Funding for Farmland Biodiversity in the EU: Gaining Evidence for the EU Budget Review

A Report for the RSPB

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Disclaimer

The information, opinions and line of argument advanced in this report are entirely those of the authors. Any errors remaining in the presentation of CAP payment data remain the responsibility of the authors.
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1 Introduction: EU Policy Developments and Farmland Biodiversity

1.1 The Objectives and Context of this Report

This report aims to initiate a transparent debate on the purpose, intensity and spatial distribution of expenditure on the EU’s Common Agricultural Policy (CAP) from the perspective of the protection and enhancement of farmland biodiversity. It does this through a detailed analysis of the CAP budget and the presentation of a number of maps showing the regional variation in the distribution and intensity of both Pillar 1 and Pillar 2 payments. In addition, five qualitative case studies examine the use of specific CAP measures in more detail, and an assessment is made of the role they might play in biodiversity protection. The evidence suggests that in order to help meet the EU’s international commitment to halt the loss of biodiversity, CAP funding could be better distributed between the two Pillars and within the Member States, and the allocation of funds to and use of different rural development measures could be improved.

The report is predicated on the assumption that a European agricultural policy and funding stream provides an effective mechanism for targeting positive outcomes for biodiversity, given the intrinsic relationship between farming and the environment. In order to contextualise the expenditure analysis that follows, Section 1.3 explains the linkage between biodiversity, agriculture and the CAP. The various elements of CAP financing are then deconstructed, examined spatially, and the implications for farmland biodiversity interpreted. The geographic variation in the distribution of direct payments and rural development expenditure is illustrated through a series of maps, analytical charts and tables in Sections 2, 4 and 5. Whilst the relative level of expenditure on different measures indicates the priority that a Member State may give to the environment, the likely impact of this expenditure on farmland biodiversity requires more detailed exploration. The application and anticipated outcomes of this expenditure are therefore further illustrated by five qualitative case studies, which are summarised in Section 6.

Because of the difficulties in interpreting the complex relationship between the distribution and intensity of CAP spend and the distribution of biodiversity, as well as in developing an understanding of where policy intervention and public expenditure is needed to ensure biodiversity protection in the future, it is important not to draw simplistic conclusions from the data and maps presented in this report. Any conclusions must be understood within the context of the historic rationale for CAP payments, the distribution of different farming systems across Europe, and the relationship between subsidies, the intensity of farming practices and biodiversity conservation. The report therefore carefully sets out the reasons behind the apparent inconsistencies in the intensity and spatial distribution of funding. Whilst the need for further research and analysis on the relationship between EU expenditure and agriculture and farmland biodiversity (and indeed other environmental priorities, such as soil and water conservation) is acknowledged, the report concludes by suggesting a
number of ways in which the CAP and its budget might be adjusted to better serve farmland biodiversity objectives in the future.

1.2 The EU Budget Review, the CAP Health Check and Farmland Biodiversity

The wide ranging review of the European budget launched by the Commission in September 2007 (CEC, 2007a) presents a unique opportunity to consider whether the established pattern and level of spending on the Common Agricultural Policy (CAP) reflects the environmental challenges faced by the EU now and in the future. One outstanding environmental priority is to halt the loss of biodiversity by 2010, as required by the Convention on Biological Diversity and EU Sustainable Development Strategy (CEC, 2006). This is a goal that can be achieved, in part, through a sensitively designed and appropriately funded agricultural policy. In principle at least, the budget review could pave the way for a refocused EU budget and agricultural policy as we move into the next Financial Perspective in 2014.

The reorientation of EU agricultural policy towards the provision of environmental goods will need to be founded on clearly articulated evidence that demonstrates that public expenditure results in outcomes that are beneficial to society at large. The provision of public goods, such as biodiversity conservation, must be in line with the expectations that society has of such a public spending programme. In addition, the need for European level intervention will need to be made clear, in order to demonstrate that a common European approach provides added value in comparison with more isolated Member State led approaches. Promoting the transition from the current formulation of the CAP to a common European agricultural policy and spending programme focused on the provision of a range of public benefits is at least partially dependent on promoting a rational, transparent and evidence based analysis of current CAP spending patterns and the effectiveness of this expenditure in providing public goods. This analysis needs to take place in advance of the political process, which dictated by national interest, typically steers the path of budget negotiations to conservative outcomes, and alongside the conclusion of the CAP Health Check in 2008.

The legislative proposals relating to the Health Check of the CAP were published in May 2008. They include the introduction of a new Council Regulation to replace Council Regulation 1782/2003, modifications to a range of Council Regulations on public intervention and direct aids, and amendments to the European Agricultural Fund for Rural Development (Council Regulation 1698/2005) and the Community

1 Council Regulation establishing common rules for direct support schemes for farmers under the common agricultural policy and establishing certain support schemes for farmers, COM (2008) 306/4


Strategic Guidelines (Council Decision 2006/144). The Health Check is not intended to result in a fundamental reform of the CAP, as has been emphasised by EU Agriculture Commissioner, Mariann Fischer Boel. However, it is significant insofar as it signals a future direction of travel. The following proposals are particularly relevant to farmland biodiversity:

- Moving to a flatter rate of support: The proposals give those Member States who applied a historic model to the SPS the option to switch the basis of support to a regional, flat rate model. This is in response to the fact that some Member States are reported to regard historically based payments as increasingly difficult to justify.

- Partially coupled payments: The justification for allowing the continuation of partially coupled support for the suckler cow and sheep and goats sectors is to ensure a minimum level of agricultural production in particular regions, where there are unlikely to be viable economic alternatives, in order to retain the environmental and social benefits linked to extensive livestock systems.

- Cross compliance: New GAEC standards are proposed for the retention of landscape features (including hedges, ponds, ditches, trees in line, in groups or isolated and field margins) and to establish buffer strips along water courses (which is intended to retain some of the environmental benefits provided by set-aside).

- Article 69/68: It is proposed that Member States should continue to be allowed to retain up to 10 per cent of their national ceilings for direct payments to provide support to specific sectors with ‘special problems’. The funds can be used to protect the environment or improve the quality and marketing of products, make payments for disadvantages faced by specific sectors (dairy, beef, sheep and goats, and rice) in economically vulnerable or environmentally sensitive areas, to provide top-ups to existing entitlements in areas where land abandonment is a threat, and to support some risk management measures. The implementation of the measure in the Member States will effect the environmental outcome; if used for risk management, no biodiversity benefits will ensue.

- Modulation: In addition to the current 5 per cent rate of modulation, which would continue to operate as it does currently, an additional basic rate of modulation would be applied to all payments above the €5,000 franchise, increasing by 2 per cent annually from 2009 until it reaches 8 per cent in 2012. The additional funds raised will be retained within the Member State. The progressive element means that additional rates of modulation are applied, in 3 per cent bands, depending on the size of direct payment received.

- Revised Rural Development Programmes: The proposals require Member States to use the additional resources generated through the increases in compulsory modulation to reinforce actions under existing measures within Pillar Two to meet a number of environmental challenges, including biodiversity loss. Under the proposals, Member States are obliged to revise National Strategy Plans and to amend rural development programmes to

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demonstrate how they will use these additional resources which will be available from 1 January 2010.

The Commission and French Presidency are aiming to reach political agreement on the Health Check proposals at the October 2008 Agriculture Council meeting.

1.3 The Link between Biodiversity, Agriculture, and the CAP

The EU’s Strategic Goals for Biodiversity

With the launch of the Sustainable Development Strategy (SDS) at the 2001 Göteborg Council, the EU committed to reverse the decline in biodiversity by 2010 (CEC, 2001). There has been limited success in meeting this objective to date, and in 2006, the European Commission stated that new impetus was required among the Member States (CEC, 2006). The 2006 ‘EU Action Plan to 2010 and Beyond’ stressed the need to optimise the role of the CAP in conserving and restoring biodiversity across the EU countryside and to ensure the availability of adequate financing. In 2006, the renewed SDS again underlined the need to halt the loss of biodiversity by 2010 (Council of the European Union, 2006), with the Commission acknowledging in the 2007 Communication on the ‘Health Check’ of the CAP that the 2010 target was unlikely to be met (CEC, 2007b).

Since the early 1990s, incremental steps have been taken to reform the CAP to reduce the level of environmental degradation arising from earlier incarnations of the policy and to better deliver against environmental objectives. The 2003 reform introduced decoupled direct payments and cross compliance into Pillar 1, and gave Pillar 2 a strategic focus that requires Member States to use the rural development fund to contribute to biodiversity conservation and the maintenance of high nature value farming systems in order to help meet the 2010 objective. Yet, the in spite of these successive reforms, the CAP continues to retain a number of historic artefacts that help to explain the distribution and intensity of expenditure at the present time, but which may continue to be at odds with the EU’s international commitments for biodiversity.

The Link between Agriculture and Biodiversity

Agriculture is the most dominant European land use, accounting for almost half of the total EU-27 land area. Agriculture is of critical importance to the conservation of biodiversity, both because of its territorial dominance but also because of the way in which historic, low intensity land management has resulted in a rich assemblage of species. It has been estimated that 50 per cent of all species in Europe depend on agricultural habitats, including a number of endemic and threatened species (Kristensen, 2003).

Depending on the type and intensity of management, agriculture can therefore have both positive and negative impacts on habitats and species. In consequence, the
incidence and conservation status of many species associated with farmland varies spatially across the EU. Extensive farming systems, mostly dominated by grazed semi-natural vegetation, tend to be richest in biodiversity, and biodiversity decreases as the intensity of farming increases (Grime, 1973). This relationship between the presence of semi-natural vegetation and low intensity land use with high biodiversity is captured in the High Nature Value (HNV) farming concept (Beafoy et al., 1994; Bignal and McCracken, 1996; 2000).

Most HNV farming systems are characterised by low stocking densities, low use of chemical inputs and labour intensive management practices, such as shepherding (EEA, 2004). HNV farmland tends to be found in the more marginal areas and on poorer land that maintain less intensive farming practices. It is generally more prevalent in southern Member States, such as the dehesas and montados in Spain and Portugal, and the steppic areas of eastern Member States, as well as in upland areas of the UK and alpine meadows and pasture (EEA, 2004). The European Environment Agency (EEA) and the Joint Research Centre (DG JRC) have produced an indicative map (see Figure 1) showing the incidence and distribution of farmland that is likely to be of high nature value. In order to assess the overlap between CAP expenditure and the presence of high biodiversity, a number of the expenditure maps produced for this study have been overlaid with this map of HNV farmland. Whilst it may be legitimate to target public support at HNV farmland, conservation efforts need to pertain throughout the wider farmed landscape. The HNV/expenditure overlay maps provide one indicator of biodiversity presence and are not intended to be read as a guiding principle for future policy.

Certain types of agriculture production are associated with a number of positive externalities, if sensitive management practices are adopted. However, agriculture can also be associated with negative externalities. Over the past twenty years or more, the trends of agricultural intensification and specialisation in parts of western Europe and large-scale marginalisation and land abandonment in others, have had serious impacts on the conservation status of farmland resulting in the loss and degradation of semi-natural habitats and decline in associated species. 43 per cent of European bird species have an unfavourable conservation status (EEA, 2007). Of the more common bird species, farmland and forest species, in particular, have declined over the past 30 years (see Figure 2). Birds are the best monitored of all taxa in Europe but there are also data showing substantive declines in many species of butterflies associated with farmland habitats.

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5 Three criteria are used to define HNV farmland on this map. (1) Farmland with a high proportion of semi-natural vegetation; (2) Farmland with a mosaic of low intensity agriculture and natural and structural elements, such as field margins, hedgerows, stonewalls, patches of woodland or scrub, and small rivers; (3) Farmland supporting rare species or a high proportion of European or world populations.

6 Unfavourable conservation status might be defined in terms of species whose population or range has declined moderately in recent years or whose population has declined historically but made a substantial recent recovery.
Figure 1. EEA / DG JRC Map Showing the Preliminary Distribution of HNV Farmland in Western and Central Europe.


Figure 2. Trends in the Populations of Common Farmland Birds

Note: Bracketed figures refer to total number of bird species monitored.
Since the CAP intervenes in land management, both as a set of policy measures and as a funding source, it has the potential to play a key role in securing biodiversity outcomes, and thus helping the EU to meet its commitments on biodiversity. That said, the nature of policy intervention is critical. Suitably targeted CAP measures can provide benefits to biodiversity, whilst untargeted measures can be inconsequential in responding to conservation priorities, and at worst, counterproductive.

Biodiversity benefits can be delivered through the CAP through incentivising or supporting certain forms of land management. The agri-environment measure, introduced in 1992, is the EU’s flagship policy tool for targeting particular environmental outcomes. Supporting the incomes of certain types of farmer may also be an acceptable way to provide positive outcomes, so long as the income of the farmer is linked to the form of management required. Reflecting this approach, the Less Favoured Area (LFA) measure, introduced in 1979, helps to maintain agricultural activity in marginal areas, which are generally characterised by low intensity management practices. The different CAP measures and their relationship with biodiversity are explored further in the next section.

There is a historic link between the CAP and the loss of biodiversity, largely due to the way the policy has stimulated certain production decisions, the structure of farming systems, the intensity of land use and changes to landscape structure. Many of these problems have been addressed by reforms since the early 1990s. Boatman et al (2003) note that CAP regimes for arable crops since 1971 coincided with the simplification of cropping systems, a reduction in field boundaries, increased fertiliser and pesticide use, and the introduction of irrigation and drainage, all of which contributed to a decline in biodiversity. Despite successive reforms of the CAP, biodiversity conservation efforts continue to be undermined as a result of land abandonment (Keenleyside and Baldock, 2006), the fragmentation of semi-natural habitats, the loss of farmland features, high chemical input use and the conversion of pasture land to arable. These threats may be exacerbated given the apparent shift to sustained high commodity prices, particularly for cereals (Baldock et al, 2008).

Supporting biodiversity conservation through the CAP continues to remain necessary given the sensitive nature of the relationship between agricultural management and biodiversity, and the expectation that the market will create a pressure for some farmers to increase production, potentially provoking deleterious impacts on the farmland environment. A common EU approach is required given that the loss of biodiversity prevails and that the EU has formal policy commitments to halt the loss of biodiversity. Given that biodiversity conservation is a transboundary issue, meeting conservation objectives requires a shared and co-ordinated approach across the Member States.

In broad terms, for agricultural policy to effectively target farmland biodiversity conservation in the future, four broad categories of interventions are needed:

- the maintenance of existing high nature value farming systems, especially where the risk of land abandonment is high.
- the adoption of more extensive practices in intensive farming systems, such as a reduction in stocking rates, fertiliser and pesticide use, and the introduction of management practices, such as rotational fallow, that are beneficial to biodiversity.

- the restoration of damaged or degraded habitats and re-creation of habitats such as wetlands, hedgerows, woodlands where lost, both in intensive and extensive systems.

- the creation of new habitats on both more intensive and more extensive farms as part of a strategic, landscape scale approach to promote the development of functional connectivity between habitats in the context of climate change.

There is also a need to maintain soil and water quality in order to underpin biodiversity conservation and as part of a concerted and holistic effort toward sustainable land management. The CAP includes a number of measures that have the potential to respond to the four types of action identified above, and are discussed further in the following section.

1.4 How the Structure of the CAP Influences Farmland Biodiversity

The CAP owes its origins to the 1957 Treaty of Rome and is one of a small number of ‘common’ EU policies. The CAP began life primarily as a series of market interventions designed to provide an income support to European farmers and to protect them from external competition. Measures to address structural issues were relatively few and environmental measures unheard of. Over the years, the CAP has undergone numerous, substantive reforms in response to political, societal and market demands. Price support and market intervention has been gradually reduced – although not yet entirely phased out – replaced by increasing levels of direct support for farmers. The first EU wide agri-environmental measure was introduced in 1985 and this measure, along with various other rural development measures, now forms a substantial component of the CAP.

Today, three different components of the CAP can be identified:

- **Market interventions** – including tariffs, export subsidies, intervention purchasing and output quotas.
- **Direct payments** – income support payments for farmers paid through the Single Payment Scheme (SPS) or the Single Area Payment Scheme (SAPS)\(^7\). The majority of direct payments are now decoupled from production.
- **Rural development measures** – a series of measures under the European Agricultural Fund for Rural Development (EAFRD) to help improve the

\(^7\) The majority of new Member States apply the Single Area Payment Scheme (SAPs) – a transitional, simplified income support - rather than the SPS at the present time.
competitiveness of farm businesses, the environment and the quality of life in rural areas.

Together, market interventions and direct payments constitute what is commonly referred to as Pillar 1 of the CAP, while rural development measures fall within Pillar 2.

**Pillar 1 of the CAP and Biodiversity**

Within Pillar I, direct payments are of greatest interest in terms of their likely impacts on biodiversity. They constitute the greatest share of the Pillar 1 budget (as shown in section 2), are received on large areas of farmland and hence have a wide policy reach.

Several observations can be made regarding direct payments:

- They are an income support payment aimed at ensuring a fair standard of living and stability of farm incomes and not at delivering environmental outcomes; any environmental impacts thus arise indirectly.
- They have been progressively decoupled from production (shifting support from product to producer) although Member States retain the option to continue to pay a proportion of payments on a coupled basis for some sectors.
- They are calculated for each farm on the basis of the amounts received during a historic reference period 2000 - 2002. There are a number of payment models: historic, based on the payments received and the number of hectares farmed during the reference period; regional, where reference amounts are not calculated at individual farmer level but at regional level; and, hybrid models, where Member States may calculate SPS payments using a part-historic/part-flat rate approach.
- A proportion of direct payments (up to 10% by sector) can be redeployed to support certain types of farming important for the environment or to support the production and marketing of quality produce (known as ‘Article 69’).
- Direct payments are subject to compulsory modulation – cuts in direct payments at an annual rate of 5% from 2007 until 2012, with the funds raised used to provide additional financing for Pillar 2. Additional voluntary modulation is permitted in the UK and Portugal, up to a rate of 20%.
- A link has been established between the payment of direct aid and compliance with certain standards, some of which are environmental. This is known as cross compliance.

Where fully decoupled from production, direct payments should in principle have little or no bearing on the production decisions made by farmers. Rather, market signals should have a greater influence on the commodities farmers choose to produce, as well as the volume of production, although it may be expected that most farmers remain in the sector they have traditionally farmed and have expertise in.

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9 The rate of compulsory modulation was 3% in 2005 and 4% in 2006.
Fully decoupled payments may be expected to have rather limited impacts on biodiversity since they do not drive production decisions. In practice, there appear to be at least three possible outcomes. First, so long as the SPS remains an income support based on historical subsidy receipts, it will help to maintain existing farm structures and production patterns, and whilst cross compliance provides a baseline of environmental conditionality on the receipt of direct payments, it is unlikely to alleviate pressures on the environment. The justification for direct payments based on the amount received during the 2000-2002 reference period is likely to weaken over time. Direct payments may continue to be necessary in the future, but they will need to be based on solid and defensible objectives in line with society’s expectations and with the degree of required funding determined according to clearly identified needs. Second, decoupled payments may indirectly help to underpin the viability of marginal farming systems that are beneficial to the environment but which might not otherwise survive on the basis of incentive payments or rural development support alone. This is an incidental benefit of such support rather than a specific objective of it. Third, farmers can choose not to produce anything and continue to receive the Single Payment so long as the land on which the payment is received is maintained in the standards defined for good agricultural and environmental condition in the Member State concerned. In such cases, the degree of biodiversity benefit would depend on the intensity of existing land use and the design of the GAEC standards.

Many Member States have opted to keep some direct payments coupled to production. Where this occurs, such payments may act as production incentives and have some influence over the farming systems and practices adopted. These might give rise to both positive and negative consequences for the environment. In a positive sense, a headage payment for suckler cows could, for example, support the continuation of cattle production in marginal farming areas, which would be considered beneficial for biodiversity provided stocking densities are appropriate.

Article 69 of Regulation 1782/2003 allows Member States to use up to 10 per cent of direct payments by sector to support certain types of farming important for the environment or to support the production and marketing of quality produce. This means that the payments to some farmers can be cut in order to provide additional support to others where this is deemed to be of environmental benefit or to aid improvements in production and marketing. The rules determining how this measure can be used are rather vague, and the level of environmental benefit is dependent on implementation by the Member State, in terms of the sectors supported and the stipulation of particular environmental conditions. In principle, a revised Article 69 could be used to benefit biodiversity, although in practice this has not yet been the case (see IEEP, 2008).

