8 Spain: first tentative steps towards an agri-environmental programme

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The agricultural and environmental background in Spain

While Spain's natural environment has generated many opportunities for farming, it also imposes serious restrictions on the widespread development of a rich, competitive and intensive agriculture. The country's mountainous relief, its peninsular and island character and its geographic location, exposed to both Atlantic and Mediterranean influences, have created a series of climatic gradients that are ideally suited to a wide variety of agricultural practices ranging from market gardening to dry steppe farming. 'Moist Spain' covers a narrow northern belt, while 'dry Spain' covers most of the rest of the country. Only about a quarter of the country receives more than 800 mm of annual rainfall, but the high irregularity of rainfall (both temporally and spatially) means that average rainfall figures are only crude measurements of the real climatic situation in most Spanish regions. The intra- and inter-annual variability in rainfall causes extremely dry summers, torrential autumn and spring rains and pluri-annual periods of drought, some of which are very severe. Water shortfalls are made all the more serious in Mediterranean parts of Spain where the seasonal lack of rainfall coincides with the highest evapotranspiration rates of the country (IGN, 1992). Spain also has a high average altitude (88% of the country lies between 200 and 2000 m), and the relief is irregular with steep altitudinal gradients. These climatic and relief factors accentuate the variability of soil quality. Thus, in northern Spain (moist Spain) the climate and vegetation cover have led to soils that are generally more developed than those of southern Spain (dry Spain) where good agricultural soils are rare outside the main alluvial river valleys. Further, particular soil types and steep slopes create a heavy risk of erosion in most of the country – a problem exacerbated by torrential rainfalls. As a result, about half of Spain has serious or very serious erosion problems, with the average national soil loss for 1989 calculated at 30 t/year

(MOPTMA, 1992).

Although the environmental parameters in Spain differ substantially from most of its European neighbours, Spanish demographic and economic trends have nonetheless followed similar patterns to other EU Member States in recent decades, with a gradually declining farming sector. During the period between 1950 and 1993, the farming population fell by 35%, and the contribution of agriculture to the GDP declined by 37% (Barceló *et al.*, 1995). However, this trend has not been geographically uniform. In some regions such as Andalusia, Extremadura and the two Castillas (see Figure 8.1 below), agriculture is still economically important (8-10% of GDP) and with farming populations still making up between 12 to 14% of the total population (Domingo, 1994). There is also widespread polarisation between farms with high capital investments and few highly qualified employees, and farms in LFAs (covering three quarters of the total UAA) with serious economic and structural problems (Barceló *et al.*, 1995; MAPA, 1995). As will be discussed in detail below, these factors have had a major impact on AEP implementation in Spain.

A further factor to consider when analysing policy implementation processes is Spain's governmental decentralisation. Spain consists of 17 autonomous regions which have full powers over agricultural and environmental matters and which are represented in Brussels by the central government which acts as the transmission link for EU policy decisions to the regions. There are, nonetheless, considerable inter-regional disparities in the effective application of EU regulations as each region is able to modulate the structure and quantity of subsidies on the basis of national legislation and even to offer parallel assistance in accordance with their particular regional characteristics and priorities. Further, in many cases inter-regional co-operation and information flows to and from the Federal Agriculture Ministry have been poor – another factor which might have constrained the optimal implementation of agri-environmental schemes in some of the Spanish regions.

Changing agricultural practices

In an attempt to make the most of the adverse natural conditions, farming practices in Spain have had a dramatic effect on water and soil resources, albeit with extremely varied results in different regions. The end result has been a mosaic of farming landscapes with an uneven production capacity and a complex social and environmental composition. One common result has been, for example, the often poorly defined boundary between arable and grazing land. Natural conditions frequently necessitate crop rotations involving fallow periods, which can vary from one to eight years in length

and are subsequently used for low-intensity grazing. Another feature is the striking diversity in land uses and areas covered by extensive uses, with dry cereal farming (47% of all agricultural land), dry grassland (24%), olive groves (8%) and vineyards (5%) accounting for 84% of Spain's UAA, the rest being divided among industrial, fodder, fruit, vegetable and tuber crops (MAPA, 1995). A further characteristic of Spanish agriculture is the relatively low level of productivity in comparison with central and northern European countries. Average cereal yields in Spain, for example, amount to only about 2.5 tons/ha, compared to an average of about 6 tons/ha for the rest of Europe (Tió, 1991).

