evaluation shows that the FM are coherent (i.e. do not conflict) at EU level with other relevant CAP measures aimed at sustainable management of natural resources and climate action, and balanced territorial development. This relates mainly to the interaction between the FM, Pillar 1 greening measures and other RDP measures. However, in the case of traditional agroforestry there is potential for lack of coherence between Member States’ definition of the eligibility of this land for Pillar 1 income support and the effective use of M15 and M8.5 to support environmental management on the land, and also a lack of coherence in RDP payment rules, depending on whether these systems are classed as agricultural or forest land.

In terms of external coherence the evaluation shows that forests play a crucial role in delivering environment and climate objectives both at the EU and global level and, supported by the FM, are key components in the achievement of EU policy initiatives in this area. The FM were found to be coherent with the objectives of the 14 key environment and climate policies reviewed with these policies, such as the EU forest strategy, Biodiversity policies and Climate policies featuring frequently in reference to the use of forest measures in RDPs as well as the reciprocal.303 For example, many of the 2014-20 RDPs identify the contribution of forest measures to national climate action plans, and analysis of Member State LULUCF Decision Article 10 reports suggest that EAFRD support and the forest measures are a key component of these actions. Biodiversity policies were similarly well referenced with examples in the case studies illustrating forest management plans taking account of biodiversity policies, for example by assessing compliance with Natura 2000 guidelines.304 Less explicit reference to the use of forest measures to support soil and water policies were found in the cases studies, despite clear potential to use the forest measures for these objectives.

302 Source: case studies
303 This is supported by similar findings in the synthesis of ex-ante evaluations when considering external coherence “Whereas links between the RDPs and Europe 2020 Strategy at the level of objectives are very clear, the contribution of the actions of the RDPs to the three objectives of the Europe 2020 Strategy is not concrete and evident.”
304 It should be noted that in many Member States EIA requirements do not check if forestry management practices meet minimum environmental requirements for protection of Annex 1 forest habitats.
The forest measures are intended to work as a complementary set of measures to realise the multi-functional potential of forests. The appropriate use and management of forests supported by the FM can lead to the delivery of multiple environment and climate objectives simultaneously, providing that they are implemented effectively and with these multiple objectives in mind. However, we lack clear evidence to demonstrate that this is being realised in practice, particularly for objectives that require long-term commitments, such as climate mitigation. Long-term forest management can be necessary to achieve objectives that require sustained action over decades, such as maintaining and increasing carbon sinks, stabilising the provision of ecosystem services alongside continued productivity, and maintaining the biodiversity and economic viability of existing low-intensity systems. The decisions taken at the national and regional level by Member States therefore have a significant impact on whether the FM have the potential to deliver synergies or not, and land managers’ decisions determine whether or not these potential synergies are realised in practice. It is worth noting that the delivery of multiple objectives is not guaranteed to be the case even if this is the intention, as not all environment and climate objectives can be delivered synergistically in all cases (Burrascano et al, 2016; Hart et al, 2013305). Choosing how and where to prioritise (or combine) different objectives is crucial to ensuring synergies (where possible) and avoiding conflicts.

At the level of EU legislation, the forest measures are coherent with all ESI-Funds306 and associated research and investment programmes evaluated in this study and have potential synergies at the measure design level. For the 2014-20 programming period, common rules ensure that the ESI-Funds are used in a more strategic and complementary manner. Partnership Agreements are negotiated between the Commission and Member States authorities and should ensure an overall high degree of coherence between the thematic priorities of the Funds and the territory-specific development needs.

Relevance
Evaluation of relevance analyses how the measures match present and future needs (EQs 13 and 14).

The evaluators conclude that the FM are highly relevant to addressing the EU priorities for Rural Development policy, and are in line with the priorities set up a national or regional level (EQ13). The analysis showed307 that several factors, such as the RDP framework itself and the need for MS to address their international commitments, resulted in a strong focus of the FM on the environmental and climate priorities for the RD policy.