Direct payments are subject to compulsory modulation; direct payments were cut by 3% in 2005, 4% in 2006 and 5% in 2007, and will be reduced by 5% each year until 2012. The funds raised at EU level are transferred into Pillar 2 and are allocated on the basis of: agricultural area; agricultural employment; and GDP per capita in purchasing power. Modulation does not apply to the first €5,000 received in direct payments. Member States are guaranteed only to receive at least 80% of the funds raised by modulation within their territory implying some redistribution of direct payments at EU level (with the exception of Germany where it is 90% of funds).
Portugal and the UK are permitted to apply additional voluntary modulation in order to raise extra funds for their rural development programmes. By shifting funds from Pillar 1 to Pillar 2, modulation is of critical importance in potentially providing funds for measures designed to protect and enhance biodiversity. However, any environmental benefits arising from modulation will be influenced by the way in which Member States allocate these funds in the second Pillar.

From a biodiversity conservation perspective, cross compliance standards are designed to afford a basic level of environmental protection across a large area of land and to ensure those in receipt of direct aids respect the relevant EU legislation. Cross compliance applies a limited amount of environmental conditionality to the receipt of direct payments, and eight measures under ‘Axis 2’ of the second pillar of the CAP10. Whilst also encompassing public, animal and plant health and animal welfare requirements, the environmental requirements derive from 19 Statutory Management Requirements (SMRs) and a number of standards aimed at ensuring ‘good agricultural and environmental condition’ (GAEC). The SMRs are based on pre-existing EU Directives and Regulations and include selected articles from the Birds and Habitats Directives. GAEC is focused on the management of soils and to a lesser extent, the maintenance of habitats. It includes some standards that may be beneficial to biodiversity – standards for crop rotations, minimum livestock stocking rates and/or appropriate regimes, the retention of landscape features, the protection of permanent pasture, and the maintenance of olive groves in good vegetative condition. The effectiveness in securing biodiversity benefits is dependent on the standards each Member State has chosen to introduce. Farmers benefiting from direct payments may be subject to a reduction or withdrawal of those payments in the case of non-compliance.

Member States must also ensure that the area of permanent pasture is maintained at a 2003 reference level (or 2004 for the new Member States). However, Member States are not required to put in place any controls to avoid the ploughing up of the most biodiversity rich pastures.

In the present formulation of the CAP, it is the role of Pillar 2 to provide more targeted and ambitious levels of sustainable land management and biodiversity protection.

Pillar 2 of the CAP and Biodiversity

Pillar 2 was established in 1999 with the introduction of the Rural Development Regulation (RDR)11, which brought together a number of pre-existing CAP measures under one umbrella regulation. The RDR subsequently evolved into the European

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Agricultural Fund for Rural Development\textsuperscript{12} (EAFRD), the present day second Pillar of the CAP. It is the most important source of EU funding for promoting sustainable land management over the course of the 2007-2013 funding period. The funds are distributed according to 94 Rural Development Programmes (RDPs), drawn up in accordance with EU guidelines at either the Member State or the regional level, as with the UK, Italy, Germany and Spain.

Member States are required to produce National Strategy Plans reflecting the priorities set out in EU Strategic Guidelines for Rural Development (Council of the European Union, 2006). The latter establishes ‘biodiversity and the preservation and development of high nature value farming and forestry systems and traditional agricultural landscapes’ as a priority along with the need for Axis 2 to ‘contribute to the Göteborg commitment to reverse biodiversity decline by 2010’. National Strategy Plans, in turn, provide the reference framework for the preparation of rural development programmes.

A total of €88bn\textsuperscript{13} is allocated to the Member States to spend on up to 46 rural development measures, grouped according to four Axes. Each Axis contains a series of different measures under which support payments of different kinds such as investment grants and annual payments can be offered on a voluntary basis to recipients including farmers, landowners and foresters. Axis 2, entitled ‘Improving the environment and the countryside’ contains thirteen measures that can be used to address environmental needs and to bring about improvements over and above the baseline level of protection provided by legislation and cross compliance. Axis 1 on ‘Improving the competitiveness of the agricultural and forestry sector’ includes measures that target the modernisation and competitiveness of the agriculture and forestry sectors. Axis 3 is labelled ‘The quality of life in rural areas and diversification of the rural economy’ and includes measures such as diversification into non-agricultural activities and the conservation and upgrading of the rural heritage. Axis 4 is dedicated to the Leader approach of bottom-up, community inspired initiatives and can be delivered across a combination of Axes.

At least 25% of the EAFRD budget must be spent on Axis 2, 10% on Axes 1 and 3, and 5% on Axis 4. The EAFRD contributes a portion of funding to the total rural development budget with national, and in some cases regional, governments co-financing the remaining percentage. The EAFRD contributes up to 55% of total public expenditure in the case of Axis 2 (and up to 50% for Axes 1 and 3). The rate of Community funding increases to a maximum rate of 80% in the Convergence Objective regions (or up to 70% for Axes 1 and 3). These are poorer regions of the EU entitled to higher levels of support under the Community’s cohesion objectives. Member States can also provide additional state aid known as ‘additional national financing’, subject to various restrictions, for a number of rural development measures, so long as these are specified in the RDP and agreed by the European Commission. Certain measures may also require the input of private funds by the beneficiary, for example, in order to fund farm modernisation projects.


\textsuperscript{13} This figure includes the amount raised through compulsory modulation.
Axis 2 includes a range of measures that can directly benefit biodiversity, including the agri-environment measure, the only measure that must be included in all programmes. Payments can be made to farmers to cover the additional costs and income foregone resulting from the commitments made, and where necessary, transaction costs. According to the preamble of Regulation 1698/2005, agri-environment payments ‘should further encourage farmers and other land managers to serve society as a whole by introducing or continuing to apply agricultural production methods compatible with the protection and improvement of the environment, the landscape and its features, natural resources [and] the soil and genetic diversity’. Farmers and land managers can also be recompensed for the costs associated with undertaking effective management of Natura 2000 sites. The two natural handicap payment measures (i.e. the LFA measure) compensate farmers for the additional costs and income forgone related to the handicap for agricultural production. The LFA measure aims to maintain the countryside and promote sustainable farming systems through the continued use of agricultural land. Although not an explicit aim of these measures, they have been shown to support farming systems in marginal areas that are associated with the maintenance of extensive semi-natural pastures (IEEP, 2006a). Among the various forestry measures, the forest environment measure provides payments for commitments that enhance biodiversity and preserve high value forest ecosystems. The two afforestation measures could produce mixed results for biodiversity, depending on the choice of land to be afforested and the species to be planted. There are examples of the poor implementation of these measures in the previous programming period (see, for example, Beaufoy et al, 2005).

Measures in other Axes could also benefit biodiversity if applied in appropriate ways. For example, the vocational training and information measure under Axis 1 could be focused on providing farmers and foresters with new environmental land management skills. The Axis 3 measure for the conservation and upgrading of the rural heritage can be used to draw up management plans for Natura 2000 sites and to restore and upgrade high natural value sites (Keenleyside and Baldock, 2006).

The biodiversity impact of Pillar 2 will be determined to a large extent by the total level of funding and the allocation of funding across the different Axes and measures, the selection of measures, and the way in which measures are applied in each Member State or region.

In the following section, the relative balance in funding between the two Pillars is examined. This helps to establish the extent to which the CAP budget is weighted in favour of providing a relatively untargeted income support, as is likely to be the case with the majority of Pillar 1 expenditure, or in favour of supporting a range of targeted measures explicitly designed to meet a diverse range of environmental, social and economic cohesion challenges facing Europe’s rural areas, which is largely the aim of Pillar 2 expenditure.
2 Comparing Pillar 1 and Pillar 2 Expenditure

In order to advance sound recommendations on the future of CAP spending for biodiversity, it is necessary to understand the relative balance in expenditure between the two CAP Pillars at the present time. This involves an understanding of the criteria used to allocate funding to Member States, as well as the historical reasons explaining differences in funding levels.

The expenditure analysis in this section is drawn from a range of sources and underlines the difficulties associated with making sense of the CAP budget. The sources used are as follows:

- The Pillar 1 budget figures, prior to the application of modulation, are taken from the ceilings provided in Commission Decision 2006/588/EEC. EU-12 figures are taken from Council Regulation 1182/2007.
- The total Pillar 1 budget figures, following modulation, are based on IEEP’s own calculations based on Commission Decision 2006/636/EC and Commission Decision 2006/588/EC.
- The allocation of the EAFRD to each Member State is taken from Commission Decision 2007/383/EC.
- The total Pillar 2 expenditure for each Member State is taken from the database of rural development expenditure for the 2007-2013 period developed by IEEP. This database compiles finance data from 76 rural development programmes, meaning 18 programmes have not been examined (the examined programmes are listed in the Annex). It was not possible to examine all programmes since not all had been approved at the cut off date for rural development data for this report. Also, to slim the process somewhat a decision was taken to exclude RDPs for Overseas Territories, Balearic Islands and the Canary Islands in Spain and the region of Aland in Finland.
- The figures for France and Portugal have been adjusted to exclude allocations for the Overseas Territories. The figures for Spain exclude allocations for the Balearic Islands and the Canary Islands.
- The figures are ceilings and actual expenditure may be less.

2.1 How National Budget Allocations Are Decided

The CAP has always secured a large proportion of the EU budget. Over the current Financial Perspective (2007-2013), the EU budget will account for €864bn or just over one per cent of the Member States’ combined Gross National Income (GNI) (Adelle et al, 2008). The proportion of the EU budget spent on agriculture has declined since the 1980s, with around 37% of the total budget for the current period allocated to the CAP under the budget heading ‘Preservation and Management of Natural Resources’. The level of funding directed to the CAP is more a reflection of the outcome of political negotiation rather than being predicated on an objective assessment of the needs of rural areas, the appropriate use of the CAP in responding to these needs, and a consideration of the amount of funding required. For example,
over the course of the EU Summit in 2005 when the last financial framework was agreed, the rural development budget was cut by €20bn.

The rationale for the distribution of CAP funding between the Member States is complicated, and there is often some variation between planned expenditure and actual spending levels. In general terms, the distribution of Pillar 1 direct payments reflects historic levels of production. In the past, these levels of production have been translated into base areas, the maximum area on which subsidy payments can be made. In the case of livestock subsidies, national ‘reference herds’ formed the basis of calculations. National ceilings for different sectoral payments were applied accordingly, and if the base area was exceeded, hectarage payments would be reduced accordingly. The historic ceilings have been rolled over from one year to another, maintaining continuity in the pattern of relative expenditure. This is something of an anachronism in a decoupled logic.

The approach to allocating the rural development budget between the Member States has been criticised in the past for giving explicit weight to previous expenditure patterns and hence maintaining the status quo in terms of the level and pattern of spending (Mantino, 2003). Allocations of the EAFRD for 2007-2013 take into account historic allocations under a ‘past performance’ criterion, and also the amounts reserved for regions eligible under the Convergence Objective, as well as particular situations and needs based on objective criteria. The actual criteria applied in practice are not particularly transparent. The ‘past performance’ criterion refers to the share received during the 2000-2006 period (or 2004-2006 for the new Member States) and therefore allows the approximate pattern of expenditure to be maintained at historic levels. Since this budget was itself the product of previous budgets, it helps to explain differences in present funding levels, and in particular, the low proportion of the rural development budget that the UK has historically secured. The third criterion refers to ‘particular situations and needs based on objective criteria’ and is especially unclear. Its inclusion appears to present the Commission and Member States with myriad possibilities on which to justify budget allocations. At the December 2005 European Council, this criterion was used to allocate additional specific amounts to eight Member States. In this way, Austria received €1.35bn, Finland €0.46bn, Ireland €0.5bn, Italy €0.5bn, Luxembourg €20m, France €0.1bn, Sweden €0.82bn and Portugal €0.32bn. Although the reasons for these allocations are not well documented, they perhaps best reflect the nature of negotiations at European Summits, rather than a more objective consideration of the budget required to respond to rural development needs.

There are cases where certain Member States may wish to spend more on particular measures than is possible given the financial ceilings and co-financing rules that apply. This means that the use of state aids, as provided by Article 89 of Regulation

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14 As set out in Article 69 of Regulation 1698/2005.

15 This information is provided by an Explanatory Memorandum that accompanied Decision 636/2006.

16 Portugal was exempted from co-financing this amount on account of ‘specific difficulties’ facing Portuguese agriculture.
1698/2005 and which are funded nationally but approved by the Commission, are particularly important in some Member States in achieving the desired level of funds.

2.2 The Differences in the Level of Expenditure Between the Two Pillars

Over the 2007-2013 period, approximately €373 billion is set to be spent on the CAP from the EU budget. When national co-financing of the EAFRD is accounted for, this rises to €430 billion. Table 1 and Figure 3 show the breakdown of allocated expenditure for both Pillars by Member State.

Pillar 1
The total allocated expenditure for Pillar 1 is €286 billion for the 2007-2013 period, of which €246 billion is allocated to the EU-15 Member States. This figure includes a deduction for the amount raised through compulsory modulation, based on the current 5% annual deduction. The amounts raised through compulsory modulation are redistributed centrally according to common criteria, and hence the amount shown in column B of Table 1 is not equal to the increase in Pillar 2 funding. France has the highest Pillar 1 budget post-modulation with an allocation of €58.4 billion. Germany, Spain, UK and Italy receive the next largest budget allocations. In contrast, countries such as Austria, Belgium and the Netherlands with a smaller agricultural land base, or where agriculture is less important in terms of total employment or GDP tend to receive less. Portugal is an exception, receiving a relatively low amount (€4 billion), but with a relatively high proportion of the population working in agriculture (9% of the economically active population, according to the 2007-2013 RDP).

A total of €40 billion allocated to the twelve newest Member States over the current period. The highest ceiling over the entire seven year period among the new Member States is in Poland, where the ceiling is €15 billion, followed some way by Hungary (€6.5 billion) and Romania (€5.5 billion). The Pillar 1 ceilings in these Member States increase incrementally each year and modulation does not apply. For example, in Poland, the Pillar 1 budget rises from €725m in 2005 to €3bn in 2013. Countries with smaller agricultural sectors, such as Malta, Cyprus, Estonia and Slovenia receive rather less.

Pillar 2
The total Pillar 2 budget, as provided for by the EAFRD, over the same period is €86.6 billion. This is slightly lower than the €88.3bn figure given in Commission Decision 2007/383 as the figures are based on an examination of 76 Rural Development Programmes rather than the full complement of 94 as explained above.

On these terms, approximately €49.6 billion is directed to the EU-15 and €37 billion to the EU-12. In contrast to Pillar 1, Pillar 2 is co-financed by Member State governments. Co-financing increases Pillar 2 funding by about €56 billion to provide

Table 1. CAP Budget 2007-2013: Total Allocated Expenditure to Pillar 1 and Pillar 2.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>5,308</td>
<td>103</td>
<td>7,211</td>
<td>7,225</td>
<td>7,195</td>
<td>13,022</td>
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<tr>
<td>Belgium</td>
<td>4,263</td>
<td>112</td>
<td>4,263</td>
<td>4,149</td>
<td>4,162</td>
<td>8,651</td>
</tr>
<tr>
<td>Denmark</td>
<td>2,463</td>
<td>265</td>
<td>8,381</td>
<td>8,391</td>
<td>8,303</td>
<td>16,802</td>
</tr>
<tr>
<td>Finland</td>
<td>7,009</td>
<td>345</td>
<td>4,393</td>
<td>4,026</td>
<td>4,035</td>
<td>12,018</td>
</tr>
<tr>
<td>France</td>
<td>29,090</td>
<td>2,275</td>
<td>50,423</td>
<td>5,090</td>
<td>10,988</td>
<td>66,280</td>
</tr>
<tr>
<td>Germany</td>
<td>41,705</td>
<td>1,476</td>
<td>42,505</td>
<td>9,111</td>
<td>13,257</td>
<td>56,814</td>
</tr>
<tr>
<td>Greece</td>
<td>1,468</td>
<td>297</td>
<td>1,498</td>
<td>5,972</td>
<td>19,018</td>
<td>26,495</td>
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<tr>
<td>Ireland</td>
<td>1,862</td>
<td>283</td>
<td>4,305</td>
<td>4,285</td>
<td>11,726</td>
<td>16,295</td>
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<tr>
<td>Italy</td>
<td>27,074</td>
<td>716</td>
<td>26,977</td>
<td>6,373</td>
<td>16,391</td>
<td>43,857</td>
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<tr>
<td>Luxembourg</td>
<td>260</td>
<td>182</td>
<td>442</td>
<td>362</td>
<td>362</td>
<td>707</td>
</tr>
<tr>
<td>Netherlands</td>
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<td>204</td>
<td>5,946</td>
<td>487</td>
<td>593</td>
<td>6,433</td>
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<tr>
<td>Portugal</td>
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<td>83</td>
<td>4,597</td>
<td>3,456</td>
<td>4,444</td>
<td>9,497</td>
</tr>
<tr>
<td>Spain</td>
<td>32,641</td>
<td>297</td>
<td>32,903</td>
<td>5,972</td>
<td>11,952</td>
<td>46,426</td>
</tr>
<tr>
<td>Sweden</td>
<td>5,512</td>
<td>181</td>
<td>7,361</td>
<td>3,917</td>
<td>7,157</td>
<td>9,248</td>
</tr>
<tr>
<td>UK</td>
<td>28,903</td>
<td>1,156</td>
<td>27,827</td>
<td>1,910</td>
<td>8,636</td>
<td>38,627</td>
</tr>
</tbody>
</table>

EU 15 Total 254,404  8,163  262,567  49,573  96,894  295,815  343,130

Notes:

(A), (B), (C) Figures for the EU-15 are derived from IEEP’s own calculations based on Commission Decision 2006/588/EC; EU 12 figures are derived from Council Regulation 1182/2007. Modulation figures stem from Euronatur (2007) and associated modelling work.

(D) Commission Decision 2007/383/EC; figures for France (total is €6442m), Portugal (total is €3929m) amended to remove allocation for overseas territories, based on figures provided in RDPs. The figure for Spain is lower than that in Decision 2007/383/EC (€7214m) since the figures for the Canary Island & Balearic Islands are omitted. In addition, the RDP for Extremadura could not be obtained, and hence the lower figure was used to ensure consistency with column E. These figures include the amounts raised through compulsory modulation.

(E) From IEEP’s database of rural development expenditure for the 2007-2013 period (updated for 76 RDPs as of April 2008). Figures for France include the mainland and Corsica but not the Overseas Territories. Figures for Portugal is only for mainland and not the Overseas Territories. UK and Portugal figures also include amount raised through voluntary modulation.

Source: IEEP own calculations.
Figure 3. CAP Expenditure on Pillar 1 and Pillar 2 2007-2013

Note: The ‘Pillar 2, EAFRD and co-financing’ column for the UK and Portugal includes funds raised through voluntary modulation.
Source: IEEP own calculations.
a total envelope of €144 billion, of which €97 billion is allocated to the EU-15 and €47 billion to the EU-12.

Among the EU-15, Italy receives the most from the EAFRD with an allocation of €8.3 billion. Germany, Spain and France are allocated the next largest amounts. Reflecting the historical reasons which influence budget allocations, as stated above, countries such as Sweden and the UK receive rather less at just under €2 billion each, whilst countries such as Denmark and the Netherlands receive smaller allocations of around €0.5 billion,

Poland receives the most of the new Member States with an EAFRD allocation of €13.2 billion. Romania receives the next largest amount, with an allocation of €8 billion. As is the case with Pillar 1, Cyprus, Estonia, Malta and Slovenia have smaller allocations.

**Total Allocation for Pillar 1 and Pillar 2**

When Community funding for both Pillars is accounted for, France receives the most of any Member State at just over €64 billion, followed by Germany with €48 billion. Among the new Member States, Poland receives more than double the next most well funded new Member State (Romania) at €28 billion.

### 2.3 Contextualising and Comparing Expenditure

In order to contextualise the absolute figures provided above, Table 2 shows the intensity of spend per hectare of utilised agricultural area (UAA), and the relative spend on the two Pillars. The use of expenditure per hectare of UAA as an indicator of the relative intensity of spend is appropriate, since it translates absolute figures into an amount that takes account of the actual area of farmland in the country.

**The Intensity of Spend under Pillar 1**

Expressing CAP expenditure as an annual average value per hectare of UAA means that, in contrast to the pattern shown above for absolute receipts, comparatively well funded Member States such as France and Poland receive comparatively less on a per hectare basis. The Pillar 1 allocation for France, the most well funded Member State in absolute terms, translates into an average per hectare payment of €302/ha UAA per year, whilst countries with smaller UAA such as Belgium (€439/ha UAA per year), Greece (€519/ha UAA per year) and the Netherlands (€434/ha UAA per year) receive more on a per hectare basis. Among the new Member States, the intensity of Pillar 1 spend in the two most well funded Member States is comparatively less on a per hectare basis. Poland receives an annual average of €146/ha UAA per year and Romania €57/ha UAA per year whilst countries with smaller UAA, such as Cyprus (€233/ha UAA per year) and Malta (€371/ha UAA per year), receive more on a per hectare basis.