Although Spanish agriculture has been heavily intensified in the more productive areas, this has been paralleled by a process of farm abandonment in the least favourable regions. Thus, while the overall extensive characteristic of Spanish farming has been maintained, the average farm size has increased by 35% between 1972 and 1989 due to land consolidation and abandonment of the most marginal areas. Traditional fallow areas have declined in the same period by 1.2 million ha to currently 4 million ha (MAPA, 1995; Barceló *et al.* 1995). Structural improvements between 1970 and 1991 have also led to increases in fertiliser use by 60%, with a current mean dosage of 71 kg N/ha of arable land. At the same time, the irrigated area has increased by one million ha to 3.4 million ha, and the mechanisation index has almost tripled to 195 HP/100 ha (Barceló *et al.*, 1995). Yet, farm abandonment has also accelerated in the last 20 years. Over one million ha have ceased to be tilled, resulting in the fact that the total arable land area is now barely 20 million ha – only 75% of the UAA (MAPA, 1995). This decline has been most pronounced in dry cereal areas, where the arable area has fallen from 18.6 million ha in 1972 to 16.4 million ha in 1993 (Barceló *et al.*, 1995).

Although reliable livestock statistics before 1970, and even during the 1980s, are lacking, the most widely accepted trends reflect a fall in livestock numbers until the late 1970s, and a widespread increase of stock densities afterwards. While this increase has been associated with intensification in certain parts of Spain, it has also been linked to changes in livestock species with a generalised shift from sheep and goats to cattle. Changing breeds with a move towards more productive but higher input-dependent species, and changing management practices aimed at reducing manual labour, have, however, led both to overgrazing in easily accessible areas and to abandonment and invasion by scrub on less accessible sites (Beaufoy *et al.*, 1994; Donázar *et al.*, 1997). Since Spain joined the EEC in 1986, these trends have continued, although a proportion of the apparent increases in the number of animals may also be due to both better book-keeping and the obligation for farmers to now declare all their stock in order

to get subsidies. Spanish livestock production lies now in second place in the EU with regard to pigs, sheep, goats and poultry meat, and in third place with regard to beef cattle and egg production (MAPA, 1995).

The farm intensification process has often been accompanied by an increase in input use – in particular stock feed, fertilisers, herbicides and pesticides – with resulting problems of soil and water pollution. Although problems are less pronounced in Spain than in most other EU countries, fertiliser and biocide dosages (especially in irrigated and greenhouse systems), along with manure generation by intensive livestock systems (especially along the north-west coast of Spain), have in some regions reached levels as high as those in central and northern European countries. While average surpluses of nitrates and phosphates in Spain (19 kg N/ha and 28 kg P_2O_5/ha) still remain below the EU average, almost one-fifth of all Spanish farms have exceeded the 170 kg N/ha threshold established through Regulation 676/91/EEC (Brouwer *et al.*, 1995). As a result, a total of 361 MECU were spent on phytosanitary products in 1993 alone (MAPA, 1995). Further, and according to 1992 data, more than half of sampled water points (in 10 out of 88 aquifers) contained NO_3 levels above 50mg/l (ITGME, 1993).

Environmental consequences

Changes in farming practice identified above are the causes of a series of environmental problems. Intensification of production in agriculturally favourable areas, the abandonment of production in less favourable areas, and the homogenisation of crop varieties and livestock breeds have all contributed to accelerating environmental degradation. It is now widely acknowledged that modern agricultural practices have led to a major reduction in biodiversity and to an impoverishment of landscapes, largely because of increased uniformity in land uses and practices associated with the intensification process (Baldock, 1990; Tucker and Heath, 1994; Pain and Pienkowski, 1997; Tucker and Evans, 1997). In Spain, in particular, there appears to be a strong relationship between extensive arable farming methods and the diversity and richness of bird and butterfly species that depend on these systems for survival[32]. The diversity of uses in different fields in extensive arable systems has created a lattice of complementary habitats that harbour a wide variety of plant species, and that are also fundamental for the maintenance of bird diversity (Peco and Suárez, 1993; De Juana *et al.*, 1993; Suárez *et al.*, 1997a; Díaz *et al.*, 1997).

[32] There is, for example, a clear correlation between extensive arable farming systems and high butterfly numbers (Valladares, 1993).