The study also showed that the FM provide MA with a relevant set of instruments308 to address the needs of the forest economic sector, the most widespread of which are protection from the effects of natural disasters; building capacity among forest holders and stimulating innovation; and improving infrastructures and harvesting capacities to increase local wood supply. The collaboration of the Managing Authorities with representatives of the sector in designing the FM appeared in the evaluation study as a key factor to ensure their relevance to addressing local needs. The analysis also showed the importance of the other RD measures in complement the FM to provide a wider set of instruments available to address the needs of the sector. In particular, technical advisory and knowledge transfer (M1and2) were identified as key measures to improve the competitiveness of the sector, to raise the environmental awareness of forest holders and

305 Burrascano et al (2016) note the potential conflict between afforestation for climate purposes and impact on biodiversity objectives and that “joined climate and biodiversity benefits are strongly context-dependent”; Hart et al (2013) note the broader challenge of balancing production with environmental objectives “...increases in the production of food, feed or timber, therefore must be accompanied by improved resource efficiency (to avoid reducing natural capital) and improved flow of environmental services from healthier ecosystems”.

306 European Structural and Investment Funds.

307 Based on Analysis of 100 RDPs and detailed information gathered in the cases studies.

308 Even if the effects of implemented measures are often expected only in the long term, due to forest cycles that most of the time cover decades and more.
contributing to implementation of environmental measures such as M8.5 and M15.1. In the context of climate change, they will be of growing importance in raising the awareness of forest holders, supporting them to adapt their stands and management practices to optimise carbon sequestration and sinks in forests while maintaining other ecosystem services.

Concerning the match between the FM and future needs (EQ14), even with some uncertainty, as author's opinions diverge, the projections over the next decades show that production would, on average, provide a good coverage of the sector needs in wood, even if some products (as now) will have to be imported (e.g. coniferous products or tropical wood). In terms of environment and climate, the literature and interviews confirm that, for the coming decades, the two main global challenges to the forest sector are adaptation to climate change and biodiversity, even if their role in other domains will of course remain (e.g. water regulation, soil conservation, etc.).

Concerning climate change mitigation, forests are the most significant terrestrial carbon sink in the EU and are expected to remain so in the coming decades, yet the overall level of sequestered carbon in forests is expected to decrease towards 2030. This is due in particular to the change in management of forests to meet an expected higher demand for wood compounded by a progression in the age class of trees towards more mature stands with reduced growth and thus lower sequestration potential.

For biodiversity, there are quantitative targets in the EU Biodiversity Strategy and legal obligations for Member States on the conservation status of Natura 2000 habitats and species, which are clearly not being met (EQ 6). The area of protected forests and other wooded land within the EU is likely to have to increase over next decades, if EU biodiversity policies and targets are to be achieved. But as stated in EQ 6 and the assessments of coherence, environmental and climate effectiveness (EQ6) and coherence (EQ11), balancing the objectives of climate mitigation and biodiversity conservation can require trade-offs and delivering both together could be sub-optimal for any given objective. Choices will need to be made about how to deliver against the EU’s environment and climate targets in a balanced way, respecting the multi-functionality of forests and the priorities in a given area. Bearing in mind that when a decision is taken and applied at EU level, which is a major wood producer, these decisions have effects at global level. This is particularly true for forest conservation, which can lead to some withdrawal of production within the EU and in consequence to importation of wood to cover the EU needs. This means that protected forest in the EU could lead to some pressure on forests elsewhere.

Overall, the present Rural Development measures are aligned with and sufficiently opened to match these future needs. Nevertheless, it is not entirely sure that the available budgets will cover all the needs, which will increase over the period and in the future, particularly in terms of carbon sequestration and biodiversity, besides the supply of wood and other forest products which should normally be covered by the market, even in MS/Regions that have chosen to replace or complement Rural Development FM with State Aids.

**EU Added value**

The evaluation results reveal that the quality and quantity of funding for FM would decrease without EU support. This would also be the case for other climate- and environment-related measures that affect forests. The evaluation has furthermore

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309  Natura 2000 obligations and EU biodiversity strategy targets could be one reason, but the CS also showed that it could also be regional conservation objectives, as mentioned in the DE-Mecklenburg CS.