Across the EU as a whole, the average annual intensity of spend is €237/ha UAA, with an average of €280/ha UAA in the EU-15 and €122/ha UAA in the EU-12.
Table 2. CAP Budget Allocations 2007-2013: Intensity of Spend and Relative Spend by Pillar

<table>
<thead>
<tr>
<th>Member State</th>
<th>Intensity of Spend</th>
<th>Relative Spend</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pillar 1: Annual Average €/ha of UAA</td>
<td>Pillar 2 (EAFRD only): Annual Average €/ha of UAA</td>
</tr>
<tr>
<td></td>
<td>(I)</td>
<td>(J)</td>
</tr>
<tr>
<td></td>
<td>(I)/(I)</td>
<td>(J)/(I)</td>
</tr>
<tr>
<td>Austria</td>
<td>228</td>
<td>171</td>
</tr>
<tr>
<td>Belgium</td>
<td>439</td>
<td>43</td>
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<tr>
<td>Denmark</td>
<td>380</td>
<td>23</td>
</tr>
<tr>
<td>Finland</td>
<td>260</td>
<td>131</td>
</tr>
<tr>
<td>France</td>
<td>302</td>
<td>36</td>
</tr>
<tr>
<td>Germany</td>
<td>328</td>
<td>36</td>
</tr>
<tr>
<td>Greece</td>
<td>519</td>
<td>135</td>
</tr>
<tr>
<td>Ireland</td>
<td>318</td>
<td>79</td>
</tr>
<tr>
<td>Italy</td>
<td>303</td>
<td>93</td>
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<tr>
<td>Luxembourg</td>
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<td>100</td>
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<tr>
<td>Netherlands</td>
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<td>36</td>
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<tr>
<td>Portugal</td>
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<td>136</td>
</tr>
<tr>
<td>Spain</td>
<td>182</td>
<td>37</td>
</tr>
<tr>
<td>Sweden</td>
<td>239</td>
<td>82</td>
</tr>
<tr>
<td>UK</td>
<td>249</td>
<td>17</td>
</tr>
<tr>
<td>EU 15 Total</td>
<td>280</td>
<td>56</td>
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<tr>
<td>Bulgaria</td>
<td>152</td>
<td>137</td>
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<tr>
<td>Cyprus</td>
<td>233</td>
<td>153</td>
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<tr>
<td>Czech Republic</td>
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<td>113</td>
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<tr>
<td>Estonia</td>
<td>65</td>
<td>123</td>
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<tr>
<td>Hungary</td>
<td>218</td>
<td>127</td>
</tr>
<tr>
<td>Latvia</td>
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<td>Lithuania</td>
<td>86</td>
<td>93</td>
</tr>
<tr>
<td>Malta</td>
<td>371</td>
<td>1100</td>
</tr>
<tr>
<td>Poland</td>
<td>146</td>
<td>126</td>
</tr>
<tr>
<td>Romania</td>
<td>57</td>
<td>32</td>
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<tr>
<td>Slovakia</td>
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<td>150</td>
</tr>
<tr>
<td>Slovenia</td>
<td>210</td>
<td>265</td>
</tr>
<tr>
<td>EU 12 Total</td>
<td>122</td>
<td>113</td>
</tr>
<tr>
<td>EU 27 Total</td>
<td>237</td>
<td>72</td>
</tr>
</tbody>
</table>

Source: IEEP own calculations.

The Intensity of Spend under Pillar 2

The pattern is slightly different for Pillar 2. Overall, the annual per hectare level of spend is much less than under Pillar 1 at €72/ha UAA per year for the EU-27. The new Member States receive relatively more than the older Member States, in contrast to the pattern shown for Pillar 1. The EU-12 Member States receive an average payment of €113/ha UAA per year, more than double that of the EU-15 level of €56/ha UAA per year.
Although countries such as Italy and France receive more from the EAFRD in absolute terms, the average annual intensity of EAFRD spend is relatively low at €93/ha UAA per year and €30/ha UAA per year respectively. Reflecting historic calculation methods for distributing the EU rural development budget between Member States, countries such as Denmark (€23/ha UAA per year) and the UK (€17/ha UAA per year) receive low amounts on a per hectare UAA basis from the EAFRD.

The importance of national co-financing is underlined by the fact that it almost doubles the amount of funding available for each hectare of utilised agricultural land (from €56/ha UAA per year to €110/ha UAA per year in the EU-15). The level of co-financing also varies considerably between Member States.

Among the new Member States, the level of spend for Malta is very high at €1,100/ha UAA per year, rising to over €1,400/ha UAA per year when co-financing is considered\(^{18}\). Setting Malta aside, in the new Member States, Slovenia is allocated the most on a per hectare basis (€265/ha UAA per year from the EAFRD, rising to €341/ha UAA per year when co-financing is included).

**The Balance of Spend between the Two Pillars**

The relative balance in expenditure under each Pillar for each Member State is also shown in Table 2. When Community funding alone is considered, there are some remarkable variations in the ratio of spending, as highlighted in Figure 4. The amounts raised through compulsory modulation (but not voluntary modulation) are included within Pillar 2.

For the entire EU-27, even with transfers of funds through compulsory modulation, Pillar 1 is worth just over three times as much as Pillar 2 over the 2007-2013 period. Whilst the level of expenditure is relatively balanced in the EU-12 (where the level of spend on both Pillars is almost the same), the EU-15 is allocated five times as much for Pillar 1 as Pillar 2. The Pillar 1 allocation for Denmark is almost 16 times as high as the allocation for Pillar 2. In the UK, the Pillar 1 allocation is 15 times as high as for Pillar 2. In contrast, the balance of expenditure in Member States such as Austria and Portugal is more even, but the funds allocated to Pillar 2 do not exceed those to Pillar 1 in any EU-15 Member State. This contrasts with the EU-12, where seven Member States are allocated the same or slightly more for Pillar 2 than they are for Pillar 1\(^{19}\).

\(^{18}\) It has not been possible to explain this high figure in the context of this study. The RDP would need to be examined in detailed and experts consulted.

\(^{19}\) Complementary National Direct Payments (CNDPs) allow new Member States to transfer a proportion of funds from Pillar 2 to Pillar 1. The amount transferred as a CNDP has been discounted from the Pillar 2 total, where it is used.
When national co-financing of the EAFRD is taken into consideration, the relative value of Pillar 2 increases so that Pillar 1 is worth twice, rather than three times as much as Pillar 2 in the EU-27. This change in balance is driven mostly by the EU-15, where the ratio of expenditure almost halves. For example, the Netherlands is allocated about 12 times as much for Pillar 1 than for Pillar 2 based on Community funding alone, but national co-financing of Pillar 2 means that Pillar 1 is worth six times as much as Pillar 2. In Austria, Finland and Luxembourg, the effect of national co-financing is to swing the balance of funding in favour of the second Pillar. This effect is also true for all but two of the new Member States.

2.4 Conclusion

There is a wide variation in the amount of funding received by the Member States. The allocations under Pillar 1 reflect historical levels of production which is no longer the most appropriate or equitable approach to determining the distribution of the budget under a decoupled logic, particularly as public expectations of funding for agriculture shift to the provision of public benefits. The Pillar 2 allocations reflect historic spending allocations, but also rather less clearly articulated ‘objective criteria’. These criteria bear little semblance to a Pillar 2 that seeks to respond to...
demanding strategic priorities and actions, that have expanded to cover forestry and other rural development priorities beyond the agricultural sector.

Whilst the need for agricultural policy to be used in such a way to deliver environmental benefits is formally recognised in a range of EU policy documents and legislative texts, it has not yet been factored into budget allocation criteria. There is a case for environmental needs to be integrated into budget allocation decisions, if the CAP budget is to fairly reflect the nature of the environmental challenge in different parts of Europe and the scale of financing required to respond to this challenge.
3 The Spatial Distribution of CAP Expenditure: Methodological Challenges and Caveats

The preceding section shows the differences in the level of expenditure under the two Pillars of the CAP. In the following two sections, the geographical distribution of expenditure under each Pillar is analysed primarily through a series of maps and charts. Selected CAP expenditure maps are also shown against the EEA/DG JRC preliminary map of the distribution of HNV farmland. This spatial representation of CAP expenditure helps contribute to an informed debate on the future of the policy, but also presents a number of challenges in terms of sourcing data and in interpreting the results. In this section, the rationale for mapping CAP expenditure is explained and, in order to contextualise the patterns of spend shown in the maps, the data sources used, and the associated limits to interpretation, are set out. Two sections then follow, the first depicting and explaining the pattern and intensity of Pillar 1 spend, and the second, the pattern and intensity of planned Pillar 2 spend.

3.1 The Rationale for Mapping CAP Expenditure

The distribution and intensity of expenditure is mapped at a regional level across the EU-15 for Pillar 1, drawing on data provided by the CAPRI model, and at a programme level across all Member States for Pillar 2, drawing on the IEEP-developed database of rural development expenditure for the 2007-2013 programme period. In addition to permitting a spatial representation of the pattern of CAP spending, the consistency of spending from an environmental perspective can be examined if these maps are overlaid with environmental data, so long as this data can be shown spatially and is produced from reliable indicators. This is an important exercise for two reasons. First, if detailed and reliable data are available, it may be possible to demonstrate the extent to which current public expenditure correlates with, or works against, the provision of environmental benefits. There are some caveats regarding the nature of the relationship between spending levels and environmental benefits, as explored further below. Second, if EU agricultural policy is to become increasingly focused on the provision of environmental benefits, this allows for a more sophisticated analysis of where public funding needs to be directed in the future. Whilst this may help identify where public money may be best spent in providing environmental benefits and help to illustrate the redistributive impact this might have given the present pattern of expenditure, additional work is need to assess the amount of funding actually required to secure the ongoing delivery of environmental benefits.

20 The Pillar 1 data has been mapped at the NUTS 2 level. There are 213 NUTS 2 regions in the EU-15, with data used in this study for 172. The difference is explained by the need to group some regions together. NUTS codes are standardised territorial units used for the collection and presentation of statistics. In the UK, NUTS 1 regions include Wales, and the East of England, whilst NUTS2 regions include West Wales and the Valleys or East Anglia.

21 The best precedent for this work is the mapping of CAP support from a territorial cohesion perspective by Shucksmith et al (2005).
This study provides an important first step towards demonstrating the pattern of expenditure geographically, and overlaying this with farmland biodiversity data, as represented by the EEA and the DG JRC’s preliminary map of the distribution of HNV farmland. At this stage, this is an incomplete step, and more detailed data at a smaller spatial scale on CAP payments and biodiversity, or other environmental indicators, is needed to facilitate the desired analysis. In addition, for sound judgements to be made on the effects of CAP expenditure on the environment, and for policy recommendations to be based on this analysis, a thorough understanding of the different production sectors, farming systems and the relationship between subsidies, the design and delivery of different measures, farm management decisions and environmental outcomes is required. At face value, maps alone neglect this wider context.

In particular, our understanding of the causality between high or low levels of spend and the presence or absence of biodiversity is incomplete. A high or low regional intensity of payment under Pillar 1 does not necessarily equate to either environmental degradation or enhancement. In the first instance, the intensity of direct payments shown in the maps reflects the regional sectoral concentration of production. But it may also mask local differences in farm structures and payment levels. In turn, understanding the causality that links this payment intensity to environmental outcomes is dependent on developing an understanding the influence that direct payment levels have on farm viability and farm management decisions. To take one hypothetical example, a high regional intensity of payment may help to maintain the viability of certain farming systems that adopt suitable management practices. However, the extent to which direct payments support these systems is not known given the likely variation in intensity of expenditure within any one region and between different farm types that produce differing levels of biodiversity. In other cases, a high regional payment intensity under the first Pillar may promote some structural change, influence an intensification of production and create some stress on the environment.

Assessing the nature of the relationship between measure design, uptake levels, farm level management changes and environmental outcomes is also necessary when examining the intensity of expenditure for rural development payments. It is possible that a lot of money could be channelled into ineffective measures that bring about few environmental benefits, even if uptake at the farm level is high.

Contextual information on the differences in the cost of implementing different measures in different parts of the EU is also absent. For example, it is most likely to be cheaper to deliver an agri-environment scheme in the new Member States since the income forgone and additional costs are likely to be lower than in the EU-15.

In order to avoid crude conclusions being drawn from the maps presented here, the above points and the context provided to aid the interpretation of each map from a farmland biodiversity perspective. To understand the implications of the maps for biodiversity, it is important that the accompanying commentary is read alongside each of them.
3.2 Overview of Method

In order to produce detailed maps of the geographical distribution of CAP spend, consistent and up-to-date information is needed for the entire EU-27 on the location of land parcels in receipt of subsidies and the type (e.g. direct payment under the SPS, or an agri-environment or LFA payment under the RDP) and level of payment made. This level of information would provide the fine-grained mapping needed to correlate spending data with environmental indicators, and would reflect the local nature of environmental issues. This presents a significant research challenge that this report has only been partially able to address.

The Approach to Mapping Pillar 1 Expenditure

Several data sources of differing levels of geographic resolution were explored for this study. These include data released by Member States under the European Transparency Initiative and from the pro-transparency lobby group farmsubsidy.org. These data were too inconsistent for a pan-European mapping exercise for the reasons given below.

Data sources were explored for this study in September 2007 and at that time, 13 Member States, Flanders and five regions in each of Italy and Spain had released data under the European Transparency Initiative. The data pertained to the years 2003-2006, were presented in different ways, in many cases it was not clear if the data related to all CAP receipts or just to direct payments, and the subsidy data was not geographically referenced. Data availability may improve under this Initiative from late 2008 with respect to rural development funds and from April 2009 for Pillar 1 direct payments, at which time, the payments received, the name of the recipient and the municipality, or if available, post code should be published in a consistent way on searchable, nationally managed databases 22.

Data for 19 Member States were provided by farmsubsidy.org, and contained spatially referenced data for a smaller number of countries. Due to the way in which the data had been prepared by Member State paying agencies, it was unclear in many cases if the data referred to rural development payments in addition to direct payments. An approach to the European Commission for data held in the Clearance of Accounts Trail System (CATS) was rejected. The CATS database includes data on subsidy receipts for all beneficiaries of CAP payments, but information from it is only made available for the Commission’s own research and evaluation work 23. In contrast, the data provided by the CAPRI model held a key advantage in that data are presented at a regional level and in a consistent format under common headings and are made freely available to researchers.

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22 This follows the adoption of Commission Regulation 259/2008 in March 2008.

23 The issue of public access to the CATS database is being investigated by the European Ombudsman (European Ombudsman, 2008).
Data Provided by the CAPRI Model
The CAPRI (Common Agricultural Policy Regionalised Impact) model focuses on Pillar 1 and covers the EU-27 at the level of the NUTS 2 region (Britz, 2007). The model is regularly used by DG Agriculture for policy impact analysis, for the ex-ante assessment of CAP reform proposals and for international trade analysis. Although there are some limitations, the key advantage of CAPRI is that it presents data in a consistent way.

One limitation is that the current base period for the model is 2001-2003. As such, it excludes the new Member States and does not necessarily represent current funding levels or patterns. Although the base period for calculating the Pillar 1 premia is 2001-2003, the pattern and level of payment is likely to have changed due to the introduction of the new direct payment system in 2005. A list of the premia included under the crop and animal headings is provided in Annex A. Using this data, maps have been produced to show the level and intensity of Pillar 1 premia (in terms of each hectare of UAA) for 172 NUTS 2 regions across the EU-15. The data for the new Member States was based on a different calculation method and is not directly comparable to the EU-15 figures, and hence have not been represented in the maps.

A second limitation is that the premia used in the model are not based on actual receipts, but rather calculated on the basis of the rules established in the various Common Market Organisations (CMOs). They therefore take into account sector specific ceilings and base areas in the case of arable products or reference herds, and/or maximum stocking densities in the case of livestock. These ceilings and base areas are based on historic production levels. Given that actual spending levels may be less than the ceilings detailed in the Regulations, and that the area of production may exceed national base areas, there may be some variation between the premia provided in CAPRI and actual payment levels. The Pillar 1 data included in CAPRI does not include receipts received for market interventions.

In this study, separate maps have been produced for the crop and animal premia due to the differing relationship between these sectors and the environment. They also help to contextualise a third map, combining the total crop and animal premia, by demonstrating that the regional intensity in spending is itself an artefact of production sector, subsidy type and historic yields. Each map requires careful interpretation and should be examined alongside the accompanying commentary.

The Approach to Mapping Pillar 2 Expenditure
At present, CAPRI does not include payments made under the CAP’s rural development Pillar, although a model with this capability is expected to be developed from 2009. Therefore, in order to provide the most up-to-date data on rural development expenditure, the IEEP-developed database on rural development expenditure for the 2007-2013 period was used. This database includes the financial allocations to each measure as stated in each rural development programme.

Unfortunately, this means that the time period covered for the second Pillar differs from that for Pillar 1, and is the outcome of a compromise between accessing readily available data for Pillar 1 and being able to source more up-to-date data for Pillar 2. The data also refer to the amounts Member States intend to spend on each Axis and measure, and may differ to actual expenditure by the end of the period.
It is important to note that the data used to produce the maps differ slightly from that used to show the Member State level expenditure in Section 2 and the more detailed analysis of Pillar 2 expenditure in the charts and tables in the following sections. The maps are based on up-to-date data as of January 2008, which was the cut-off date for producing the maps. The other data is based on an updated dataset as of April 2008, by which time IEEP had been able to obtain more programmes or had the opportunity to update figures from a draft programme following the approval of the programme by the European Commission. For clarity, the versions of programmes examined for each component of work are set out in Annex B.

**Mapping Pillar 1 and 2 Payments from a Farmland Biodiversity Perspective – Use of the EEA/DG JRC Preliminary HNV Farmland Map and Limits to Analysis**

At the moment, there is a significant gap in understanding regarding the spatial distribution of CAP spending and the extent to which this spending supports the provision of public goods such as farmland biodiversity. HNV provides one way to target CAP funding, although policy intervention is needed across a range of farming systems and in order to respond to a range of environmental needs. In this study, a preliminary step has been made in this direction by presenting CAP expenditure data against a map showing the preliminary distribution of HNV farmland.

The purpose of overlaying CAP expenditure maps with the EEA/DG JRC preliminary map of HNV farmland is to:

- gain an idea of the current level of targeting of CAP expenditure at areas where there is a high level of biodiversity.
- stimulate an analysis of the extent to which CAP payments support the provision of environmental benefits, and in particular, whether there is a relationship between the level of public support and biodiversity presence (using HNV farmland as an indicator of biodiversity presence).
- facilitate debates about whether more targeted CAP measures might be a more effective way to target biodiversity conservation.
- illustrate the redistribution of funding that could occur if the CAP was to become more centred on biodiversity, as funding levels and patterns of funding shift to reflect the nature of the biodiversity conservation challenge across different farmland landscapes. In particular, whilst some support might be directed to supporting HNV systems, support would also need to reach farmers in more intensive areas as well, and policy measures would need to reflect the different environmental needs that arise in different areas.

The issue of how much biodiversity costs to deliver is an outstanding question and not the focus of this report, but does need to be acknowledged as the missing half of the equation when developing arguments about future spending levels and its spatial distribution. In addition, more refined analysis is dependent on accessing up-to-date CAP payment and biodiversity data at a finer geographical resolution, as well as determining the effectiveness of expenditure and the cost of delivering benefits for biodiversity given the uneven nature of its distribution.
The EEA provided GIS data for the preliminary EEA/DG JRC HNV map, as shown in Figure 1. Other indicators of environmental need were explored. Although GIS data of Natura 2000 sites are being prepared by the JRC for release in publicly accessible websites, it will not be ready until at least 2009 \( (\text{pers. comm.}) \). Those Natura 2000 sites that are dependent on the continuation of extensive agricultural management may require CAP funding to support their management.