Intensification has also contributed to the loss of landscape and cultural diversity. The co-existence of different landscape elements and land uses in traditional Spanish farm landscapes (and in other parts of the Mediterranean basin; see also Chs. 5 and 11) created an interface between nature and social organisation that allowed numerous interactions in both directions. These 'cultural landscapes', characterised by extensive agricultural systems that have existed for centuries, are particularly important in ecological and historical terms, but are now in serious danger of survival (Lucas, 1992; Meeus, 1993). As a result, remnant cultural landcapes have become the subject of research by the *International Union for the Conservation of Nature*, aiming at establishing a 'red list of threatened cultural landscapes' in which Spain will feature prominently (Morey, 1992). Further, the farm intensification process has also contributed to the draining and ploughing of many wetlands in coastal and inland locations, and over 60% of the total wetland area in Spain has disappeared over the last 50 years (Montes and Bernués, 1994). The loss of these distinctive ecosystems has also led to a serious impoverishment of landscape diversity and the disappearance of a fundamental type of habitat to many species.

The abandonment of farms in the most marginal and unproductive areas and changes in grazing patterns are also generating other significant environmental problems, especially through increased fire hazards, the loss of fertile soils, and increased erosion risks (Pérez Trejo, 1992). Particularly serious problems have resulted from the abandonment of terracing, but others include the loss of landscape and biodiversity associated with homogenisation caused by both scrub encroachment and the planting of fast-growing tree species on abandoned land. The maintenance of a threshold density of rural population is thereby seen as a key component of agri-environmental programmes (and hence of the structural and functional systems they maintain), but the abandonment of traditional farming practices has also often led to rural population decline with resulting environmental degradation. Finally, the loss of genetic heritage associated with the use of only few crop strains and livestock breeds could become a problem in the near future. The abandonment of local breeds by livestock farmers who seek higher productivity may lead not only to the extinction of over 50 breeds already under threat, but also to the demise of the traditional extensive and semi-intensive farming systems that sustain them (García Dory *et al.*, 1985).

Implementation of agri-environmental policies before 1992

Political background

The introduction of agri-environmental schemes has been a new departure for Spain, in contrast to many other EU countries who have had considerable experience with established mechanisms for countryside protection (Baldock and Lowe, 1996). The lack of prior agri-environmental tradition can be largely explained with reference to the situation of Spanish agriculture at the time of entry into the EEC in 1986. At that time, the primary aim of agricultural policy was mainly to overcome the traditional structural deficits that limited Spain's agricultural productivity (a productivity that was much lower than that of most of its future EEC partners), and in doing so it aimed at increasing the competitiveness of Spanish farming. In the mid 1980s, therefore, problems arising from surplus production, as well as the possible negative environmental effects of agriculture, were scarcely recognised among the Spanish farming sector. An agri-environmental debate was virtually non-existent at the time, with public environmental concerns largely focused upon urban problems, nuclear energy, and industrial environmental impacts. It was only in scientific circles that the relationship between farming and environmental conservation were discussed (De Juana *et al.*, 1988; Lasanta, 1988; Ruiz, 1988).

During the early 1990s, the debate began to spread to the emerging environmental lobby, but national policy-makers continued to focus on localised environmental impacts of isolated agricultural projects (e.g. irrigation schemes). From 1992 onwards, however, and largely as a result of the initiative of certain regional governments (backed by nature conservation groups and farmers' associations), the first proposals were made for the declaration of ESAs under EEC Regulation 797/85 (Naveso, 1992, 1993; Urdameneta and Naveso, 1993). Unfortunately, the lack of political impetus at the time prevented these proposals from being implemented, and the potential of this early Community agri-environmental legislation was, therefore, never fully used in Spain.

Implementation of EU regulations

The approval of Regulation 797/85 coincided with Spain's admission to the EEC. However, as the following section demonstrates, its implementation in Spain was essentially oriented around the twin issues of income support and productivity improvement.