310  This means, to be fully coherent, that similar regulations should concern the exploitations of these forests. This is typically the role of the EU Timber Regulation (whose goal is to avoid import of illegal wood) and of the FLEGT partnerships. But these regulations and processes are slow to implement and do not cover the same range of topics than the EU regulations cover within the EU.

311  Effects of climate change on forests are difficult to appraise in the future but will certainly impact the forest sector’s needs.
identified a direct relationship between the FM and other pertinent EU policy objectives, including targets for restoring and enhancing forest ecosystems, biodiversity conservation, 2020/2030 climate and energy targets, forest monitoring and the timber trade. The impact of the FM on these objectives and their coherent contribution has however been harder to assess.

The current and previous programming periods have allowed for a degree of consistent, regular support to the management of EU forests, which permitted the continuation of EU added value. In addition, there continues to be a perception of added value of the FM within the framework of support of the RDPs, by Managing Authorities and by relevant representative organisations. However, views diverge significantly as regards to the priorities for rural development and, perhaps more importantly, there is no cross cutting agreement on how the EU should implement these priorities.

More could be done to improve networking and exchange of best practices, across and within Member States. Managing Authorities often do not utilise the options offered by the current M1. Suggestions for improvement coming from interviews and CS could include more exchange of experience with scientific and practice experts, improved exchange between national and EU levels, and other kinds of organised information exchange under the current RDP framework.

The FM have an important role to play in supporting not only SFM and the EU Forest Strategy but other key EU policy objectives and priorities, such as environment and climate related objectives. However, since the selection of FMs is largely in the hands of EU MS, the impacts associated with the EU FM provide a mixed picture of EU and MS added value due to varied national priorities.

The EU could become better at harnessing positive developments in areas where Member States see added value. This could include further improvements in the regulations surrounding the RDP FM. For example, reducing the red-tape and Administrative Burden. In addition, the current RDPs programming period has a significant environmental focus, while contributing poorly to forests as an economic sector (see EQ13). Legislative changes may however face opposition, given the wide range of opinions on increased regulation by Member States as well as the perceived role of the MA, the national forest sector and the emphasis on freedom of choice.

Even though there is room for improvement, it is fundamentally clear that the EU Rural Development Fund has been important in the uptake of FM by Member States. In other words, there are forest measures that would either not have been funded to the same extent, or not implemented at all, in the absence of RDP support.

7 Recommendations

Based on the above conclusions the main recommendations of this evaluation are to:

1. **Maintain the forestry measures under RD**, as they are critical to establish and maintain sustainable forest management within the EU and enable MS/Regions to choose measures covering their economic, environmental and social needs.

2. **Design RDP support for forests on a timescale adapted to forest cycles by:**
   a. When reviewing/revising the RD Regulations considering the need for long term thinking regarding support to forest.
   b. Limiting changes in the measures and their implementation procedures.

3. **Ensure a coherent budget is allocated to forest priorities in the RDPs, by:**
   a. Ensuring that the share of the RDP budget that is allocated to forest is in coherence with the present and the future needs of the forest sector and the environmental and climate commitments of the EU and Members States.
   b. Encouraging Managing Authorities to allocate balanced means to the FM to enable creating and maintaining multifunctional forests projects allowing to support simultaneously the economic, social and environmental functions of forests. For example, the share of 11% of the planned expenditure allocated to the competitiveness of the sector (mainly through M 8.6: support for productive investment) is considered as too low by the evaluators, compared to the role of the EU in the timber world market. In the same order, the share of 1% of M15.1
Evaluation study of the forestry measures under Rural Development

(payments for environment and climate services), is far from what would be required for MS to meet their legal obligations under the Habitats and Birds Directives to restore and maintain the Natura 2000 habitats and species of forests and traditional agroforestry systems.