The maps produced for this study present an important first step in undertaking an analysis of the spatial distribution of CAP expenditure and the extent to which this spend supports areas of high biodiversity. The maps overlaying CAP expenditure and the preliminary map of HNV provide a somewhat crude indicator of the match between CAP funding and farmland biodiversity hotspots for a number of reasons:

- The EEA/JRC preliminary HNV farmland map does not provide an absolute indication of the presence of HNV farmland, rather it provides an estimate of the proportion of farmland within a given area (usually 25ha grids, as used in the CORINE land cover approach) that is likely to be HNV. As such, it does not capture the presence of HNV farmland at micro scale - for example - the pockets semi-natural vegetation or farmland features which are important for ensuring functional connectivity. Determining with greater certainty the presence of HNV farmland requires better data, which is expensive to obtain and to update. At the pan-European level, the preliminary EEA/JRC HNV map remains the best possible indication of the location of farmland that is important for biodiversity conservation.
- The case for directing CAP funds to areas of HNV farmland, assuming they can be accurately located, is rather delicate. Much depends on the required level of funding, the basis on which payments are calculated and the necessity to take account of the ecological functions of the farmed landscape in the design of rural development schemes.
- The geographical resolution of the data varies. Subsidy data are presented at the regional (NUTS 2) level and HNV data is based on estimates of the total proportion of land within a 25ha grid that is likely to be HNV farmland. The two are thus not directly comparable, and the payment data in particular is likely to mask local variations in the size and range of payments.
- The Pillar 1 subsidy data used are now out of date and the CAP payment system has changed. Given the CAP payment system is based on historic receipts, there is a strong likelihood that the maps reflect current funding patterns, although the absolute values and distribution may have shifted due to the different ways in which the SPS has been implemented. In addition, CAPRI data provides aggregate figures at the regional level and is a less than ideal substitute for actual spend at the farm, regional, or Member State level. The release of data in a consistent format by the Member States, as required by Commission Regulation 259/2008 will be an important step to allowing more thorough analysis.

These caveats should be borne in mind when interpreting the maps presented in the following sections.
4 The Spatial Distribution and Intensity of Pillar 1 Payments

Four maps have been produced to show the level and distribution of Pillar 1 spending for the EU-15 for the period 2001-2003. Based on data provided by the CAPRI model and expressing expenditure in €/ha UAA, one map shows spending on crop premia and one map shows spending on animal premia. A third map combines crop and animal premia to give a figure for total expenditure. This map is then overlaid with the EEA/DG JRC preliminary map of HNV farmland to create a fourth map. The purpose of this map is to present an initial indication of the relationship between the distribution and level of CAP spend and the incidence of the most important farmland for biodiversity. The absence of more detailed data on CAP expenditure and biodiversity prohibits a more detailed analysis at this stage. In order to contextualise the observed pattern of expenditure, the map below shows the different farm types that dominate different parts of the EU-15.

Figure 5. Schematic Map of EU Farm Types in EU-15.

4.1 Pillar 1 Crop Payments: Spatial Distribution and Intensity of Expenditure

_Crop Production in the EU_

Within the EU-15, France, Germany, Italy, Spain and the UK are the largest cereal producers (Boatman et al, 1999). Cereal production is concentrated in Bayern, Niedersachsen and Nordrhein-Westfalen in Germany; Centre, Picardie, Champagne-Ardennes, Poitou-Charentes and Midi-Pyrenees in France and the South-East of the UK. Among the new Member States, Poland is the major producer. Durum wheat is produced in the Mediterranean Member States whilst oilseeds are grown in a wide range of Member States. Tobacco production was also supported by the CAP and is produced in Greece and southern parts of Italy.

In 2000, approximately 5 million hectares of UAA were under olive groves (DG Agriculture, 2003), around half of which was in Spain, a quarter in Italy, and the remainder in Greece, Portugal, and to a lesser degree, France. Olive farms in the EU range from the very small (<0.5ha) to the very large (>500ha) and from traditional, low-intensity groves with scattered, ancient trees to the intensive, highly mechanised plantations that use varieties of smaller trees and are often irrigated (EFNCP, 2000).

Impacts on Biodiversity of Crop Production

In general terms, the impact of arable systems on farmland biodiversity differ according to the intensity of management. Biodiversity in arable systems declines as a result of the simplification of cropping systems, increased fertiliser and pesticide use, and the introduction of irrigation and drainage (Boatman et al, 1999). Simplification results in a decrease in crop diversity, a decline in the use of rotational fallow and the loss of farmland features such as hedgerows and other field boundaries. These changes are typical of more intensive arable systems and have negative effects on species composition and diversity. Arable cropping can support significant biodiversity if there is a high density of semi-natural features (such as field boundaries), a diversity of land cover (such as a mosaic of crops, grass and fallows) and input use is low. Cereal stubbles left over the winter, for example, can provide an important winter food source and a habitat for breeding birds. In some parts of south and east Europe low intensity dryland arable cropping can be of significant nature value when found in conjunction with the presence of semi-natural features and/or a diversity of land cover (IEEP, 2007).

The impact of an intensive form of crop production on both rare and more common farmland bird species has been well documented, with population declines coinciding

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24 As of 1998, about 135,000 holdings were involved in the production of tobacco (DG Agriculture and Rural Development, 1998). Tobacco produced in the EU is of a very low quality and as such, most is exported outside of the EU. The tobacco subsidy regime is now included in the Single Farm Payment Scheme, although coupled subsidies for farmers in Convergence Areas or those producing high quality varieties can be retained. A tobacco fund is also now used to improve public awareness of the harmful effects of tobacco production and to help tobacco producers switch to other crops (Agra Informa, 2008).
with landscape simplification and higher input use (see Boatman et al, 1999). The threat is especially severe in steppic arable habitats that host rare species such as the Lesser Kestrel and Great Bustard, particularly as a result of the loss of fallow. Elsewhere, a loss of cereal stubbles over the winter has led to a decline in more common species such as finches (Fuller et al, 1995 in Boatman et al, 1999). A reduction in crop diversity has led to a reduction in the population of bird species such as Yellowhammers that are dependent on a variety of crops to provide foraging habitats and Lapwings that thrive on the presence of adjacent arable and pasture fields. The maintenance of mixed systems, the incidence of a diversity of landscape features, and low input use are typical of more extensive systems attuned to sensitive management and the maintenance of farmland biodiversity.

Intensive olive cultivation is associated with soil erosion, the depletion of water resources and the overuse of agrochemicals (DG Agriculture, 2003). Low input, traditional plantations are associated with higher nature values, but are threatened with abandonment due to low profitability (EFNCP, 2000). Sensitively managed olive plantations can harbour a wide variety of plant species, vertebrates and invertebrates (EFNCP, 2000).

**Figure 6. Map of Pillar 1 Crop Premia Expenditure by Region for EU-15.**

![Map of Pillar 1 Crop Premia Expenditure by Region for EU-15](source)

**Commentary on the Map**

The distribution of CAP crop premia and the regional intensity of expenditure, according to CAPRI data, is shown in Figure 6. The data amalgamate payments for arable crops, including cereals such as wheat, barley and maize, and oilseeds such as
sunflower and soya. Receipts for the tobacco, rice and sugar beet sectors are also included, as are those for permanent crops, the most important of which to consider when interpreting the map are those for olives. Allocations for set-aside are also included. The full list is included in Annex A.

The maps reflect the value of direct payments and yields and hence provide an indication of the relative intensity of production in the period following the Agenda 2000 reform and preceding the 2003 Mid Term Review. The maps show the average intensity of payment across a region which is influenced by whether the region is dominated by crops, a mix of livestock and crops or livestock only (note that dairy is not included in these maps since the data is based on the years 2001-2003 and the dairy premium was introduced in 2004). The maps in themselves do not provide a clear indication of the relationship between the intensity of production and biodiversity status, since at this scale, they do not provide information on the level of funding received by the most biodiversity rich farms, and vice versa. Some very broad comments on the possible nature of the relationship are made in the following section.

The range of expenditure is from less than €100/ha UAA across a range of northern and central European areas, to in excess of €300/ha UAA in many Greek and Italian regions. The level of expenditure in 10 regions is in excess of €351/ha UAA, between €251-350/ha UAA in a further 22, between €151-250 /ha UAA in 51, between €51-150 /ha UAA in 62 and between €1-50 /ha UAA in 25. On a per hectare basis, most of Spain does not show the same intensity of expenditure as other key producing countries, with the exception of Andalusia.

The eastern part of the UK, large parts of northern and western France and most of Germany and Italy show a relatively high intensity of expenditure. Within these areas, high yielding, intensive crop systems tend to explain a higher level of expenditure, rather than the level of premia paid under the arable aid scheme which, at €63/tonne in 2002-2003 (Agra Informa, 2008) was comparatively low when compared to the amounts received for Mediterranean crops. In the Mediterranean Member States, high premia levels attached to comparatively smaller areas of land, resulted in a high regional intensity of payment. For example durum wheat producers received a supplement of €344.50 per hectare and olive oil producers a production aid of €132/100kg (Agra Informa, 2008) over the 2002-2003 period.

The highest intensity of expenditure occurs in a number of regions of Greece, several regions of Italy and Andalusia in Spain. In the case of the Greek regions and the southern Italian regions, the high intensity of spend is explained by various combinations of receipts for the Mediterranean crops of durum wheat, olives and tobacco. The high CAP payment rates for tobacco are mostly associated with relatively small areas of land, often characterised by low quality soil (DG Agriculture, 2003), explaining a high intensity of spend. Kentriki Makedonia in northern Greece has the highest intensity of crop premia spend of any EU region at €555/ha UAA, largely derived from tobacco subsidies. This also explains the high intensity of expenditure in Dytiki Ellada (€486/ha UAA) in the west of the mainland. In the

25 The CAPRI model uses a rate of €8,135/ha. The actual CAP premia ranged from €2.98 - €4.13/kg in 2002/03 (Agra Informa, 2008) implying a typical per hectare output of around 2,300 kgs.
Peloponnisos, subsidies for olive oil production, rather than tobacco, is dominant in terms of driving an intensity of Pillar 1 spend that amounts to €454/ha UAA. Subsidies for olive production account for nearly all Pillar 1 premia expenditure in Kriti (€383/ha UAA).

The high intensity of spend in the southern Italian regions of Calabria (€490/ha UAA) is also explained by payments for olive production26. In Puglia, receipts for olive and durum wheat production combine to create an expenditure level of €403/ha UAA. The northern Italian region of Veneto also shows a high intensity of spend (€391/ha UAA), about one third of which is explained by payments for maize.

Most of Spain exhibits a relatively low intensity of spend for crop production. Andalusia is the exception, and shows an intensity of spend of €275 per hectare UAA. Almost two-thirds of the total spending is explained by olive oil production, with durum wheat accounting for a significant proportion of the remainder.

According to CAPRI data, the northernmost Finnish region of Pohjois Suomi shows a high rate of expenditure (€325/ha UAA). It is explained by payments for oat and barley production, which together account for three quarters of the total payment. In contrast with the rest of Europe, the payment intensity for cereals (and a number of other agricultural sectors) has been boosted by payments made under the Nordic Aid Scheme which applies to Finland and Sweden27. Producers have benefited from a payment for barley and oats ranging from €34-€135/ha in the more disadvantaged areas (MTT and SLI, 2007). However, the intensity of payment is distorted by the relatively low UAA in these areas.

*Interpreting the Map from a Farmland Biodiversity Perspective*

The impact of direct payments over the 2001-2003 period on biodiversity is difficult to disentangle. There is some logic in an argument that coupled payments historically created an incentive for a farmer to adopt more intensive management practices. These practices may have lead to a decline in habitat diversity and higher input use, and as such created pressure on biodiversity. In the absence of further contextual information, however, the negative relationship between a higher intensity of spend, habitat degradation and biodiversity loss is not a given. In a decoupled payment context, the incentive to increase production comes from market signals.

In very general terms, the maps reflect the EU distribution of production and the level of payment hints at the associated intensity of arable land use. In many cases, the biodiversity value of those areas where the intensity of CAP expenditure is high is likely to be relatively low. In the north of Europe, these areas represent the most

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26 The CAPRI model uses a rate in excess of €800/ha for olive production, resulting in a high per hectare payment rate. Production aid amounted to €132/ha in 2002/03 (Agra Informa, 2008).

27 The Nordic Aid Scheme permits long term national aid to be granted by Finland and Sweden in order to maintain agricultural activity. The rationale is founded on natural handicap and low population density. In Finland, 55% of the UAA is eligible for Nordic Aid and has a range of uses including dairy (but also reindeer and horticulture). In Sweden, 14% of the UAA is eligible with the majority used to support milk production (MTT and SLI, 2007).
intensive cereal systems which are characterised by landscape simplification and higher levels of chemical input use. In those regions of the Mediterranean Member States where intensive forms of olive and tobacco production dominate biodiversity values are likely to be low. Attributing a high level of Pillar 1 expenditure to low biodiversity values is, however, problematic and generalisations may be misleading, particularly given the pan-European scale of the maps. For instance, there may be examples of more extensively managed cereal fields or olive groves situated in otherwise more intensively farmed landscapes and in receipt of CAP aids that are of a lower magnitude than the subsidy payments received by intensive farms that produce much fewer biodiversity benefits. This raises questions about the nature of support and the necessary level of reward for producing environmental benefits that are in the public interest. The wider policy frame will also bear an influence on biodiversity outcomes, according to the implementation of cross compliance, and the effectiveness of the agri-environment measure and other interventions targeting more sustainable land management.

This assessment may hold true following the 2003 reform of the CAP despite the introduction of decoupling (although where full decoupling has been introduced, the relationship between direct payments and the incentive to produce should be removed) and cross compliance, although the exact distribution and level of expenditure is likely to have shifted somewhat according to the way in which the SPS has been implemented and the increasing influence of market signals on production decisions.

4.2 Pillar 1 Livestock Payments: Spatial Distribution and Intensity of Expenditure

Livestock Production in the EU

About two thirds of beef production in the EU-15 originates from the dairy herd and the remaining one third from the suckler herd (DG Agriculture, 2004). Suckler cow production tends to be based on more extensive grazing or grass–based systems, although there is a significant amount of variation between Member States. Pasture based, extensive beef systems are typically found across the Western fringes of Europe (in Ireland, UK and north-western France) as well as in mountainous areas.

More intensive feeding systems exist where the cattle are kept indoors throughout the year and fed a predominantly non-grass diet such as cereals (DG Agriculture, 2004). Intensive cereal based cattle systems are found in southern and central Europe (DG Agriculture, 2004). The main beef producers in the EU are France, Germany and Italy, followed by the UK, Spain and Ireland (Alliance Environnement, 2007). Across Europe, there is an ongoing decline in the total size of the cattle herd.

Sheep and goat production is found in the western Atlantic region, and is also predominant in Mediterranean regions, especially Spain and Greece. Spain and the UK are the main sheep producers, whilst Greece, Spain and France are the main goat
producers. There is a long term trend toward fewer animals in both the sheep and goat herds (EFNCP, 2006).

**Impacts of Livestock Production on Biodiversity**

Livestock systems have both positive and negative impacts on biodiversity which are largely dependent on the habitat being grazed, the stocking density and frequency of grazing, and the relative proportion of grazing by cattle compared to other types of livestock (Alliance Environnement, 2007). High Nature Value grazed habitats require grazing to be at an intensity which falls within certain threshold limits to provide optimum conditions for the maintenance of biodiversity. The levels at which these thresholds lie will be regionally specific, and will depend on the productive capacity of the habitat being grazed. As grazing intensifies above these limits, and when it falls below these limits, as a system heads towards abandonment, for example, species richness will decline, although limited scrub development may be beneficial in some areas. Large scale scrub formation due to undergrazing however can result in negative impacts on biodiversity.

Many practices associated with beef and dairy production systems have resulted in long term declines in biodiversity. These include the effects of intensification resulting in higher inputs of fertilisers, organic wastes and pesticides; higher stocking rates leading to overgrazing; a switch from hay to silage; an increase in maize production; a general decline from mixed livestock farming systems towards more specialised systems; unsuitable supplementary feeding resulting in habitat damage; increased forage crop production for intensive and specialist housed cattle production systems. Other environmental impacts may include diffuse water pollution which can have a deleterious effect on aquatic flora and fauna.

As with extensive cattle systems, sheep and goat farming is generally found on marginal or poor quality agricultural land. Low intensity foraging activity is important for maintaining scrub invasion, and low input and low stocking rates are beneficial for maintaining biodiversity (EFNCP, 2006). Sheep farming has created significant environmental issues in some parts of northern Europe, in particular as a result of overgrazing.

**Commentary on the Map**

The distribution of CAP livestock premia and the regional intensity of expenditure, according to a weighted average for the 2001-2003 period provided by CAPRI data is shown in Figure 7. The data amalgamate payments for premia including those for suckler cows, heifers and calves, as well as for sheep and goats. Data for dairy cow production arising from the Nordic Aid Scheme is also included for Sweden and Finland (note the dairy premium was not introduced until 2004 and is hence not included). The full list is included in the Annex A. There is no direct support for pigs and poultry in the CAP.
The pattern and intensity of expenditure shown in the map largely reflects where livestock production occurs, the level of production, and the value of direct payments in the period following the Agenda 2000 reform and preceding the 2003 Mid Term Review. The maps in themselves do not provide a clear indication of the relationship between the intensity of production and biodiversity status, although some very broad comments are made in the following section. In general terms, the intensity of expenditure is generally much less than that for the arable sector. Whilst the intensity of expenditure for crops reached €560/ha UAA, the highest payment for the livestock premia was €360/ha UAA.

A total of 14 EU-15 regions show a rate of expenditure in excess of €201/ha UAA. Examples include the Limousin in central France, Ireland and Northern Ireland, parts of Belgium and the Netherlands and a number of northern Finnish and Swedish regions. The high intensity of spend in these Scandinavian areas is explained by a special premium of up to €0.25/kg for cow’s milk provided by the Nordic Aid Scheme (MTT and SLI, 2007). Elsewhere, the high rate of payment reflects the regional concentration of livestock production, but may also indicate a high level of grazing intensity.

A spend of €81-150/ha UAA is found in 42 regions situated across most of the EU-15 Member States. This group includes the south west and north west of England and all of Wales; parts of north-western France, including the Pays de la Loire and Basse Normandie, as well as the central French region of Auvergne (adjacent to the...
Limousin). Asturias, Cantabria and Galicia in the north-west of Spain fall into this band as do the north-western German regions of Schleswig-Holstein and Nordrhein-Westfalen. Lombardia and the Veneto in northern Italy and a large part of central Austria, including Oberösterreich, are included in this group. Much of Belgium also falls in this bracket as do several Dutch regions. The Greek region of Ipeiros shows a relative high intensity of spend compared to the rest of Greece. In this case, the rate of expenditure of €84/ha UAA is explained by the relative low UAA for the region rather than the high value of CAP premia.

A total of 51 regions show an intensity of expenditure of between €41 and €80/ha UAA and a further 43 regions a spend of between €21 and €40/ha UAA. This latter band includes several Greek areas, such as Dytiki Makedonia, where sheep and goat farming is common.

Some 19 EU-15 regions show an intensity of spend of less than €20/ha UAA. These areas are generally dominated by other non-livestock based agricultural activities. One example is Puglia, where olive production dominates and where the intensity of spend amounts to €403/ha UAA for crops compared to €8/ha UAA for livestock.

Interpreting the Map from a Farmland Biodiversity Perspective

A meaningful relationship between the intensity of expenditure on livestock and the presence and subsequent maintenance of biodiversity cannot be detected from this mapping exercise. There appear to be two alternative sets of causal chains at work, both of which are context specific. The first is that in the past coupled headage payments may have served to intensify production, prompting the restructuring of livestock holdings to fewer, more specialised operations. The second is that the direct payment comprised a significant proportion of the farm income of marginal livestock farmers. In some cases, therefore, these payments served to underpin the economic viability of otherwise unprofitable extensive livestock systems important for biodiversity. However, because these payments were predominantly an income support for the farmer, there was no provision for the farmer to adjust grazing regimes, as necessary, to reflect the management needs of semi-natural habitats, as might be preferable if a public money for public goods agenda applied. Cross compliance standards as implemented by the Member States, within the present Pillar 1, are not necessarily detailed enough to provide for the required management or environmental safeguards. A more accurate assessment would depend on the availability of contextual information on the impact of payments on farm incomes and viability and - restructuring processes, but some general patterns can be highlighted here.

The extensive pastoral systems of the western Atlantic region and mountainous areas of Europe are generally associated with a higher intensity of spend. This partly reflects that livestock farming is the dominant agricultural activity in these regions. Potentially, CAP direct payments may have contributed to the maintenance of farming

28 The relatively low intensity of spend is explained by the low premium value used in CAPRI for sheep and goats, ranging from €0.41 to €0.57 head for sheep and goats used for milk. However, during the 2001-2003 period there was a premium of €21 for each meat ewe and €16.8 for ewe and goats used to produce milk (EFNCP, 2006).
systems that have positive effects on biodiversity. Without further contextual information (such as economic factors such as farm incomes, the proportion of farm income made up by subsidy payments, as well as information on actual stocking densities, management regimes and the condition of pastures), it is improper to draw anything more than a tenuous link between the intensity of spend and biodiversity conservation. These systems tend to be associated with High Nature Value farmland and it may be the case that the direct payments have played a role in supporting farming systems that engage in traditional, extensive practices that are important for maintaining semi-natural pastures. However the provision of a direct payment is not a guarantor of suitable land management, underlining the importance of applying appropriate environmental conditions on the receipt of direct payments.