The translation of the objectives of Regulation 797/85 into Spanish

law demonstrates the lack of priority given to environmental objectives at the time. With regard to aid for the improvement of efficiency in farming structures, for example, the Regulation was interpreted as "a means of improving farm incomes as well as the living, working and production conditions of the farming population" (Real Decreto, 808/87). Extensification and set-aside aid were interpreted as means "to complement the actions undertaken by the EC bodies for the different market organisations, aiming to attenuate part of the effects that such actions may have on farmers' income" (Real Decreto, 1435/88). The application of Regulation 797/85 was, therefore, almost exclusively aimed at structural improvements of farms on the basis of efficiency, mechanisation and intensification – highlighting the continuing Spanish emphasis on establishing policies aimed at overcoming structural problems (see above). This meant that both before and after EEC accession, policy mechanisms failed to consider the conceptual and technological changes that would be needed to guarantee the parallel adoption of EEC environmental standards. While the process of designing specific schemes to be applied under Regulation 797/85 was characterised by a notable absence of involvement by environmental NGOs and state environment agencies, farmers' organisations were strong supporters of the schemes, precisely because they interpreted the schemes as direct subsidies which would help them remain competitive against their new Community partners.

As a result, agri-environmental schemes under Regulation 797/85 (and its amendment Regulation 2328/91) have only been applied to a limited degree in Spain. First, the proposed *ESA scheme* was not implemented by the central government, despite strong backing from regional governments and producer organisations. Second, the *Extensification Scheme* was not applied, largely because its implementation made little sense in a country that already had large areas characterised by extensive agricultural systems in which farmers were more concerned with productivity increases than decreases (Palacios, 1998). Third, implementation of the *Set-aside Scheme* clashed with problems of rural depopulation in areas where population densities were already low, and also contradicted agricultural reform laws imposing a minimum threshold of land utilisation (for job creation purposes) that had been passed in Andalusia and Extremadura. Set-aside was also opposed (unofficially) by many state agronomists who were reluctant to adopt a scheme designed to reduce European surpluses in a country which had not contributed to this surplus, where productivity was much lower than the Community average, and where the creation of an additional 4 million ha of fallow land would cause problems in distinguishing traditional fallow rotation from set-aside fallow land. As a result of these constraints, set-aside was implemented on only 70% of the

elegible area defined by the EC, and the subsidy level was set at only 40 to 60% of the level originally stipulated by the EC. Consequently, the take-up rate for set-aside was poor, with only 1,646 farms with 91,367 ha participating in the scheme between 1988 and 1992 (MAPA, 1990-94).

The situation was slightly different with regard to implementation of the LFA policy in Spain. This policy was the only one that had precedents within Spanish agricultural policy (e.g. the *Mountain Agriculture Act* passed in 1982). When Spain joined the EEC, pre-existing national policy was extended to include not only mountain areas, but also areas threatened by depopulation and other zones with specific agricultural disadvantages. As a result, LFAs now cover 41 million ha (equivalent to 81% of the national land area and including almost three quarters of the national UAA)[33]. Consequently, the LFA scheme was the most important EEC regulation implemented before 1992 in Spain (along with structural aid), both in terms of the number of subsidy recipients and with regard to budgetary expenditure (the latter despite the fact that subsidy levels were set lower than those stipulated by the LFA Regulation). Indeed, during the period between 1986 and 1992, almost 1.4 million farmers received payments through the LFA scheme with a yearly average of 328 ECU/farm (MAPA, 1990-94)[34].

Implementation of Regulation 2078 in Spain

Implementation of Regulation 2078 in Spain has to be understood in the context of the 'reluctant' socio-political framework outlined in the previous section. At the time when Regulation 2078 was introduced, Spain had only little experience with implementation of AEP, and the persistent productivist ethos that had marred implementation of agri-environmental schemes under Regulation 797/85 has continued to strongly influence the implementation of Regulation 2078.

The Spanish agri-environmental programme under Regulation 2078 comprises two parts: one developed by the Central Government, and the other developed by the regions (MAPA, 1994). As mentioned above,

[33] LFAs also include land not classified as UAA.

[34] Other EU policies implemented in Spain with environmental effects associated with farming include forestry aid under Regulation 797/85, Directive 79/409 (Birds Directive), Directive 91/676 (Nitrate Directive), Regulation 2080/92 (Afforestation on Farmland), Directive 92/43 (Habitats Directive) and EC regional policies such as Objective 1, 5b and LEADER. Their impact on farming systems is highly uneven, and a detailed discussion of the environmental implications of their implementation lies beyond the scope of this chapter.