4. **Improve the coherence of the FM and the horizontal measures, and of their implementation rules, by:**
   a. Reducing the risks and initial cost for beneficiaries in applying for support, in particular by fostering the use of digitalisation and centralised databases, and the provision of technical support in the application phase.
   b. Ensuring the inclusion of small holders and private holders in RD schemes, through better support from advisers and/or a bonus in premiums for small holdings (e.g. by extending the availability of transaction costs for M15 from 20% to 30% for group applications, limiting the administrative documentation for them). For all beneficiaries, develop at Member States/Regions level on line applications.
   c. At RDP level, restricting the use of calls for proposals/projects and competitive procedures to significant projects (e.g. above a financial threshold).
   d. Making it easier to apply for projects with clearly defined environmental objectives, to be targeted and implemented in the most appropriate locations.
   e. Review/revise payment control and verification procedures for forest stands, to remove irrelevant annual controls and replace them with requirements and procedures designed to ensure the durability of the afforested or restored stands.
   f. Improve the geographical identification of plots afforested or converted to agroforestry with FM support, to enable monitoring of the impact of the FM on land use change and the effect on wood production and on environmental and climate priorities.
   g. Improve monitoring/evaluation systems to provide better information a) on the use of RDP horizontal measures in forests and b) the impact of the implementation of the FM on EU RD priorities.
   h. Require Member States to demonstrate the coherence of their definition of Pillar 1 rules for direct payments with their programming of RDP measures to foster the establishment and long-term maintenance of forests and agroforestry systems.

5. **Increase the uptake of FM that jointly deliver private and significant public goods, by:**
   a. Review/revise the basis for calculating payments of M8.1, 8.2 and 15.1 to increase both uptake and the joint production of wood and other forest products alongside improved ecosystem services, carbon sinks and biodiversity, whilst improving resilience to climate change and maintaining a dynamic forest sector in rural areas.
   b. Ensure that the afforestation targets for 2014-2020, representing 30 to 55% of the increase in forest area at EU level, will be achieved (by 2023) in order to improve implementation of sustainable forest management, and optimise provision of ecosystem services and carbon sequestration/sinks in new forests.
   c. Combine M8 and M15 with the necessary horizontal measures, such as M.1, M.2, M4, M16, to improve their effectiveness and efficiency.

6. **Improve contribution of FM and related measures to EU biodiversity targets:**
   a. In the EU CAP implementing regulations and Commission guidance for both Pillars, establish a clearer link between the objectives for the FM as a whole and Member States’ Priority Action Frameworks to meet their obligations under the Habitats and Birds Directives, in forests and other wooded land.
   b. Where RDPs have programmed M8.5 and M15.1, require these measures to prioritise identified needs of Natura 2000 habitats and species both inside designated Natura 2000 sites and elsewhere.
   c. Improve the uptake of the FM for establishing agroforestry (especially on economically marginal farmland) and require the RDP funded Farm Advisory
Services make farmers aware of the economic and climate adaptation benefits of introducing agroforestry.

7. **Improve the resilience of forest to climate change, and their contribution to the EU’s long-term climate commitments by:**
   a. Reviewing/revising the measure descriptions in the Regulation to ensure that all the FM support inter alia the implementation of management practices/actions which contribute a) to the adaptation of forests to climate change and b) to the long-term management of forests as a carbon sink, particularly in relation to supporting Member State actions under the LULUCF Decision.
   b. Requiring Member States to report on the contribution to climate commitments made by their implementation of the FM, in order to support and complement reporting under the EU’s climate accounting framework.

8. **Increase EU Added value, by:**
   a. Improving networking and exchange of best practices, across and within Member States, by making more use of the options under M1, streamlined with activities of the European Network for Rural Development (ENRD). For example, improved exchange of experience with scientific and practice experts, between national and EU levels, and through other kinds of organised information exchange under the current RDP framework.
   b. Addressing the impact from other sectors where the EU has competence, and the direct and indirect effects these are having on forests. This refers to both policy incoherence and cross-sectoral trade-offs leading to unsustainable and uncoordinated use of forest resources, and in terms of the FM adding value to other key EU policy objectives.

9. **Improve global impacts, by** designing measures and their implementation rules at EU level, taking into account that the EU is a major wood producer whose forest management have a direct impact at global level, and that the EU policies may have an indirect impact in other regions of the world, producing food and wood which is then imported by the EU. Also bearing in mind that EU regulations such as the EU Timber Regulation or the FLEGT partnerships mainly regulate the legality of timber exports and that the sustainability of the forest resource utilization of these exporting countries is generally not really evaluated.