Elsewhere, it seems that intensity of spend is relatively low for extensive sheep and goat systems, such as those identified in the analysis above for Greece. Again, the link to biodiversity conservation is tenuous in the absence of further contextual evidence. However, it is possible that even a low level of spend may help support otherwise unviable farming structures, and thus maintain extensive grazing. Alternatively, the level of support may be insufficient to maintain the most vulnerable farming structures and unable to prevent the potential transition to land abandonment and a decline in habitat value.

Other CAP payments also influence the type of management associated with particular land parcels. Support received under the Less Favoured Area (LFA) measure is particularly important for supporting livestock-based systems in more marginal parts of Europe (EFNCP, 2006; IEEP, 2006a), and is considered further in Section 5. Protecting biodiversity is not an explicit aim of direct payments and hence any positive outcomes are incidental, a by-product of support for a particular system. Greater benefits for biodiversity arise through tailored management regimes that account for local circumstances. These regimes can be delivered through highly targeted policy interventions that seek specific results, as provided for by Pillar 2.

This assessment will, to a certain extent, reflect the present level and pattern of expenditure following the 2003 reform of the CAP. However, the introduction of different rates of coupling and the use of different implementation options for the SPS, are likely to have affected the current distribution and level of CAP expenditure. In addition, market signals will also affect production decisions and have an impact on farm incomes. In particular, the shift towards more market oriented agriculture means that the more extensive outdoor systems located in more marginal High Nature Value areas, may be increasingly under threat, particularly given associated driving forces of higher feed prices in undermining farm profitability.

4.3 Total CAP Pillar 1 Payments: Spatial Distribution and Intensity of Expenditure

The distribution of CAP animal and crop premia and regional intensity of expenditure, according to CAPRI data, is shown in Figure 8. This map combines the data used to build the separate crop and animal premia maps. It attempts to show the regional variation in the intensity of expenditure under Pillar 1 at a pan-European
scale. Given the reference period for calculating the value of the Single Payment is 2000-2002, the pattern shown in this map may reflect the level and distribution of funding under the SPS, although the exact figures are likely to have changed as a result of the implementation of different levels of decoupling and different payment models.

**Figure 8. Map of Pillar 1 Crop and Animal Premia Expenditure by Region for EU-15.**

![Combined Crop and Animal Premia Expenditure by Region (€/ha UAA)](image)

*Source: Produced by IEEP/RSPB from CAPRI data.*

**Commentary on the Map**

The map reflects the pattern of expenditure shown in the crop premia map (Figure 6) since the intensity of expenditure for these payments is higher than for the livestock premia. The regions featuring the highest intensity of spend are therefore those where cereal production and the production of Mediterranean crops dominate. A total of 11 regions show a spend of between €401 and €700/ha UAA and include much of southern Italy and Greece, northern Finland and one region in Belgium for the reasons identified above. The northern Finnish region of Pohjois Suomi features the highest intensity of spend at €675/ha UAA.

The intensity of spend in 31 regions is between €301 and €400/ha UAA, including eight French regions across northern France, six further Greek regions, two eastern Germany regions, as well as a number of Italian, Swedish, Belgian regions and much of central and eastern UK, in addition to the whole of Denmark. A further 53 region receive between €201/ha UAA and €300/ha UAA.
The regions receiving a lower intensity of payment are generally those where mixed systems, livestock production or lower intensity arable production dominate, most of which receive less than €200/ha UAA in total (75 regions in total). This includes much of northern England, the south west of England, Scotland, Wales, much of Austria, pockets of Italy, most of Spain and all of Portugal.

4.4 Mapping CAP Payments and Biodiversity: The Spatial Distribution of Total CAP Pillar 1 Subsidies and HNV Farmland

The relationship between Pillar 1 direct payments and the distribution of biodiversity is complex. The chain of causality linking the intensity of payment at the regional scale, its impact on farm management decisions, and the resulting effects on biodiversity are not clear. Greater transparency on this relationship is required at multiple geographical levels for three fundamental reasons. First, analysis is needed to evaluate the extent to which payments provided by the CAP are supportive of or detrimental to biodiversity conservation. Second, this information is crucial for evaluation activity in determining the effectiveness of CAP expenditure. Thirdly, it helps to indicate where money would need to be shifted from and to if CAP expenditure was reoriented towards biodiversity objectives. It would help to highlight where existing high levels of expenditure could no longer be justified if the goal of a common policy is to increasingly, but by no means exclusively, target the provision of biodiversity benefits.

A preliminary step to presenting this kind of information has been taken in this study by overlaying the map showing the regional distribution of CAP Pillar 1 premia (i.e. the map shown in Figure 8) with another map showing the location of EU farmland that is likely to be of High Nature Value (i.e. the map shown in Figure 1). It attempts to show how the regional intensity of CAP Pillar 1 expenditure varies across the EU and seeks to present a visual comparison of the extent to which there is a match or mis-match between the level of Pillar 1 payments and the incidence of farmland biodiversity.

In its present form, this provides a first step in analysing the role CAP Pillar 1 support has played in the incidental maintenance or degradation of farmland biodiversity. A more refined analysis could be based on up-to-date CAP payment data based on actual receipts at the farm level. This could be overlaid with a range of biodiversity data (indeed HNV should not be the sole biodiversity indicator) and extended to other environmental indicators as well, preferably at the same or similar geographical resolution. Ideally, this would be supplemented by information on the status of farmland biodiversity and the farming systems that are dominant in the region to be analysed. The map presented below is at the pan-European scale, and based on the best available data at the present time (given the timing of the study and resource constraints), and therefore provides an indication of the overlap between CAP expenditure and the presence of high levels of farmland biodiversity, rather than a definitive account.
Figure 9 presents the resulting map. It must be interpreted with consideration of the limitations of the data and the context of the farming systems and management practices prevalent in different regions as described in the preceding two sections.

**Figure 9. Map of Pillar 1 Crop and Animal Premia Expenditure by Region for EU-15 Overlaid with the EEA/DG JRC Preliminary Map of HNV Farmland.**

The map shows that some areas with an apparent high level of HNV received a low intensity of Pillar 1 spend. This is the case for most of Spain, Portugal, some northern parts of Italy and the west of Austria. The south-eastern part of France, where most HNV farmland is situated, receives a lower rate of expenditure than the rest of the country. However, there are also some regions, such as Andalusia and much of Greece that have a high level of HNV farmland but also receive a high intensity of expenditure. The map paints a picture of the pattern of expenditure from a farmland biodiversity perspective, and raises a number of pertinent questions about the link between payment levels and environmental outcomes.

In certain circumstances, a high Pillar 1 payment at the farm level may be crucial for underpinning the viability of certain extensive management systems that produce positive outcomes for biodiversity. In many situations, however, a high Pillar 1 payment, in the absence of suitable policy interventions or flanking measures designed to protect and enhance biodiversity, could lead to farm management practices that are detrimental to farmland wildlife. Of course, it is unlikely that the high payment per se will have a detrimental effect, rather the accumulation of high payments over time will have led to the processes of restructuring, and the associated
trends of intensification, specialisation and the concentration of production. The effects of all of these over time will have led to the degradation of the biodiversity resource. Elsewhere, there are high levels of biodiversity in some areas where payments are low, but it is difficult to argue that it is the low payment that has provided the biodiversity benefit. It is more likely to be the case that natural handicap itself plays more of a role. In other cases, a low level of payment may be insufficient to maintain farming activity, or underpin farm viability and the management practices that are required to maintain farmland biodiversity.

However, whilst Pillar 1 payments may support the income of farming systems associated with high levels of biodiversity in some situations, they have no explicit biodiversity objective beyond basic cross compliance standards. They are not targeted at achieving specific outcomes and therefore are an unreliable approach to providing positive results for biodiversity. Using a greater proportion of the CAP budget to explicitly target public goods such as biodiversity, suggests that the distribution of expenditure would need to shift to those farmers, farming systems and areas where biodiversity is present and where the need is to maintain and enhance biodiversity is most pronounced. One outcome could be that the level of payment received by a farmer in the future is calibrated to the level of biodiversity (or other environmental) benefit provided, such that those farmers providing biodiversity goods and services receive a higher payment. Importantly, intervention would be required across all farmland (in order to promote functional connectivity across areas of more intensive and extensive agriculture), with the type of intervention likely to vary across different farm systems and in response to different environmental needs.

The map indicates the scale of the potential redistributive effect of CAP funding that a more biodiversity centred CAP would entail. Given the range of different expectations on the future role and objectives of the CAP by a diversity of stakeholders, such a shift is likely to be politically unpalatable, and any case for shifting the CAP budget on these, or similar grounds, needs to convince those who might argue in favour of the status quo.
5 The Geographical Distribution of Pillar 2 Payments

The second Pillar of the CAP provides great potential to provide benefits for farmland biodiversity. The actual benefits arising will depend on the way in which specific measures are implemented by the Member States, as well as the scale of funding available. As shown in section 2, Pillar One is worth almost 3.5 times of the value of Pillar 2 (based on community funding alone). However Pillar 2 is responsible for delivering against a number of EU priorities for the environment, as well as social and economic cohesion.

In this section, the level of funding for the rural environment across the EU-27 Member States for the 2007-2013 programming period is analysed through a series of maps and supporting charts. The analysis draws on a review of the budget allocations provided in a total of 76 rural development programmes. The examination of financial data provides a valuable top-level indication of the priority given to the environment, but does not provide the kind of information required to determine the likely effectiveness of the allocated expenditure. Five programmes were therefore selected for more detailed analysis, to identify how the available funds are expected to be spent. The results are presented in section 6.

5.1 Pillar 2 Expenditure for 2007-2013

The level of total public expenditure (i.e. contribution from the EAFRD and national co-financing) across the 76 RDPs examined amounts to €144bn for the seven year funding period. The EAFRD contributes almost €87bn, including amounts raised through compulsory modulation, with national co-financing accounting for most of the remaining €57bn (the amounts raised through voluntary modulation in the UK and Portugal also make a contribution).

**Spending Priorities**

Approximately 46%, equal to €67bn, is directed to Axis 2 (measures for improving the environment and countryside), 33% (€48bn) to Axis 1 (measures for improving the competitiveness of the agricultural and forestry sector), 13% (€18.0bn) to Axis 3 (the quality of life in rural areas and diversification of the rural economy) and 6% to Axis 4 (Leader) (€8.6bn)\(^{29}\), as shown in Figure 10 below. Funding for the environment and countryside therefore forms an important segment of total Pillar 2, and indeed, total CAP spending. The €67bn directed to Axis 2 measures accounts for approximately 16% of total CAP spending for the 2007-2013 period (i.e. Pillar 1 and Pillar 2 including national co-financing). Whilst this sum may seem inadequate when compared to the complex and multi-faceted demands placed on Axis 2 by the Community Strategic Guidelines, it shows that the minimum spending allocations and strategic approach implemented for the new programming period have shaped the

\(^{29}\) Note that a certain percentage of Axis 4 expenditure is disguised in the spending for the other Axes. This is because Axis 4 can be delivered through any of the other Axes, meaning that actual expenditure on Leader may be somewhat higher.
pattern of expenditure to the benefit of environmental measures. Measures across Axes 1, 3 and 4 can also be used in ways that are suitable to addressing biodiversity conservation.

![Pie chart showing proportion of total public expenditure allocated to each rural development axis over the 2007-2013 programme period.]

**Figure 10. Proportion of Total Public Expenditure allocated to each Rural Development Axis over the 2007–2013 Programme Period.**

Note: TA refers to Technical Assistance.

*The Budgetary Priority of Axis 2 (Measures for Improving the Environment and Countryside)*

The proportion of public money allocated to Axis 2 in each Member State or region provides a top level indication of the relative priority given to funding for the environment. There is a wide variation in the priority given to Axis 2, as shown by Figure 11.

At least 60% of total public expenditure (TPE)\(^30\) is directed towards Axis 2 in Finland, Ireland, UK, Austria, Sweden and Denmark\(^31\). The environment is a key

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\(^{30}\) Total Public Expenditure (TPE) refers to the combined total of the EAFRD and national co-financing.

\(^{31}\) The minimum threshold for the distribution of the EAFRD to Axis 2 is 25%. The proportion allocated to the second Axis exceeds the 75% maximum in the cases of Finland, Ireland and the UK because the minimum spending thresholds apply only to the EAFRD allocation and not to the amount co-financed nationally. In addition, in the case of Ireland, Axis 3 and Axis 4 are implemented together, meaning the allocations to theses axes appear to be 10% combined. In the UK, the use of
focus of these programmes, albeit with slightly varying objectives, as shown in the case studies for England and Finland. It has been argued that richer Member States tend to spend more on environmental measures, whilst poorer Member States allocate more to socio-economic and cohesion oriented measures (Shucksmith et al., 2005). This is reflected in the cases of Bulgaria, Romania and Malta, three new Member States that are spending the absolute minimum of 25% on the second Axis.

Figure 11 also shows an apparent inverse relationship between the proportion of expenditure allocated to Axis 1 and the proportion dedicated to Axis 2, although this is by no means universal. In those programmes that allocate at least 60% to Axis 2, 20% or less is allocated to Axis 1, again reflecting national priorities. Ten Member States have allocated 40% or more of total public expenditure to Axis 1, including six new Member States and also Greece, Portugal, Spain and Belgium (which has allocated 59% of TPE, the most of any Member State).

The emphasis given to Axes 3 and 4 is somewhat less than that given to the other two Axes. Six Member States, including four new Member States, have allocated at least 20% of TPE to Axis 3, whilst the Leader approach will receive 10% of TPE in Ireland, Netherlands, Portugal and Spain.

There is no clear difference in the overall spending allocations between the newest and oldest Member States. Slovakia, Slovenia and Cyprus plan to direct around half of TPE to Axis 2. Six allocate at least 40% to Axis 1, with Axis 3 budget allocations strongest in Bulgaria, Romania and Malta.

The pattern of expenditure varies significantly within Member States that have a regional structure, reflecting differing regional priorities. Within Spain the amount allocated to Axis 2 varies from 19% of TPE in the Basque Country to 48% of TPE in Castilla La Mancha. In Navarra, one of the case study regions, 21% of TPE is allocated to Axis 2. Neighbouring regions may exhibit different spending allocations. For example, in Italy, Umbria allocates 43% of TPE to Axis 2, whilst the neighbouring region of Lazio allocates 32% of TPE. These variations are further shown by the maps of the intensity of agri-environment and LFA expenditure at the programme level in the sections below.

Measure by Measure
Rural development measures targeting the environment compete for funding with other measures focused on socio-economic outcomes. The measures selected for inclusion in a programme are based on an assessment of the characteristics and needs of the area concerned, which translates into different priorities, and hence the selection of different mixes of measures as well as funding levels. To underline the wide spectrum of requirements placed on the rural development sphere of the CAP, Tables 3, 4 and 5 show the breakdown of funding on each measure for all of the 76 programmes examined. Each table is ranked in order of those measures that receive the greatest funding overall (from highest to lowest); they show how many

additional voluntary modulation may distort the proportional breakdown further. Axis 3 appears as 0% for Portugal because it is delivered through Axis 4 and the budget allocations between the Axes are not clear.
Figure 11. Proportion of Total Rural Development Expenditure Allocated to Each Rural Development Axis.

Source: IEEP own calculations. Note: The lines should not be viewed as trend lines. Portugal and Ireland are not spending zero on Axis 3 - rather Axis 3 is delivered through other Axes, and this distorts the budget allocations.
programmes each measure is used in; briefly outline in which programmes the measure is a priority (expressed in terms of proportion of TPE); and also indicate how much extra funding is provided outside of the EAFRD and national co-financing through private expenditure and additional national financing. An overview of spending in Axes 1, 3 and 4 is provided before focusing on a more in-depth examination of Axis 2.

**Axis 1**

Table 3 shows that within Axis 1, two measures – the modernisation of agricultural holdings, and adding value to agricultural and forestry products – receive the greatest allocation of public expenditure and are used in almost all of the examined programmes. Both measures require a significant level of private investment, and also prompt significant levels of additional national financing. In France, for example, an extra €390m is allocated to the modernisation measure under the additional national financing heading.

The implications for biodiversity depend on the application of the measure by the Member State. The modernisation measure could be either positive, or detrimental, depending on what it is used to fund at the farm level.

A number of measures are worthy of further consideration, with the ultimate impacts depending on how the Member State or region chooses to implement the measure alongside other influencing factors. The intended application of some of these measures is investigated in the case studies. In a similar vein, the measure to improve the economic value of forests – funded to the level of €1bn across 43 programmes – could be at odds with biodiversity objectives if sympathetic management is not a requirement. The measure to support semi-subsistence farming, available just to the new Member States and used in eight, could be generally positive if it supports the maintenance of extensive farming systems which would otherwise be under threat of abandonment.

**Axis 3 and Axis 4**

Axis 3 and Axis 4 are less relevant to farmland biodiversity than Axis 2, but in a number of Member States, measures targeting quality of life and diversification are a clear priority, with implications for the focus given to biodiversity-oriented measures. One measure in particular – to conserve and upgrade the natural heritage – may provide benefits for biodiversity depending on implementation. It will be used in 62 of the examined programmes and funded to a level of just over €2bn. The measure can be used, in the words of Regulation 1698/2005 to create management plans for Natura 2000 sites and HNV areas and provide investment to develop ‘HNV sites’, but its impact will depend on application.

The Leader approach can be used to provide environmental benefits (see for example IEEP, 2006b). Around €489m is set to be spent on locally-run initiatives that focus on the environment and land management. The success of the Leader approach in specifically achieving benefits for biodiversity depends on the inclusion of partners within the Local Action Group with environmental expertise and a sound knowledge of the local context.
Table 3. Breakdown of Expenditure on Axis 1 Measures.

<table>
<thead>
<tr>
<th>Axis</th>
<th>Measure</th>
<th>Total Public Expenditure (€m)</th>
<th>Number of Programmes</th>
<th>Number of Measures Used In</th>
<th>Highest Priority **</th>
<th>Total Private Expenditure (€m)</th>
<th>Total Additional National Financing (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Modernisation of agricultural holdings</td>
<td>15,287</td>
<td>74</td>
<td></td>
<td></td>
<td>23,508</td>
<td>1,805</td>
</tr>
<tr>
<td>1</td>
<td>Adding value to agricultural and forestry products</td>
<td>8,594</td>
<td>73</td>
<td></td>
<td></td>
<td>17,456</td>
<td>967</td>
</tr>
<tr>
<td>1</td>
<td>Infrastructure related to development and adaptation</td>
<td>7,002</td>
<td>66</td>
<td></td>
<td></td>
<td>1,169</td>
<td>1,189</td>
</tr>
<tr>
<td>1</td>
<td>Setting up of young farmers</td>
<td>4,650</td>
<td>55</td>
<td></td>
<td></td>
<td>1,189</td>
<td>400</td>
</tr>
<tr>
<td>1</td>
<td>Early retirement</td>
<td>3,741</td>
<td>42</td>
<td></td>
<td></td>
<td>0</td>
<td>89</td>
</tr>
<tr>
<td>1</td>
<td>Vocational training and information actions</td>
<td>1,524</td>
<td>65</td>
<td></td>
<td></td>
<td>195</td>
<td>40</td>
</tr>
<tr>
<td>1</td>
<td>Restoring production potential damaged by disasters</td>
<td>1,230</td>
<td>19</td>
<td></td>
<td></td>
<td>184</td>
<td>545</td>
</tr>
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<td>1</td>
<td>Semi-subsistence farming</td>
<td>1,180</td>
<td>8</td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>Improvement of the economic value of forests</td>
<td>1,027</td>
<td>43</td>
<td></td>
<td></td>
<td>993</td>
<td>24</td>
</tr>
<tr>
<td>1</td>
<td>Use of advisory services</td>
<td>1,016</td>
<td>62</td>
<td></td>
<td></td>
<td>335</td>
<td>13</td>
</tr>
<tr>
<td>1</td>
<td>Cooperation for development of new products, processes and technologies</td>
<td>540</td>
<td>46</td>
<td></td>
<td></td>
<td>254</td>
<td>10</td>
</tr>
<tr>
<td>1</td>
<td>Participation in food-quality schemes</td>
<td>504</td>
<td>42</td>
<td></td>
<td></td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>1</td>
<td>Producer groups</td>
<td>430</td>
<td>10</td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>Information and promotion</td>
<td>300</td>
<td>40</td>
<td></td>
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<td>10</td>
<td>50</td>
</tr>
<tr>
<td>1</td>
<td>Setting up of management, relief and advisory services</td>
<td>202</td>
<td>24</td>
<td></td>
<td></td>
<td>163</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>Meeting standards</td>
<td>161</td>
<td>14</td>
<td></td>
<td></td>
<td>37</td>
<td>0</td>
</tr>
<tr>
<td>Total Axis 1</td>
<td>47,460</td>
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<td></td>
<td></td>
<td></td>
<td>45,729</td>
<td>5,766</td>
</tr>
</tbody>
</table>

Source: IEEP own calculations.