agricultural and environmental responsibilities have been handed over to the 17 regional governments, which means that all agri-environmental schemes must be implemented regionally (see also Ch. 7 on Germany for a similar situation). 'Horizontal' schemes (cereal extensification, organic farming, rearing of local breeds and agri-environmental training) and those concerning protected areas (national parks, wetlands protected under the RAMSAR agreement, *Special Protection Areas* for birds) are implemented by MAPA and apply for the whole nation. Each region has to implement these schemes, using broadly similar policy instruments across Spain[35]. In contrast to this 'double legislation' (i.e. national and regional), agri-environmental schemes that are to be applied in specific zones chosen by individual regions ('zonal' schemes) are formulated and implemented by the regions themselves, without input from the national government. This two-part strategy is also evident in the joint funding arrangements, with EU contributions (75% in Objective 1 areas and 50% in Objective 2 and 5b areas) varying in both cases: environmental schemes proposed by the central government are co-financed on a 50-50 basis by MAPA and the regional governments, while the regions are fully responsible for co-financing the agri-environmental schemes they propose for specific areas. Similarly, the processing of applications, payments to farmers, and scheme monitoring are the responsibility of the Agriculture and/or Environment Departments of the regional governments. MAPA only acts as an intermediary between the regions and the EU in processing and monitoring payments and in justifying expenditure levels. As will be discussed in detail below, this regional agri-environmental implementation structure has severe repercussions with regard to the commitment of individual regions to the implementation of Regulation 2078, resulting in highly differentiated budgets and scheme implementation across Spain.

Any analysis of the implementation of Regulation 2078 in Spain also needs to consider, first, policy-makers' expectations and, second, the reality of scheme implementation on the ground. Although the former reveal the motivations behind the inclusion of environmental measures in Spanish agricultural policies, problems associated with the lateness of AEP implementation, together with funding problems, have caused considerable delays in the translation of policy-maker's expectations into reality. These conflicts are evident in the implementation of both horizontal and zonal schemes. Thus, although the central government passed the horizontal schemes in January 1995 and the measures for protected areas in April and June 1995 (with a target budget of 1,300 MECU and a target area of 5.3

[35] This situation is similar to that in Germany (see Ch. 7) where the GAK provides a national framework for basic AEP implementation.

million ha), regional implementation of these schemes could only begin after June 1995 and still has to be completed in some regions. Further, implementation of agri-environmental schemes developed by the regions themselves (zonal schemes) was even further delayed, with the majority of schemes implemented as late as 1996 or 1997 and with some still to be completed.

The only schemes that have escaped such delays are those for the reduction of water use near the *Tablas de Daimiel National Park* and the *Lagunas de Ruidera Natural Park* (Castilla-La Mancha), the *scheme aiming to protect the dry-cereal habitats of steppe birds* (Castilla-León), and the agri-environmental plan for the *Covadonga Mountain National Park* (Asturias). There may be two reasons why these schemes were implemented relatively early. First, plans for all three schemes had already been prepared in 1992 for application in accordance with Articles 21-24 of Regulation 2328/91. The subsequent implementation of Regulation 2078 allowed Spanish policy-makers to adapt these already formulated schemes to the new regulation. As a result, two of the three schemes were implemented in 1993 – even before the inclusion of Regulation 2078 into Spanish law. Second, all three schemes were also examples of a bottom-up approach in scheme implementation – sparked by pressure from local environmental NGOs, farmers' unions and scientists – which may have contributed to considerably speeding up the process of implementation compared to the more sluggish top-down process outlined above.

In light of the above observations, the following sections analyse, first, the Spanish agri-environmental programme as initially designed and envisaged by policy-makers, and, second, the reality of implementation and initial acceptance on the ground. The analysis is based on projected budget figures for the national programme (including already allocated funds). It should be noted that, although the approved budget by the Commission has been based on the period between 1993 and 1997, all available official figures on budget allocation for Spanish regions and aid schemes refer to the period between 1994 and 2000. This may be partly due to the substantial delays in programme implementation mentioned above, but also to the fact that Spanish policy-makers may be convinced that Regulation 2078 will still be in existence in the year 2000. As outlined above, implementation of agri-environmental schemes in Spain is still in its infancy, since some schemes initially envisaged have not yet been implemented, while others have been abandoned altogether (and it is also likely that some new schemes will be proposed for the next five-year period). The results of the second part of the analysis (implementation and acceptance) are, therefore, only preliminary.