Note: * based on an examination of 76 programmes. ** expressed in terms of % of TPE. TPE refers to total public expenditure i.e. EAFRD + amounts raised through modulation + national co-financing.
### Table 4. Breakdown of Expenditure on Axis 3 and 4 Measures.

<table>
<thead>
<tr>
<th>Axis</th>
<th>Measure</th>
<th>Total Public Expenditure (€m)</th>
<th>Number of Programmes</th>
<th>Highest Priority **</th>
<th>Total Private Expenditure (€m)</th>
<th>Total Additional National Financing (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Village removal and development</td>
<td>4,285</td>
<td>55</td>
<td></td>
<td>734</td>
<td>561</td>
</tr>
<tr>
<td>3</td>
<td>Basic services for the economy and rural population</td>
<td>3,830</td>
<td>56</td>
<td></td>
<td>1,039</td>
<td>120</td>
</tr>
<tr>
<td>3</td>
<td>Business creation and development</td>
<td>3,018</td>
<td>48</td>
<td></td>
<td>3,017</td>
<td>49</td>
</tr>
<tr>
<td>3</td>
<td>Diversification into non-agricultural activities</td>
<td>2,329</td>
<td>61</td>
<td></td>
<td>2,329</td>
<td>92</td>
</tr>
<tr>
<td>3</td>
<td>Conservation and upgrading of the natural heritage</td>
<td>2,043</td>
<td>62</td>
<td></td>
<td>562</td>
<td>218</td>
</tr>
<tr>
<td>3</td>
<td>Skills acquisition, animation and implementation of development strategies</td>
<td>1,327</td>
<td>56</td>
<td></td>
<td>1,199</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>Training and information</td>
<td>270</td>
<td>32</td>
<td></td>
<td>42</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td><strong>Total Axis 3</strong></td>
<td>18,947</td>
<td>34</td>
<td></td>
<td>9,373</td>
<td>1,171</td>
</tr>
<tr>
<td>4</td>
<td>Local strategies: quality of land/desertification</td>
<td>5,895</td>
<td>71</td>
<td></td>
<td>3,856</td>
<td>157</td>
</tr>
<tr>
<td>4</td>
<td>Local action group</td>
<td>1,256</td>
<td>73</td>
<td></td>
<td>76</td>
<td>84</td>
</tr>
<tr>
<td>4</td>
<td>Local strategies: competitiveness</td>
<td>823</td>
<td>56</td>
<td></td>
<td>802</td>
<td>62</td>
</tr>
<tr>
<td>4</td>
<td>Cooperation projects</td>
<td>489</td>
<td>74</td>
<td></td>
<td>104</td>
<td>0.5</td>
</tr>
<tr>
<td>4</td>
<td>Local strategies: environment/land management</td>
<td>313</td>
<td>41</td>
<td></td>
<td>110</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td><strong>Total Axis 4</strong></td>
<td>8,578</td>
<td>41</td>
<td></td>
<td>4,754</td>
<td>317</td>
</tr>
</tbody>
</table>

Source: IEEP own calculations.

Note: * based on an examination of 76 programmes. ** expressed in terms of % of TPE. TPE refers to total public expenditure i.e. EAFRD + amounts raised through modulation + national co-financing.

### 5.2 Spending to Support Biodiversity: Focus on Axis 2

Axis 2 is the most well funded of all four axes. In relative terms, and given the available rural development budget, this is initially promising for the environment. However, the impacts on biodiversity will depend on which measures are implemented, how each measure is implemented, how particular schemes are designed, and on the level of uptake at the farm level. In addition, questions pertaining to the absolute level of funding required to support farmland biodiversity are critical. In this section, an analysis of Axis 2 funding is provided, with a particular focus on the agri-environment measure and the geographical intensity of expenditure under the agri-environment and LFA/natural handicap measures.

The 76 programmes examined use different combinations of Axis 2 measures. As Table 5 shows, the agri-environment measure is applied universally (its use is compulsory) and the measure supporting the establishment of agro-forestry systems least widely (in 11 programmes). The relevance of the observed spending levels to biodiversity for the agri-environment measure, the two handicap measures, the Natura measures and the various forestry measures are considered in more detail below.
Table 5. Breakdown of Expenditure on Axis 2 Measures.

<table>
<thead>
<tr>
<th>Axis</th>
<th>Measure</th>
<th>Total Public Expenditure (€bn)</th>
<th>Number of Programmes</th>
<th>Highest Priority **</th>
<th>Total Private Expenditure (€bn)</th>
<th>Total Additional National Financing (€bn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Agri-environment payments</td>
<td>34.458</td>
<td>76</td>
<td>England &amp; Sweden allocate &gt;50% TPE</td>
<td>185</td>
<td>3.602</td>
</tr>
<tr>
<td>2</td>
<td>Natural handicap payments to farmers in mountain areas</td>
<td>13.014</td>
<td>50</td>
<td>Cortes and Vall d’Aran allocate &gt;50% TPE</td>
<td>0</td>
<td>117</td>
</tr>
<tr>
<td>2</td>
<td>Payments to farmers in areas with handycaps, other than mountain areas</td>
<td>8.548</td>
<td>62</td>
<td>Scotland, Luxembourg, Bayan and Hessen allocate &gt;20% TPE</td>
<td>0</td>
<td>1,101</td>
</tr>
<tr>
<td>2</td>
<td>First afforestation of agricultural land</td>
<td>5.503</td>
<td>58</td>
<td>Castilla la Mancha and Lombardia allocate &gt;10% TPE</td>
<td>579</td>
<td>59</td>
</tr>
<tr>
<td>2</td>
<td>Restoring forestry potential</td>
<td>2.479</td>
<td>50</td>
<td>Castilla la Mancha, Asturias and Andalucia allocate &gt;10% TPE</td>
<td>3.37</td>
<td>56</td>
</tr>
<tr>
<td>2</td>
<td>Non-productive investments (forests)</td>
<td>1.263</td>
<td>60</td>
<td>La Rioja, Andalucia &amp; Navarra allocate &gt;8% TPE</td>
<td>216</td>
<td>145</td>
</tr>
<tr>
<td>2</td>
<td>Non-productive investments (agr.)</td>
<td>881</td>
<td>39</td>
<td>Wales, Scotland &amp; Galicia allocate &gt;5% TPE</td>
<td>426</td>
<td>57</td>
</tr>
<tr>
<td>2</td>
<td>Natura 2000 payments and WFD payments</td>
<td>786</td>
<td>25</td>
<td>Ireland allocates 9% TPE</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Animal welfare payments</td>
<td>641</td>
<td>20</td>
<td>Sardegna allocates 17% TPE</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>First afforestation of non-agricultural land</td>
<td>583</td>
<td>34</td>
<td>Scotland &amp; Galicia allocate &gt;5% TPE</td>
<td>177</td>
<td>22</td>
</tr>
<tr>
<td>2</td>
<td>Forest environment payments</td>
<td>437</td>
<td>28</td>
<td>Scotland and Baden Wuerttemberg allocate &gt;2% TPE</td>
<td>10</td>
<td>26</td>
</tr>
<tr>
<td>2</td>
<td>Natura 2000 payments (forests)</td>
<td>154</td>
<td>13</td>
<td>Estonia and North Rhine-Westphalia allocate &gt;2% TPE</td>
<td>0.6</td>
<td>0.2</td>
</tr>
<tr>
<td>2</td>
<td>First establishment of agri-forestry systems</td>
<td>28</td>
<td>11</td>
<td>Marche allocates the greatest proportion (0.5% TPE)</td>
<td>13</td>
<td>42</td>
</tr>
</tbody>
</table>

Total Axis 2: 66.776

Source: IEEP own calculations.

Note: * based on an examination of 76 programmes. ** expressed in terms of % of TPE. TPE refers to total public expenditure i.e. EAFRD + amounts raised through modulation + national co-financing.

Focus on the Agri-Environment Measure

Almost €34.4bn will be spent on the agri-environment measure (AEM) among the 76 examined programmes. This is the most for any measure and twice that directed towards the Axis 1 modernisation measure, which is the next best-funded. In Figure 12, the proportion of TPE allocated to the agri-environment measure in each Member State is shown, as is the total proportion of TPE dedicated to Axis 2. The ‘gap’ between the bar and the dot for each Member State is the proportion allocated to other Axis 2 measures. Spending on environmental objectives under the agri-environment measure may be further supplemented by use of the non-productive investments measure.

Sweden allocates the greatest proportion of any Member State to this measure (54% of TPE), with the UK, Ireland, Denmark, Austria and Finland each allocating in excess of 30% of TPE. Within the UK, England allocates two-thirds of TPE to this measure. At the other extreme, 11 Member States allocate less than 20% of TPE to the agri-environment measure, including Member States with vast areas of HNV farmland such as Greece, Spain, Portugal and Romania. Importantly, these measures might not necessarily be targeted at HNV, underlining the fact that the level of funding must be examined alongside the quality of measure design.
Figure 12. Proportion of Total Public Expenditure Allocated to Axis 2 and the Agri-environment Measure.

Source: IEEP own calculations.
Note: TPE refers to total public expenditure i.e. EAFRD + amounts raised through modulation + national co-financing.
Figure 13 illustrates the geographical variation in expenditure on the AEM as a proportion of TPE\(^{32}\). EU Member States have a common interest and obligation to secure a reversal in the loss of biodiversity and because of the transboundary nature of the biodiversity resource and its uneven distribution across the EU, an element of burden sharing is required in order to achieve this objective. The maps suggest that there is an imbalance in the rate of expenditure at present, although this cannot be verified without understanding the focus of individual schemes and the different funding needs of different Member States.

**Figure 13. Map Showing Geographical Variation in AEM Expenditure for EU-27.**

![Map showing geographical variation in AEM expenditure](image)

Source: Produced by IEEP/RSPB, based on IEEP own calculations from Rural Development Programme finance data.

Although the AEM is well funded when compared to other rural development measures, the actual rate of expenditure on the ground may still be insufficient to meet the environmental priorities identified. Figure 14 shows the intensity of expenditure (in terms of the average annual amount allocated on a per hectare UAA basis for the 2007-2013 period\(^{33}\)) on the AEM for each programme area. The intensity

\(^{32}\) Note that all the maps are based on a slightly different set of data from the data on which the rest of the text, tables and charts are based. Please consult Annex B for a list of RDPs and explanation.

\(^{33}\) A more preferable common denominator would be the total area in each programme to which the AEM will apply. This would give a more accurate reflection of intensity of spend since the size of target areas varies. An attempt was made to collect this information from the indicators included in the RDPs consulted for this study, but these were found to be inconsistent and incomplete.
of spend exceeds €100/ha UAA per year in five programmes, including Austria, Malta and Finland but dips below €50/ha UAA per year in 52 programmes. The rate of expenditure for six Spanish regions, France and Romania falls below €10/ha UAA per year. This unevenness in the intensity of expenditure does not appear concurrent with the presence of HNV farmland, but the extent of targeting is dependent on measure design.

Figure 14. Map Showing Intensity of Expenditure on the AEM Overlaid with the EEA/DG JRC Preliminary Map of HNV Farmland for the EU-27.

The extent to which the spending patterns and profiles described above reflect the incidence and conservation status of farmland biodiversity hotspots remains somewhat opaque, as does the actual amount of funding required to deliver the required results. In Figure 15, a comparison is made between the share of UAA that is estimated to be HNV and the proportion of TPE that is allocated to the agri-environment measure. Whilst the extent to which particular agri-environment schemes are focused on HNV is not known (although the case studies in Section 6 provide some context), those Member States with a higher proportion of HNV farmland may be expected to allocate a greater proportion of their budget to the agri-environment measure if the maintenance of farmland biodiversity is treated as a priority.

The chart shows that those Member States with a relatively high proportion of HNV farmland are spending less on the agri-environment measure than those Member States with a smaller proportion of HNV farmland. Whilst the agri-environment
measure should also be used to target non-HNV farmland habitats (such as on intensive farms where the maintenance of small pockets of biodiversity is necessary to ensure functional connectivity) and other environmental priorities, this suggests that a shift in expenditure patterns may be required, if any future policy is to ensure the maintenance and enhancement of the EU’s most biodiversity rich habitats.

**Focus on the LFA Measure**

Approximately €21.5bn will be spent on the LFA measure among the 76 examined programmes. Of this, €13bn is allocated to the measure to provide natural handicap payments to farmers in mountain areas and €8.5bn to farmers in other areas with handicaps. These measures seek to maintain the countryside and promote sustainable farming systems through the continued use of agricultural land. The measure is typically used to support extensive livestock based systems which - if appropriately managed - are crucial to the maintenance of species rich semi-natural pastures and the avoidance of land abandonment. The incidence between LFA areas and the location HNV farmland has been shown to be high (IEEP, 2006a).
Figure 16 illustrates the geographical variation in expenditure on the two measures. France and Finland each allocate in excess of 30% of TPE to less favoured areas and the German region of Bayern allocates 30%. Other mountainous or more peripheral areas such as Austria, Scotland, Wales, Ireland and the Italian region of Trento each dedicate 20% or more of TPE to these measures. Three German regions do not spend anything on the measure (Hamburg, Saarland and Niedersachsen/Bremen), whilst many other German and Spanish regions, as well as Denmark and the Netherlands, allocate less than five percent of TPE. A low level of expenditure is likely to be indicative of a small LFA or a product of the eligibility criteria that restrict the number of beneficiaries who are eligible for the aid.

Figure 16. Map Showing Geographical Variation in LFA Expenditure for EU-27.

LFA Expenditure as a Percentage of Pillar 2 Total Expenditure (EAFRD and Co-Financing) by Programme
Rural development programmes – allocated budget 2007 - 2013

Source: Produced by IEEP/RSPB, based on IEEP own calculations from Rural Development Programme finance data.
The success of the measure in benefiting biodiversity is dependent on not only the area designated as LFA (i.e. the classification criteria), but also on the specification of the eligibility criteria, which in some cases exclude certain types of production, farmers above a certain age, and relate to the size of farm. If the LFA scheme serves to target support at extensive pastoral systems, benefits to biodiversity should occur. Inappropriately designed eligibility criteria could exclude certain farmers – such as older farmers, those with very small holdings, or those where agricultural income is not the dominant income source – many of the characteristics of farmers managing HNV farmland. Figure 17 shows the intensity of expenditure on the LFA measure (measured in terms of the average annual amount allocated per hectare of UAA for the 2007-2013 period) for each programme area as well as the approximate presence of HNV farmland. The intensity of spend exceeds €200/ha UAA per year in Malta, largely because of the island’s small UAA and the fact that all of Malta is classified as LFA. In Finland and Luxembourg, the intensity of expenditure exceeds €100/ha UAA.

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34 A more preferable common denominator would be the total area of the LFA in each programme area or the UAA within the LFA in receipt of a payment. This would give a more accurate reflection of intensity of spend since the size of LFAs varies, and the area of land within the LFA in receipt of a compensatory allowance also varies significantly. This means that the figures presented here are likely to be an underestimate. An attempt was made to collect this information from the indicators included in the RDPs consulted for this study, but these were found to be inconsistent and incomplete.
per year. Among those programmes that prioritise the measure in terms of the share it takes of total expenditure, the intensity of spend is more variable ranging from €18/ha UAA per year in Scotland to €85/ha UAA per year in Austria. These figures are likely to be underestimates given in most Member States the size of the LFA is rather smaller than the total UAA.

Focus on the Natura Measures
Expenditure on the two Natura 2000 measures is rather low with limited uptake across the EU. In many cases, the management of protected areas is likely to be provided through a combination of the agri-environment measure, the forest-environment measure and the two non-productive investment measures.

A total of 25 programmes will use the measure for Natura 2000 payments and Water Framework Directive (WFD) payments for agricultural land, with an allocated expenditure of €786m. Without further examination of the programmes, it is not possible to state whether this money will be directed to Natura 2000 sites or to measures that will help to meet the objectives of the WFD. Indicating the low priority given to the measure, in 15 of the programmes, the measure accounts for 1% or less of TPE, falling as low as 0.04% of TPE in Austria. Ireland, however, allocates just over 9% of TPE to the measure. Natura 2000 payments for forests are used in 13 programmes and are set to receive almost €154m of funding. The most public money allocated to this measure is in Estonia, which plans to spend €31m, about 3.5% of TPE.

Focus on the Forestry Measures
The forest environment measure was introduced for the first time under the EAFRD and is included in 28 programmes with a total allocated spend of €437m. The measure receives the greatest share of funding in Scotland (3% of TPE) whilst Hungary allocates the most in absolute terms (€89m).

The afforestation measures have historically produced mixed results for the environment and biodiversity. The measure for the first afforestation of agricultural land will be used in 59 of the examined programmes. If used appropriately, the targeted planting of appropriate tree species may help improve functional connectivity and provide benefits for biodiversity. There are however examples of environmentally damaging schemes from the previous programming period (see the example of Spain provided by Beaufoy et al, 2005). The Italian region of Lombardia allocates the greatest proportion to the measure at 13% of TPE (equal to €120m), followed by Castilla La Mancha in Spain (10% of TPE and €171m). Poland allocates €653m to this measure, the most of any programme. The measure also features strongly, in terms of proportion of TPE, in the programmes of a number of Italian and Spanish regions, as well as in Portugal, Denmark and Scotland.

The measure for the first afforestation of non-agricultural land is to be used less widely, in 34 programmes with a total allocated spend of €583m. The Spanish regions of Galicia, Asturias and La Rioja will spend at least 2% of TPE on the measure (rising to 6% of TPE in Galicia). The measure is also being used in 13 Italian regions, and
features prominently in the Scottish programme (where it accounts for 6% of TPE). Some €2.5bn is allocated by 50 programmes to the measure to restore forestry potential. The measure to support the establishment of agro-forestry systems is the least well funded Axis 2 measure and will be used in 11 programmes with a total allocated spend of €28m. It will be used in a range of Spanish and Italian regions as well as Portugal, Cyprus and Hungary. Traditional agro-forestry systems are beneficial to biodiversity (e.g. montado, dehesa), however the measure does not supporting the maintenance of existing systems but the establishment of new ones. Whilst in the long term there could be benefits for biodiversity, there could also be losses depending on how the measure is implemented and the baseline biodiversity value of the habitat to be converted to agro-forestry.
6 Does CAP Expenditure Deliver for Farmland Biodiversity? Insights from the Case Studies

6.1 Introduction

The preceding chapters assessed the overall levels of CAP expenditure across both Pillars and examined its spatial distribution compared to priority areas for biodiversity across the EU. However, beyond providing an indication of the relative priority given to different CAP measures in terms of budget allocations, the maps provide little information on the potential environmental impact arising from the measures funded. The environmental impacts could be either positive or negative depending on local context, and the way in which the measures have been implemented and the schemes designed. Determining this causality depends, in part, on developing an understanding of the purpose of public expenditure, the specific objectives to which it is applied, how particular schemes are delivered at the farm level, the farm management responses it might give rise to, and, the environmental impacts that might be expected to result. In an attempt to anticipate some of the possible impact on biodiversity of CAP funding for the 2007-2013 period, five qualitative case studies have been written for this study. Reports have been produced for Finland, Hungary, Portugal, the Navarra region of Spain and, England, part of the United Kingdom and are provided in a separate report (which also explains the reasons for selecting these countries as case studies).

The primary purpose of these case studies is to make an ex-ante assessment of the likely impacts of particular measures within the rural development programmes on farmland biodiversity. This moves beyond an analysis of the absolute levels of expenditure, to examine how the money is planned to be spent and to develop an understanding of the use of this money in relation to conservation of farmland biodiversity. This involves an analysis of the underlying objectives of the measures to be implemented and how particular measures are going to be implemented. As well as focusing on Pillar 2 measures, the implementation of cross compliance and Article 69, under Pillar 1, is also considered.

6.2 Potential Biodiversity Impacts of Pillar 1 Expenditure

The extent to which Pillar 1 direct payments are decoupled from production and the extent of controls on farming activity through cross compliance are both key determinants of the likely impact on biodiversity of such payments.

The design of the SPS and SAPS varies across the five countries reviewed and this variation can be expected to have different implications for biodiversity. Portugal and Navarra use the historic model, whilst Finland and England use the dynamic hybrid. The shift towards a flat rate area payment under the hybrid model may have resulted in some redistribution of support from more intensively farmed areas to less intensively farmed areas. This could have some biodiversity benefits although much will depend on individual farmers’ responses and other factors such as market prices.
and other policy signals (for example, the targets for bioenergy) are likely to be influential. Of the four case study countries applying the SPS, only England has fully decoupled support from production; the other three retain significant levels of coupled payments.

Table 6 shows the amounts spent by the case study countries on direct payments in 2006, broken down into decoupled and coupled (plant and animal) payments.