Policy-makers' expectations and the design of the Spanish agri-environmental programme

Table 8.1 shows that the original design of the Spanish agri-environmental programme included all measures offered by Regulation 2078, both for national schemes and for most schemes designed by individual regions (the latter often aiming to offer seven or more out of the ten possible measures). However, budgetary allocations have been highly uneven between individual schemes and regions – a characteristic of Spanish implementation that deserves more detailed analysis. In the following discussion, therefore, the Spanish agri-environmental programme will be analysed from two perspectives. First, environmental objectives are considered and, second, regional disparities in budgetary allocations for agri-environmental schemes are assessed in detail.

Table 8.2 suggests that in terms of budget allocation the main environmental objectives of the Spanish agri-environmental programme are landscape preservation and extensification. With over 600 MECU, schemes aimed at landscape protection take up nearly half of the overall budget, and this figure increases further if the maintenance of abandoned land (7% of the budget) is also included within the wider notion of 'landscape conservation'. The second most important set of schemes (in budgetary terms) are those aimed at the extensification of production. This group includes extensification (30% of the budget), 20-year set-aside for cropland (7%) and livestock reduction (2%). In contrast, the remaining agri-environmental schemes account for less than 9% of the total budget. In particular, there is a remarkable lack of emphasis on the reduction of chemical inputs and on the promotion of organic farming (1.1% and 2.2% respectively), especially when compared with other European countries (see other chapters in this book). Low levels of investment in this area are due partly to the low-intensity nature of the majority of Spanish farming systems (see above) and to a widespread belief that Spanish agriculture does not have pollution problems – despite isolated problems caused by nitrates (Vera and Romero, 1994; Brouwer *et al.*, 1995; Palacios, 1998) and pesticides (Muñoz, 1991).

It should, however, be noted that the analysis presented here may be influenced by the specific categories used to define individual schemes under Regulation 2078 in Tables 8.1 and 8.2 – particularly with regard to the apparently low committment to reductions of chemical inputs. Almost all landscape conservation schemes in Spain include some measures encouraging both the reduction of chemical inputs and the reduction of stocking density, but these do not appear in any of the above figures. For

Table 8.1 Estimated budgets for schemes under Regulation 2078 by region 1994-2000 (in MECU)

Cluster of 2078 Measures	Conversion to, or continuation of, organic farming	Extensification of arable land and/ or permanent crops		Extensification of grassland	Local breeds	Protection of environment, natural resources, countryside and landscape			Public access and leisure activities	Education and training	Total
Single measures	Organic farming	Fertiliser/ Pesticide reductions	Maintenance or introduction of extensive production	Livestock reduction	Rearing of local breeds	Environment and landscape protection	Upkeep of abandoned farmland or wood land	20-year set-aside[b]	Public access and leisure activities	Education and training	
	Reg. 2078 Art 2 (1.a)	Reg. 2078 Art 2 (1.a)	Reg. 2078 Art 2 (1.b)	Reg. 2078 Art 2 (1.c)	Reg. 2078 Art 2 (1.d)	Reg. 2078 Art 2 (1.d)	Reg. 2078 Art 2 (1.e)	Reg. 2078 Art 2 (1.f)	Reg. 2078 Art 2 (1.g)	Reg. 2078 Art 2 (2)	
Andalusia	6.1		49.9	3.9	2.8	83.7		27.7	0.8	4.6	179.4
Aragón	1.9		63	5.1	1.1	16.2	13	5.4	*	2.3	108
Asturias	0.3				1.7	28.9	8.3			0.2	39.3
Baleares	0.9		0.6		0.1					0.2	1.8
Canarias	1.1				1.9	30.3	1.1	1.8	0.3	1.5	37.9
Cantabria					0.8	2	1.9			0.1	4.9
Castilla-L. Mancha	2.6		84.1	2.2	1	149.5	4.6	1.8	*	1.9	247.8
Castilla y León	2.5		80.5		2.8	166	47.2	4.1		3.1	306.2
Catalonia	4.3	8.4	6.9	6.2	0.6	53.2		14.1	0.1	1.3	95.1
Extremadura	2.1		44.1	6.7	1.4	25.3	8.6	1.8	0.5	1.1	91.7
Galicia	0.7	3.3			0.7	16.6		2.4		2.3	26
Madrid	0.5		10.4		0.1	5.4		12.4	0.2	0.1	29.1
Murcia	0.7	2.9	21.8		0.2	0.6	1.4	1.2		1	29.8
Navarra	0.4		7.1		0.1	1.9	2	0.6		0.1	12.2
Basque Country[a]											
La Rioja	0.9		1.8	0.2	0.4	0.3		2.4	0.2	0.6	6.7
Valencia	2.6		16.7		0.4	25.3	1.8	9.3	0.3	0.8	57.2
TOTAL	**27.6**	**14.6**	**386.9**	**24.3**	**15.8**	**605.3**	**90.1**	**85**	**2.4**	**21.2**	**1,273.1**

(*) Measures implemented after budget estimation and therefore not included in breakdown estimations.
(a) Measures planned in the Basque Country for which budget breakdown is not available.
(b) Estimated budget for a five-year period.