<table>
<thead>
<tr>
<th></th>
<th>Finland</th>
<th>Hungary</th>
<th>Portugal</th>
<th>Spain*</th>
<th>Great Britain*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Direct Aids</strong></td>
<td>502.4</td>
<td>373.4</td>
<td>550.5</td>
<td>4616.4</td>
<td>3502.6</td>
</tr>
<tr>
<td>EUR million</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Decoupled</td>
<td>7.3</td>
<td>373.4</td>
<td>272.5</td>
<td>55.1</td>
<td>3474.1**</td>
</tr>
<tr>
<td>- Plant products</td>
<td>353.9</td>
<td>n/a</td>
<td>87.5</td>
<td>3179.0</td>
<td>13.3</td>
</tr>
<tr>
<td>- Animal Products</td>
<td>141.3</td>
<td>n/a</td>
<td>164.8</td>
<td>1374.1</td>
<td>40.4</td>
</tr>
</tbody>
</table>


NB: * only national amounts are given and regional breakdowns for Navarra region and England are not available. ** England has fully decoupled payments but some coupled payments remain in Scotland and for commodity regimes that did not form part of the SPS in 2006 hence figures for plant and animal products in GB.

The impact of coupled payments on biodiversity will depend on how the money is applied and which specific sectors are being supported. Navarra and Portugal have both retained 100% of the suckler cow premium which may help to underpin the maintenance of extensive grazing systems beneficial to biodiversity. However, much will depend on the stocking densities and farm management practices prevalent in the coupled systems. Conversely, both have maintained 50% of the sheep and goat premium which could help to support systems which have been linked to problems of overgrazing in some areas in the past. It is beyond the scope of this work to provide an in-depth analysis of the likely biodiversity impacts of coupled payments but important to recognise that these are likely to have a significant bearing on the farming systems and practices adopted at farm level and hence on the environment. Whilst environmentally untargeted direct payments could play an important role in underpinning marginal farming systems that indirectly provide biodiversity benefits, more targeted measures that seek specific outcomes are likely to be a more effective use of public expenditure.

Hungary, as a new Member State, currently applies the SAPS and, as such, these payments are decoupled from production. The likely environmental impacts of the SAPS have not been evaluated but it is possible that such payments may help to underpin farming systems in areas that would otherwise be threatened with abandonment. The RDP for Hungary cites 'loss of biodiversity due to abandonment of cultivation in areas of high natural assets' as a specific problem; the introduction of
the SAPS may help to prevent such abandonment and hence biodiversity loss. Questions remain regarding whether the SAPS is the most appropriate measure to remedy this problem given it is not an explicit objective of SAPS to halt land abandonment. The improved income of larger farms through receipt of the SAPS may facilitate the intensification and specialisation of agriculture in some areas leading to problems such as biodiversity loss and water contamination by nutrients. The value of the SAPS will also increase over 2007-2013, bringing payments in the new Member States up to the level of the EU-15. The improved income position of farmers may lead to further restructuring and land use change, and in the absence of appropriate safeguards, associated environmental impacts. The payment of SAPS can therefore be expected to have variable impacts on the environment in the eight new Member States applying this payment system.

Of the five case studies, Navarra, Portugal and Finland use Article 69 of Regulation 1782/2003 whereby up to 10% of direct payments in specific sectors can be used to support farming systems that are important for the environment or to improve the quality and marketing of products. Spain, for example, retains 7% of beef sector payments to provide a suckler cow premia top-up where livestock density is less than 1.5 LU/ha of forage area. This payment may help to support cattle production in marginal farming areas but its indirect impact on biodiversity will very much depend on whether the stocking density applied is appropriate to the biodiversity interest of such areas. In Portugal, 1% of arable crops and rice payments are retained to support marketing but also to provide higher aid levels for organic production which may be beneficial for biodiversity. In Finland, 2.1% of arable crop payments are retained to support the cultivation of winter cereals on at least 10% of the arable area. The aim of this payment is to increase the diversification of farming and improve soil structure to prevent erosion. This may have some indirect benefits for biodiversity, for example, by reducing the pollution of watercourses.

Two of the Member States in which case studies were conducted - Portugal and the UK - apply additional voluntary modulation further cutting Pillar 1 payments to farmers. In these countries, the impact of Pillar 1 payments is reduced even further. In England, the funds raised are used to boost expenditure on agri-environment measures which will potentially have a positive impact on biodiversity. In contrast in Portugal, the money raised is split equally between measures to support the Natura 2000 Network and at the enigmatically named ‘structuring projects’.

A basic level of environmental protection can be achieved through the cross compliance system which places obligations on farmers in receipt of direct payments. Statutory Management Requirements (SMRs) act to reinforce the requirements of existing EU legislation such as the Nitrates Directive and Birds and Habitats Directive. At this stage, relatively little information is available about the effectiveness of cross compliance in improving compliance with such environmental Directives. Of the four case study countries applying SPS, all four appear to have put in place adequate systems to provide information to farmers about SMRs, to inspect for compliance, and to apply payment reductions in cases of non-compliance. If cross

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35 Cereal crops grown in spring are not eligible and areas used to fulfil the 30% minimum area for plant cover requirement (agri-environment measure) are excluded.
compliance results in improved compliance with environmental Directives in future, both direct and indirect benefits for biodiversity may be achieved. However, the benefits to biodiversity will be very much dependent on adequate implementation of underlying legislation such as the designation of Natura 2000 sites under the Birds and Habitats Directives. The resultant management of these sites is also critical.

All five case study countries/regions apply Good Agricultural and Environmental Condition (GAEC) obligations. Hungary, Portugal and Navarra in Spain appear to have taken rather minimalistic approaches to GAEC, defining relatively few and less ambitious obligations, with limited direct benefits to biodiversity. However, there is generally potential for Member States to make much better use of GAEC implementation in order to achieve biodiversity protection.

In the case of Hungary, the limited approach is also a reflection of institutional capacity. Hungary originally proposed 16 GAEC obligations but subsequently reduced these to three in order to be able to carry out adequate controls. However, the requirement to prevent the encroachment of unwanted vegetation on agricultural land may be directly beneficial to biodiversity given the threat of reduced cultivations and heightened risk of agricultural abandonment, although the actual nature of management remains important. Finland has developed GAEC obligations for all four GAEC issues with an emphasis on soils. Several of these obligations are likely to indirectly benefit biodiversity, for example, requirements for verges between fields and watercourses. Finland has taken a limited approach to the issue ‘minimum level of maintenance’ but the requirement to retain small groups of trees and bushes in fields is likely to be positive for some biodiversity. In Spain, the minimum level of maintenance obligations are likely to provide some biodiversity benefits, for example by requiring the maintenance of old olive groves which can be an important habitat for birds and other species and the protection of permanent pasture. In Portugal, GAEC includes a number of basic requirements that could benefit biodiversity but exemptions are also allowed in some cases which could be detrimental to wildlife. For example, control of natural vegetation should not be carried out during the main bird breeding season but the regional directorate for agriculture can give permission for farmers to derogate from this requirement.

Of all the case study countries, England has taken by far the most ambitious approach to GAEC and best demonstrates the potential of cross compliance to protect biodiversity. Comprehensive soil obligations are likely to not only reduce soil erosion and improve soil structure but will be of indirect benefit to biodiversity, for example by reducing soil run-off and siltation. Meanwhile, many of the minimum level of maintenance obligations are likely to directly benefit biodiversity, for example by preventing overgrazing and requiring 2 metre margins alongside hedgerows and watercourses. England also applies Environmental Impact Assessment legislation as a GAEC obligation to protect environmentally important permanent pasture.
6.3 Potential Biodiversity Impacts of Pillar 2 Expenditure

*Emphasis on Biodiversity in the National Strategy Plans*

The NSPs of all five case study countries highlight the conservation of biodiversity as important but some, such as England, afford it higher priority than others. Hungary, Portugal, Finland and Navarra all appear to give greater emphasis to achieving economic and social objectives, although the conservation of biodiversity in forests is a particular objective in Navarra.

In Navarra, forest biodiversity appears to be a much higher priority than farmland biodiversity; the maintenance of farming in LFAs and supporting farmers affected by the Natura 2000 and the Water Framework Directive are given greater importance than biodiversity per se. In Hungary, a general Axis 2 objective to conserve farmland in Natura 2000 sites and other High Nature Value Areas, providing the main reference to biodiversity. Similarly, Finland identifies the preservation of biodiversity in agricultural and forest environments, with special emphasis given to the relative small proportion of the Natura 2000 network found in agricultural areas, as a priority for Axis 2. Portugal also makes reference to Natura 2000 areas stating its intention to promote the protection of biodiversity and high nature and landscape values associated with agricultural and forest systems. In England, biodiversity is given very high priority and it is made clear that more limited use will be made of the socio-economic measures compared to the environmental ones. Economic and social development in rural areas is recognised as important but capable of being delivered mainly through alternative funding streams. In contrast, NSPs for Hungary, Portugal and Navarra appear to give greater weight to achieving economic and social objectives through the use of Axis 1 and 3 measures. Finland is notable in its strong desire to maintain a ‘valuable, open, cultivated agricultural landscape as well as meadows and pastures’ reflecting the challenges of farming in a northern and remote location and the relatively small proportion of agricultural land compared to forest.

In most cases, the NSPs highlight biodiversity as an issue to be addressed alongside other environmental issues, such as water management, soil conservation and climate change. Axis 2 measures in particular are challenged with achieving a diverse range of environmental outcomes, not just the conservation of biodiversity, suggesting that funds may be stretched.

*Expenditure by Axis and by Measure*

The break-down of Pillar 2 expenditure across the four Axes and by measure within Axis 2 (the main environmental Axis) gives the clearest overall indication of the relative priority assigned to biodiversity and the environment by Member States and regions.

Figure 18 shows the allocation of total public expenditure (EAFRD + national co-financing) by Axis for the five case study countries/regions. This highlights the relative importance of the four Axes in the different Member States. Both Finland and England give the highest priority to the environment and the countryside, allocating 81% and 83% of total public expenditure to Axis 2 respectively. These two countries spend about ten times as much on Axis 2 as on Axis 1. In contrast, improving the productivity and competitiveness of agriculture and forestry is of much higher priority.
in the Navarra region where 68% of TPE is allocated to Axis 1. This is also the case, although to a lesser extent, in Hungary and Portugal where 46% and 47% of resources are allocated to Axis 1. In these three countries/regions, significant proportions of Axis 1 expenditure is allocated to the modernisation of farm holdings measure, which has the potential to result in negative impacts on biodiversity if used to support agricultural intensification. Axes 3 and 4 are much less significant in all five countries examined, securing lower proportions of funding.

Portugal and UK use voluntary modulation to boost funding for Pillar 2. The exact nature of any benefits arising will be determined by what these Member States specifically allocate this funding to.

Figure 18. Allocation of Total Public Expenditure by Axis and Member State/Region.

![Allocation of Total Public Expenditure by Axis and Member State/Region](image)

Source: IEEP own calculations.

Axis 2 is of particular interest from an environmental perspective containing a number of measures which can result in direct or indirect biodiversity benefits. Figure 19 shows a breakdown of Axis 2 expenditure by measure and Member State/region, and illustrates that two countries/regions, Hungary and England, give high priority to the agri-environment measure allocating 64% and 82% of total Axis 2 expenditure respectively. Finland allocates a slightly more moderate 43% of Axis 2 expenditure to this measure. Conversely, hardly any expenditure is allocated by any Member State/region to the other measure which has potential to directly benefit biodiversity, that supporting Natura 2000 and Water Framework Directive delivery. The non-productive investments measure can also be used to benefit biodiversity but, again, hardly any resources are allocated to this measure in the Member States examined.

Measures likely to indirectly benefit biodiversity - LFA support - are to receive significant allocations of funding in Finland (55% of Axis 2) and Portugal (43% of
Axis 2). Support for the first afforestation of agricultural land, which can give rise to negative environmental impacts if inappropriate tree species or locations are planted, is a feature of Axis 2 expenditure in Hungary, Portugal and Navarra, representing 16%, 18% and 9% respectively of total Axis 2 expenditure. Navarra is notable for allocating 41% of total Axis 2 expenditure to non-productive investments in forests. The emphasis of this measure is on sustainable forest management with specific objectives for the conservation of biodiversity and Natura 2000 sites, and hence the implementation of this measure can be anticipated to have positive environmental impacts.

**Measures Expected to Directly Benefit Biodiversity**

The agri-environment measure is most likely to achieve direct benefits for biodiversity but the conservation of biodiversity is not the only objective of schemes operated under this measure. Resource protection (soil and water), organic production and genetic conservation also feature highly in a number of RDPs.

In Finland, the agri-environment measure receives the second largest share of RDP funding (after the LFA measure), and is the Member State that allocates the highest share of the EAFRD budget to Axis 2 measures, but the main emphasis of the measure is on resource protection issues such as preventing water pollution and soil erosion. While resource protection is likely to have indirect benefits for biodiversity, specific biodiversity measures are only targeted at 10,000 hectares of land compared to the 2.26 million hectares of land targeted by the measure as a whole. The Finnish agri-environment measure has been criticised by stakeholders as providing a top-up payment to farmers and failing to deliver against either biodiversity or resource protection indicators.

In Navarra, 58% of the agri-environment budget is devoted to organic farming and 12% to the conservation of endangered and rare breeds. Organic farming can be beneficial for biodiversity but this is not the underlying objective of supporting such farming systems. More beneficially, 15% of agri-environment funding is targeted at the maintenance and enhancement of Steppic zones which are important for priority bird species. A further 13% is targeted at the maintenance of biodiversity and landscapes with prescriptions for field margins, hedges, trees and terraces. The overall agri-environment budget is low in Navarra however compared to other Axis 2 measures, and hence these biodiversity focused schemes are likely to receive relatively limited budgets. Organic farming is also supported in Hungary, although there is a much stronger emphasis on the preservation and enhancement of biodiversity with Natura 2000 sites afforded particular priority. Some 40% of the 25,000 farms that will enter into agri-environment agreements will be in Natura 2000 areas. Important bird species such as Red Footed Falcon, Great Bustard and Stone Curlew are also highlighted as priorities for conservation action in Hungary.

In Portugal, organic farming, integrated farming and the conservation of genetic resources are all priorities for action. As noted above, organic farming may benefit biodiversity but there are some concerns regarding the criteria applied to this measure. For example, the scheme allows a stocking density of up to 3 LU/ha which may be too high to maintain the conservation value of some grasslands. Biodiversity is given much higher priority through an interesting and innovative delivery mechanism –
Integrated Territorial Interventions (ITIs). The ITIs will target eight priority landscapes and use a combination of Axis 2 and Axis 3 measures to achieve biodiversity and landscape objectives on farmland and in forests. High Nature Value grasslands, indigenous woods and species such as the Otter, Black Stork and Montagu’s Harrier are all expected to benefit directly within ITIs. One possible concern is that farmland outside of the ITIs may be neglected as only organic farming and the conservation of genetic resources are supported in these areas. Outside of the ITIs, there is no measure or funding for habitat maintenance or creation, both important for biodiversity conservation.

Figure 19. Proportion of Axis 2 expenditure allocated to each measure for each case study Member State/Region

Source: IEEP own calculations.
Note: the order of measures in the legend represents the order in which they appear on the chart, starting with agri-environment at the bottom.
England has a number of agri-environment schemes including Entry Level Stewardship, Organic Entry Level Stewardship and Higher Level Stewardship. The combined emphasis on biodiversity in these schemes and high levels of funding should make significant contributions to achieving biodiversity targets. Such targets include reversing the decline of farmland birds by 2020 and ensuring that 95% of Natura 2000 sites have a favourable conservation status. England is also the only case study Member State/region to make any significant use of support for non-productive investments for agriculture. This measure provides support for capital investments needed to achieve the objectives of the agri-environment schemes and hence is directly linked to biodiversity benefits.

Forest environment payments are likely to deliver some biodiversity benefits but relatively limited use is made of this measure by all Member States/regions. Among the five case studies, Hungary makes the most significant use of this measure devoting 5% of Axis 2 expenditure to it, while Portugal devotes 1% of Axis 2 resources and England devotes 0.5%. Hungary plans to introduce eight programmes for forest and environmental protection with some emphasis on the ecological management of forests and woodlands and the promotion of native tree species such as pedunculate oak (*Quercus robur*). In England, the objective of the measure is to increase the area of woodland, especially that of High Nature Value, and to enhance the environmental benefits it provides.

One measure with clear biodiversity objectives is that which provides payments for Natura 2000 areas and to meet obligations under the Water Framework Directive yet only two of the case study Member States/regions make use of this measure, Hungary and Navarra. Each devotes only 1% of its total public expenditure on this measure. England does not use this measure but instead aims to meet Natura 2000 targets through its substantially funded agri-environment schemes.

A range of measures are being used in the Rural Development Programmes of the case study Member States to achieve environmental outcomes. Some have explicit biodiversity objectives, whilst others address a wider spectrum of environmental needs.

*Measures Expected to Indirectly Benefit Biodiversity*

The main measures expected to indirectly benefit biodiversity are the two LFA measures (LFA in mountain areas and LFA in other areas). Eligibility criteria, environmental conditions and target area are all critical in determining the exact nature of the biodiversity benefits likely to arise from application of this measure. All five Member States/regions apply one or both of these measures, although Hungary only devotes 1% of Axis 2 funds to it. The measures are given highest priority in Finland where a total of 55% of Axis 2 funds are devoted to LFA support (split 31% to mountain areas and 24% to other areas). Portugal devotes 38% of Axis 2 funds to mountain LFA support whilst the figure is 12% in Navarra. England gives the least priority to this measure devoting only 6% of Axis 2 funds.

The environmental impacts of LFA payments are also determined by any environmental conditions and eligibility criteria applied. In Portugal, for example, a maximum stocking density of 3 LU/ha is permitted in mountain areas which may be
beyond the carrying capacity of the land in some situations and lead to overgrazing, soil erosion and biodiversity loss. Overgrazing is also a threat in the Navarra region. The greater use of environmental conditionality and targeting of the LFA measure to HNV farmland areas would be particularly beneficial from a biodiversity perspective.

The Member States/regions examined use a range of other measures that might indirectly benefit biodiversity. These include:

- Vocational training and information activities (Axis 1) - England
- Adding value to agricultural and forest products (Axis 1) – England
- Diversification into non-agricultural activities (Axis 3) – England, Finland.
- Improving the economic value of forests (Axis 1) – Portugal
- Non-productive investments in forests (Axis 2) – Portugal, Navarra
- Restoring forestry potential and introduction of preventative measures (Axis 2) - Navarra

Even though environmental outcomes may not be the primary objective of these measures, the way in which they are to be applied may have positive environmental effects. For example, the use of the ‘restoring forestry potential’ measure in Navarra is primarily to protect forests against fires and other nature risks but the RDP makes it clear that the maintenance of biodiversity and climate change mitigation are also objectives of this measure. As for the LFA measure, the objectives set for these measures, eligibility criteria, the environmental conditions attached to funds and the degree of targeting of the measure all appear to be important factors in determining the likely environmental impact.

**Measures which may have Negative Impacts on Biodiversity**

Two measures are considered to have the greatest potential to impact negatively on biodiversity: modernisation of agricultural holdings (Axis 1) and first afforestation of agricultural land (Axis 2). In most cases, Member States/regions apply conditions designed to prevent environmental damage, for example, restrictions on the location of new trees. In some cases, the measures are used in ways that are likely to have indirect but positive impacts on biodiversity, for example, through supporting farm waste and manure management as in Hungary.

Navarra and Hungary make substantial use of the modernisation of agricultural holdings measure, devoting 25% and 29% respectively of their total public RDP expenditure to it. But the use of this measure does not imply that negative impacts will arise. Rather, the way in which the measure is applied is the critical factor that will determine its likely environmental impact. In Navarra, the emphasis is on promoting the efficiency and rational organisation of holdings, securing labour and encouraging production under quality and food safety criteria. This could, in some instances, lead to the intensification and specialisation of production which could have negative impacts on biodiversity and the environment. The measure also aims to promote the development of bioenergy which could involve the establishment of short rotation coppice or other energy crops in inappropriate locations leading to negative environmental impacts. However, the measure also promotes protection of the environment, for example, improving installations which reduce or eliminate environmental impacts, particularly in the management of waste and sub-products.
Equally, in Hungary, a diverse range of activities are to be funded under this measure with likely variable environmental impacts. Almost 64% of the total budget for this measure is to be spent on animal husbandry with an emphasis on improving manure storage and management (linked to achieving the objectives of the Nitrates Directive). This could be largely positive for the environment whilst other investments, such as in irrigation systems, could have indirect negative impacts on biodiversity.