Source: MAPA, 1994

Table 8.2 Estimated budget (in MECU) for different schemes in the Spanish agri-environmental programme for the 1994-2000 period

Types of schemes	MECU
Landscape protection	605.2
Extensification	386.8
Upkeep of abandoned land	90.1
20-year set-aside	85
Organic farming	27.2
Livestock reductions	24.3
Education and training	21.2
Rearing of local breeds	15.8
Fertiliser/pesticide reductions	14.5
Public access/recreation	2.4

Source: MAPA, 1994

example, the zonal scheme for landscape maintenance in the Canary Islands allocates a third of its budget to the maintenance of traditional forms of agriculture, a third to the fight against erosion and a third to crop extensification. Further, all measures within that scheme aim at prohibiting the use of herbicides, restricting livestock densities, and reducing the use of chemical fertilisers (with the aim of replacing them with 'green' fertilisers). Another example where the specific environmental categories are blurred are the (financially) important landscape protection schemes which seek to protect fauna and flora in extensive croplands. Here, 29% of the budget has been allocated to crop extensification, 27% to soil conservation, 22% to the promotion of crops used for cover by steppe birds, 16% to the reduction of chemical inputs, 7% to the encouragement of environmemtally-friendly farming techniques and 0.4% to the maintenance of traditional crop varieties. In all cases, agri-environmental payments are linked to restrictions in the use of chemical inputs, neither of which receive specific compensation payments. Finally, the reduction of chemical inputs also features highly in demonstration projects, taking up 78% of the 'education and training' budget (but again not distinguishable in the figures presented in Table 8.2).

These three examples suggest that, although the majority of agri-environmental schemes are predominantly aimed at landscape protection and production extensification, measures aimed at reducing the use of external inputs and stocking densities are more important than Table 8.2

would initially suggest (i.e. they are implicit rather than explicit parts of the schemes). Nonetheless, the area targeted by extensification and landscape protection schemes makes up almost 90% of the total programme target area (Oñate *et al.*, 1998) – a logical agri-environmental approach in a country with a large land area covered by extensive farming systems that contain the most valuable agri-ecosystems and that are at greatest risk of disappearance. In these least favoured areas of the country, serious conservation problems would result from farm abandonment, in particular through increased fire hazards and the possible extinction of wildlife species that rely on traditionally farmed agricultural landscapes (Suárez *et al.*, 1997b).

Yet, overall expenditure only gives a partial insight into the Spanish agri-environmental programme. An analysis of agri-environmental expenditure by regions, therefore, complements the above discussion and provides the basis for understanding socio-economic factors that may have influenced the design of Spanish AEP. As for Germany (see Ch. 7), a regional analysis is particularly important in Spain as the regions' political and financial autonomy in agricultural matters has played an important role in their commitment towards AEP implementation. In Figure 8.1, agri-environmental budgets are shown as expenditure/ha/UAA in each autonomous region for the seven-year period between 1994 and 2000. As the figure shows, the regional distribution of agri-environmental budgets is very diverse. While average agri-environmental allocations amount to 48.7 ECU/ha for that time period, the Balearic Islands will only spend 6.7 ECU/ha while in the Canary Islands 246.2 ECU/ha will be available.

Several trends are apparent from Figure 8.1. Inland regions have budgets that are closer to the average (40-60 ECU/ha), while peripheral regions show much greater variations. A possible explanation for this is that in inland Spain subsidies for extensive systems predominate, and that the overall emphasis in these regions is on horizontal schemes aiming at extensification of arable systems. In contrast, the marginal regions have a greater diversity of farming systems, all of which have their location-specific environmental problems. Consequently, in these areas, greater inter-regional variations in the types of schemes implemented are to be expected. Examples of this can be seen in budget variations between the four northern regions on the Cantabrian coast (north-west Spain): despite their relative similarity with regard to agricultural systems based on cattle breeding, subsidies range from around 30 ECU/ha/UAA in Galicia and Cantabria to 130 ECU/ha/UAA in Asturias.