The first afforestation of agricultural land measure is applied in all five case study Member States/regions but accounts for relatively small proportions of total public funding in each case. Portugal devotes the most resources to it at 7% of total public expenditure followed by Hungary at 5% and England at 3%. In Hungary, the RDP is clear that no afforestation will be implemented where it will have a negative effect on the environment, and provisions are in place to prevent planting on protected natural areas or Natura 2000 areas. In England, the measure is more likely to benefit biodiversity than harm it due to the way in which the measure is applied, for example, with controls preventing the planting of short rotation coppice at inappropriate locations and new planting to be used to buffer, enlarge or create habitat networks. In Portugal, new planting is aimed at restoring forest production in areas affected by fires and harmful biotic agents. The focus is on the production of quality forest products and a clear sub-objective is to contribute to climate change mitigation, minimise soil erosion, protect water resources and improve biodiversity. Hence, in all three countries, the measure is either applied specifically to achieve environmental benefits or controls have been established to prevent inappropriate afforestation. The adequacy of these controls needs to be monitored in order to check if they are providing the required safeguard.

A further measure which could have negative impacts on biodiversity is that for infrastructure related to development and adaptation. Portugal and Navarra both make significant use of this measure, devoting 18% and 25% respectively of their total public expenditure on it. The use of this measure to support water management and irrigation is a particular concern. Portugal emphasises that such development will not be allowed without impact assessments or in Important Bird Areas, but the RDP is not wholly convincing that sufficient safeguards are in place to prevent inappropriate development in all areas.

6.4 Conclusions: Rationalising Variation in Expenditure

The RDPs for Navarra, Portugal and Hungary appear to be weighted towards the achievement of economic and social objectives in rural areas rather than environmental objectives, demonstrated most clearly by the allocation of funding across all Axes. England and Finland appear to give the environment much higher priority, although in Finland, there is particular emphasis on the LFA measure rather than biodiversity. Among the five case studies, England provides the best example of an RDP that establishes the conservation of biodiversity as a high priority, allocates funding accordingly, and has introduced an agri-environment scheme specifically designed to achieve biodiversity outcomes.

The case studies help to demonstrate the variation in priority given to farmland biodiversity conservation across the EU and the differences in approaches to
delivering public expenditure under the CAP. In consequence, the benefits to biodiversity are likely to show some variation. A number of reasons seem to explain this.

First, Pillar 1 support is not designed to be attuned to biodiversity conservation needs, but has a role to play in generating both positive and negative impacts. Other than the basic level of protection provided for by cross compliance, the absence of further environmental conditionality means that Pillar 1 payments, whilst accounting for a large share of total CAP expenditure, provide no impetus for environmentally positive management. Rather, the impacts on biodiversity are more indirect. Coupled direct payments do not guarantee the provision of biodiversity benefits, but may indirectly benefit biodiversity if they help support certain types of farming systems that engage in beneficial farming practices, for example, the coupled suckler cow premium. In addition, the most vulnerable farms may benefit from the use of a regionalised payment model, which may provide a higher level of support than would be the case under other payment models. Article 69 has some potential to benefit biodiversity, again, if targeted appropriately and if certain environmental conditions are applied. It is also apparent that greater use could be made of GAEC to achieve environmental outcomes. However, the exact nature of these relationships remains relatively unexplored, as do the negative impacts that might arise from the effect direct payments have in aiding the trends of agricultural restructuring, specialisation and intensification.

Second, it is clearly difficult for some Member States to make use of a limited rural development budget in such a way that the measures needed to respond to the multiple EU level strategic priorities are both deployed and appropriately funded. A rather variable level of priority is given to biodiversity in NSPs and RDPs, reflecting in part, the emphasis placed on the environment as opposed to socio-economic matters, as well as the availability of alternative funding sources at the national level. Whilst the implementation of particular measures could be improved in order to provide greater protection for biodiversity, and a simple recommendation put forward for some Member States to direct a greater proportion of Pillar 2 expenditure to environmental measures, the issues of the total level of funding available for rural development and the actual cost of providing environmental benefits remain critical to the delivery of environmental objectives.

Determining the effectiveness of Pillar 2 measures in delivering biodiversity outcomes requires significant investment in monitoring and evaluation, including the need for good baseline data, in order to be able to demonstrate adequately the impacts of spending on particular measures on biodiversity. Evidence of the impacts of Pillar 1 is particularly lacking due to few formal requirements for monitoring and evaluation, although retrospective evaluation exercises have been completed by the European Commission. In contrast, while the suite of rural development measures for this programming period can only be judged on an ex-ante basis at this stage, the legislation does include formal, detailed requirements for monitoring and evaluation over the life of the current RDPs in order to help determine the effectiveness of public expenditure.
EU agricultural policy influences the sustainability of land management practices across a large share of the European territory, providing a suite of measures and drawing on a significant proportion of the EU budget in order to pursue a range of objectives. To date, however, little robust evidence has been provided of the relationship between the distribution and intensity of CAP expenditure and the geographic incidence and conservation status of farmland biodiversity. Understanding the nature of this relationship helps to facilitate debates regarding the future rationale and structure of a European agricultural policy and the most appropriate allocation of a limited budget to different instruments and across Member States. This report provides some of the required evidence, highlighting the imbalance in expenditure between the two Pillars, the historical anachronisms that characterise the distribution of Pillar 1 and Pillar 2 expenditure, and the varied use of the rural development measures among the Member States, in responding to the EU’s strategic priority of biodiversity conservation. Since the balance of CAP expenditure continues to be angled toward income support and is not targeted explicitly at biodiversity objectives some broad discussion points are raised for further consideration.

If the logic of intervention of a future CAP is predicated, in part, on the provision of environmental public goods, several key empirical challenges remain. Any argument for the need to re-orientate CAP funding towards responding to biodiversity, or other environmental objectives, requires firm evidence of the cost of doing so. Determining the cost of delivery is inherently problematic, but it requires an understanding of the distribution and condition of environmental goods and services, such as biodiversity, and the most appropriate form of management needed to meet the desired objective (Baldock et al., 2008). Such information is impartial at the present time while biodiversity loss continues. Developing the analysis initiated for this report is dependent on obtaining more up to date CAP payment data and environmental data at a finer geographical resolution. The potential for statistical interpretation should also be pursued.

The Allocation of the EU Budget to the CAP, Pillar 1 and Pillar 2

There is a stark contrast in the level of expenditure between Pillar 1 of the CAP, largely focused on providing income support to farm holdings, and Pillar 2, charged with delivering against the diverse environmental and socio-economic needs of rural areas. For the EU-27 as a whole and based on Community expenditure alone, Pillar 1 is worth just over three times as much as Pillar 2 over the 2007-2013 period, although the difference is much larger in some Member States, such as Denmark and the UK. In these countries, the first Pillar allocation is around 16 times as high as it is for the second Pillar, whilst the balance of expenditure is more even in countries such as Austria and Portugal. In contrast, the ratio of expenditure is much more even among all the new Member States, despite the incremental increases to the Pillar 1 budget ceilings that will take place over the next five years. The co-financing of the EAFRD is crucial to meeting the funding needs of rural development, and when accounted for,
means that the value of Pillar 1 declines in relation to Pillar 2, although under these terms, Pillar 1 will still receive twice as much as Pillar 2.

The reasons for this imbalance lie in the historic evolution of the CAP budget, the desire for Member States to maintain a continuity in their budget allocations, and the political wrangling that besets EU summits on the Community’s finances. If in the future, biodiversity conservation, or the protection and enhancement of the environment more broadly, are the core objectives of European agricultural expenditure, it is likely that the CAP would have a significantly different architecture, with an accompanying budget that is targeted more rigorously at these, alongside other current objectives. At the very least, basing a CAP budget on historic production levels, previous budget allocations and rather opaque ‘objective criteria’ means a figure is unlikely to be arrived at that sufficiently reflects the diversity and scale of the environmental challenge that exists throughout the EU.

Whilst the reformulation of budget allocation criteria may be politically insurmountable in the short term, there appear to be two avenues worth pursuing to more effectively secure the conservation of farmland biodiversity through interventions under the CAP. The most obvious route is to transfer a greater proportion of the total CAP budget to Pillar 2 to provide the level of funding required for effective policy interventions. The second route involves the further ‘greening’ of Pillar 1, and is based on pragmatic expediency and the assumption that Pillar 1 will continue to account for the majority share of the CAP budget for some time into the future.

Taking the first route, rural development funding has a number of attributes which mean that it should be more effective at delivering on the EU’s environmental commitments. It is delivered in a strategic EU framework, implemented via measures with specific objectives and with some scope for local tailoring, certain payments are tied to measurable outcomes, and its impact is assessed as part of a systematic evaluation framework. In practice, rural development expenditure is likely to provide a mixture of outcomes, underlining the need for high quality rural development programming alongside a budget of an appropriate size. Whilst increasing the Pillar 2 budget through modulation is highly welcome, a more fundamental consideration of the effectiveness of individual measures and the requisite level of funding is likely to be required (Osterburg et al, 2008). The Health Check proposals to increase the rate of modulation in order to help fund measures capable of halting the loss of biodiversity (alongside other identified ‘new challenges’) are a step in this direction, but may still fall short of providing the budget required to respond to this challenge.

The second route would involve a radical transformation of Pillar 1 toward a system of payments tailored to the provision of environmental benefits and ecosystem services that are in the common interest of the EU to provide. The further ‘greening’ of Pillar 1 might be a politically expedient strategy, and is promulgated to a certain extent, by the Health Check proposals to enhance cross compliance and support environmentally beneficial systems through the revised ‘Article 69’. The danger of such an approach is that some policy coherence is lost between the two Pillars, potentially reducing the effectiveness of interventions aimed at securing and safeguarding environmental benefits.
Pillar 1 Expenditure

The maps produced for this study reflect a variation in the level and distribution of spending on both crop and animal premia over the 2001-2003 period, prior to the decoupling of support from production and the introduction of compulsory cross compliance. The pattern of funding reflects the value of each subsidy payment at that time, the extent of regional sectoral specialisation, and to a certain degree, is a remnant of the historic intensity of production. According to the data provided by the CAPRI model, farmers in large parts of the EU received in excess of €200/ha of UAA, rising in some regions to greater than €400/ha of UAA. Many areas received less than €200/ha of UAA, with some regions receiving less than €100/ha of UAA, including all of Portugal, most of Spain, the south-east of France, south-west and northern England, all of Scotland and western and southern Austria. Arable areas generally received a higher rate of payment than those areas where livestock production is predominant. The data for 2001 – 2003 payments predate the decoupling of payments that began in 2005, and thus there will have been some changes to the level of payments since that time. That said, widespread application of the historic model under the SPS means that in some Member States the pattern of expenditure is likely to have been maintained, although the absolute levels of funding could have altered somewhat. The potential of performing the same analysis with up-to-date data reflecting current SPS and SAPS payment models needs to be explored.

The relationship between payment intensity, the impact on farm management decisions and biodiversity conservation is complex and far from direct. Evidence suggests that high levels of payments have caused environmental degradation in the past, because they have served to prompt, in part, the increasing specialisation and concentration of production, which may conflict with biodiversity conservation efforts as a result of landscape simplification, the loss of green infrastructure and a decline in traditional management practices. Whilst direct payments may have had this effect in certain parts of Europe, this does not mean that there will be no biodiversity challenge in these areas in the future. Indeed, features and patches of semi-natural vegetation in the intensive farmed landscape are highly critical for biodiversity, providing corridors, and connectivity for migration and dispersal. In the context of high commodity prices, intensive arable farmers, for example, may require fairly high payments in order to deliver biodiversity conservation in the future. On the other hand, partially coupled livestock payments for suckler cows, sheep and goats are likely to form a key part of farm income on grazing livestock farms. Hence these payments and the decoupled payments which followed them will have contributed to underpinning many, but not necessarily all, marginal farming systems that indirectly provide biodiversity benefits. There may be an argument for their retention at an appropriate level to underpin the continued viability of these systems, albeit with more specific environmental conditions attached in order to improve the effectiveness and increase the public accountability of this expenditure.

As much to signal the need to analyse CAP expenditure in relation to conservation needs, rather than to draw any concrete conclusions, the CAP premia maps were overlaid with the EEA/DG JRC map of HNV farmland. A more refined analysis is dependent on obtaining up-to-date CAP payment and biodiversity data at a finer geographic resolution. The use of the HNV overlay is helpful in that provides one indicator of the extent of budgetary redistribution that might occur if money was to be
targeted at the maintenance of farmland biodiversity in the future. Whilst there are many other environmental needs that exist both inside and outside of HNV farmland, the pattern of expenditure that such a shift in payment rationale would entail would be rather dramatic. The maps and accompanying analysis serve to underline that, however, at present, much CAP spending is not being directed to those farmers who are managing biodiversity rich farmland, or are engaged in practices that favour biodiversity conservation.

The appropriate way to pursue a transition from untargeted to increasingly targeted and effective payments firmly entrenched in a logic in which payment is made for the provision of public goods needs to be considered in light of the possible structural impacts that might arise as a result. In particular, it will be important to ensure that those farms that are likely to provide the highest level of environmental benefit fall within, or are brought into the CAP payment system, whilst at the same time, highly profitable enterprises are provided with sufficient incentive to remain within the system in order to retain a degree of influence and leverage over aspects of their management and production decisions.

The future of Pillar 1 support is bound up with considerations about the future architecture of the CAP. As long as a budget for the first Pillar remains, steps should be taken to maximise the contribution of the associated expenditure to meeting environmental objectives, taking into account the shifts in intensity of production that might occur in response to changing market circumstances. Whilst the necessity to reengineer the CAP budget remains, in the shorter term, opportunities to expand the environmental remit of cross compliance and to support those extensive systems that provide higher levels of environmental benefit should be grasped if losses to farmland biodiversity are to be reversed.

**Pillar 2 Expenditure**

Member States face considerable difficulties in making use of a limited rural development budget to ensure that the measures needed to respond to the EU’s strategic priorities are used and implemented in an effective way. To a certain extent, the available budget envelope may constrain the ambitions of Member States as spending choices are made with regard to the relative priority to be given to addressing the environmental or socio-economic challenges facing rural areas. Whilst Axis 2 accounts for approximately 46% of total public expenditure (composed of funds from the EAFRD and national co-financing) across the 76 RDPs examined for this study, the budgetary emphasis placed on environmental measures varies across the EU, with the Scandinavian Member States, Austria and the UK giving particular priority to Axis 2. This may reflect the availability of national funds to meet socio-economic needs, which may be absent or somewhat smaller in Member States such as Romania, Bulgaria, Latvia and Hungary that allocate a greater share to Axis 1.

Almost €34.4bn of public money will be spent on the agri-environment measure over the 2007-2013 funding period under the 76 examined programmes. This accounts for just over half of all Axis 2 expenditure, just under one quarter of total Pillar 2 expenditure, and eight per cent of total public expenditure on both Pillars. However the intensity of spending under this measure, along with its objectives and the uses to
which it is put to, will vary across the Member States. Finland, for example, will use its agri-environment scheme to meet objectives primarily in relation to resource protection rather than biodiversity. In Portugal, biodiversity objectives are the focus of a range of schemes tailored to the needs of particular areas, but outside these areas, biodiversity conservation objectives are likely to be neglected as agri-environment support is solely focused on organic farming. By contrast, England and Hungary place a much stronger emphasis on biodiversity, underlining the objective to meet targets for Natura 2000 sites and for biodiversity in the wider countryside.

Rather less use is to be made of the two Natura 2000 payment measures, the forest environment measure and support for non-productive investments in agriculture measure. The Natura 2000 measure for agriculture (which can also be used to help meet the objectives of the Water Framework Directive) is to be used in 25 of the examined programmes, and does not exceed more than one per cent of total public expenditure in any case. Depending on how the agri-environment measure is used, there may be a case for drawing upon a greater range of Axis 2 measures in order to meet biodiversity objectives.

The Less Favoured Area measure could indirectly benefit biodiversity. Among the 76 examined programmes, approximately €21.5bn will be spent on the LFA measure, and it will account for more than 30% of total public expenditure in France and Finland. Benefits to biodiversity may arise as a result of providing support to farms which are located in marginal farming areas, where management tends to be relatively extensive because of natural handicaps, and therefore beneficial for biodiversity. However, LFA schemes are not designed to deliver biodiversity outcomes and therefore payments do not necessarily guarantee positive environmental impacts, which will, in part, depend on the eligibility criteria. Any arguments to enhance the biodiversity value of the LFA measure, explored in the context of debates surrounding the revision of the current scheme by 2010, must also take account of the use of Article 68/69 within the first Pillar, in order to maintain policy coherence.

Other measures, found across all Axes, have potential to indirectly benefit biodiversity and the environment more broadly. For example, vocational and information activities under Axis 1 could be used to improve farmers and foresters knowledge and skills in relation to biodiversity conservation. Member States should be encouraged to make use of these opportunities to promote the protection and enhancement of biodiversity. The case studies show that Member States have approached rural development measures such as the modernisation of agricultural holdings and the first afforestation of agricultural land in ways that seek to prevent environmental damage, although careful monitoring of the impact of these measures is critical to ensure appropriate environmental safeguards are in place.

**Concluding Comments**

This report provides evidence on the scale and geographical distribution of CAP Pillar 1 funding to farmers in 2001 - 03 and on allocated Pillar 2 expenditure for the 2007-2013 programming period. Whilst the aim is not to offer any firm conclusions on the degree of overlap between CAP expenditure and the incidence of environmental benefit, the study provides some evidence to stimulate further debate on the targeting
of agricultural support to the maintenance of biodiversity and the role of different measures in delivering biodiversity objectives. Given the limited overlap between high payment levels in certain areas and the presence of biodiversity rich farmland, it underlines the necessity to fundamentally reconsider the rationale for CAP payments so they are more aligned with society’s expectations towards the environment and to foster a debate on how to approach the design of a more biodiversity centred CAP.

The ongoing debate will need to be supported by more recent data on Pillar 1 payments, post decoupling, actual expenditure data under Pillar 2, more detailed data to capture the relationship between the intensity of spend and the presence of biodiversity at the micro scale, and a wider range of indicators of biodiversity need. Our understanding of the effectiveness of rural development measures will be enhanced by the publication of the ex post evaluations of the 2000 – 2006 rural development programmes in late 2008. Alongside an understanding of the effectiveness of different measures, a significant investment is required into the development of robust methodologies to assess the cost of delivering environmental goods such as biodiversity to inform debates about the size of a future CAP budget.
References


IEEP (2006b) The Environmental Contribution of Leader + in the UK. A report for the LUPG.


Annex A: Subsidy payments included in CAPRI

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<th>Crop Premium Total</th>
<th>Animal Premium Total</th>
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<td>Soft wheat production activity</td>
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<td>Durum wheat production activity</td>
<td>Heifers raising activity</td>
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<td>Calves male fattening activity</td>
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Technical Notes for Development of Maps from CAPRI data

We opted to show data on a €/ha UAA basis. The lowest level of UAA data we could obtain from Eurostat was NUTS2 (although in Germany, it was NUTS1). This determined the lowest level of data we could go to with CAPRI. CAPRI data was provided on a regional basis at NUTS2 or 3 level. Where countries had NUTS3 data (e.g. France, Spain) this was re-aggregated in order to get consistent NUTS2 data. The CAPRI data regional codes did not completely match up with Eurostat NUTS codes (e.g. for Finland, Italy). EEA therefore provided a spreadsheet showing the different codes by region so that we could create a CAPRI spreadsheet with NUTS2 codes. In Italy, this involved going back down to NUTS3 level and then re-aggregating in a different way. The CAPRI data and UAA data were then brought together to show a number of different types of data (e.g. combined crop and animal premium per ha UAA).
Annex B: List of Rural Development Programmes Analysed

The rural development data presented in this report is based on an analysis of two slightly different sets of RDPs. The maps are based on an earlier set of data as a cut-off date was required to produce maps (itself a lengthy process), whilst the other tables, charts and graphs are based on a more up-to-date set of data. The database is still incomplete (e.g. we have not been able to obtain the RDP for Extremadura and to save time have not include the RDPs for the Canary Islands and Balearic Islands in the case of Spain and Aland in the case of Finland) and we decided not to include the programmes and financial allocations for RDPs for the Overseas Territories (which concern France and Portugal).

The financial data from the RDPs has been compiled by IEEP since September 2007 for a variety of uses. It includes the breakdown of allocated spend by Axis and per measure for each RDP. In producing the database, it was apparent that the Member States had approach the financial allocations to Axis 3 and Axis 4 in a variety of ways, reflecting decisions regarding the implementation of Leader. In some cases this resulted in extremely low allocations for one or other of the Axes, and can be understood when the RDP is read. In addition, some of the new Member States make use of Complementary National Direct Payments (CNDPs) to top up Pillar 1. In such cases the CNDPs were excluded from the total for rural development.

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<th>All other tables, charts and graphs (76 RDPs)</th>
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