Such inter-regional variations raise the question of the extent to which the pattern of implementation of agri-environmental schemes reflects socio-economic factors, rather than being the result of specific

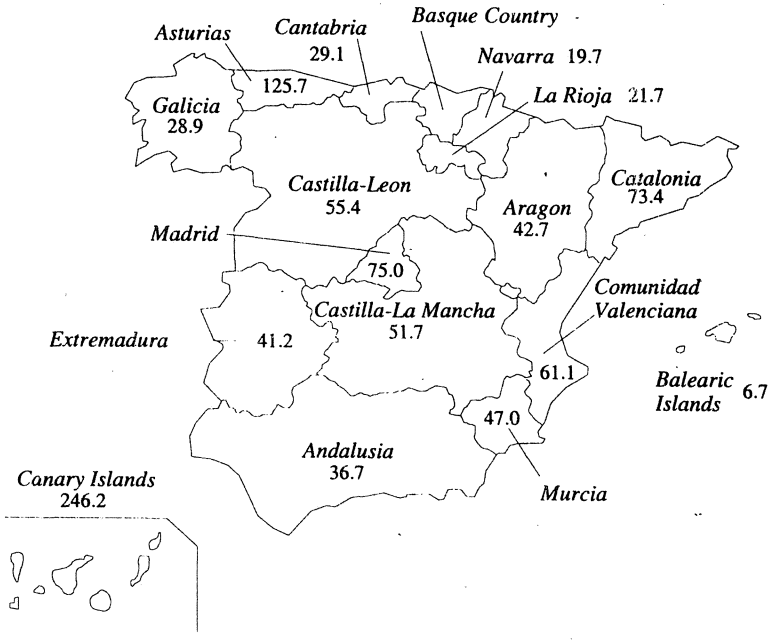

Figure 8.1 Regional distribution (ECU/ha of UAA) of the planned Spanish agri-environmental budget for the period 1994-2000

Source: MAPA, 1994

environmental 'needs' of the agricultural systems in question. Two alternative socio-economic hypotheses might thereby be formulated. First, agri-environmental budgets may be related to the economic wealth of a region, suggesting that the more prosperous regions would be in a better position to implement agri-environmental schemes. In such areas there may also be greater overall interest in preserving traditional agricultural systems due to pressures exerted by relatively wealthy urban populations. Second, agri-environmental payments should have more weight in regions where the farming sector is of greater relative importance (in percent of UAA; share of employment in the primary sector; or contribution of agriculture to regional

GDP). In these areas, higher agri-environmental payments may be linked to an increased awareness of the public and policy-makers to farming matters.

However, detailed analysis shows that budget allocations among the regions do not in fact correlate with the factors such as 'relative weight of agricultural sector in region', 'percentage of UAA in region', 'regional agricultural employment' or 'regional wealth' (CEDOC, 1987; Domingo, 1994; CREM, 1995; MAPA, 1995; INE, 1996a, 1996b). The relative importance of the agricultural sector or the relative wealth of a region do not, therefore, explain the differences in agri-environmental budget allocations in Spanish regions highlighted in Figure 8.1, while locality-specific factors appear to be the main explanation for budget discrepancies. Thus, regions with higher agri-environmental budgets are usually those where schemes pay relatively high subsidies per ha UAA. These schemes are generally aimed at the conservation of landscapes and agricultural practices within geographically targeted areas with high natural and/or cultural values which are usually threatened by intensification or abandonment. In these areas there is a tendency, therefore, to invest large amounts of money for the maintenance of traditional farming systems. In the Canary Islands, for example, conservation measures for the countryside include prescriptions which require large amounts of costly labour inputs (e.g. repairs to stone walls, manual weed clearance, etc.). If farmers were not paid large sums in these areas, the likely disappearance of traditional crops and farming practices would lead to serious erosion problems (Hernández, 1996). This, in turn, would lead to the destruction of landscapes with high touristic value. The case of mountain communal pastures threatened by abandonment in Asturias, and the case of the green belt around Madrid where farmers face pressures from land speculators in the proximity of the capital, are similar examples that require relatively high payments/ha/UAA to encourage the maintenance of traditional framing practices. Further, in Catalonia and the Valencia Region a large part of the agri-environmental budget is targeted at the preservation of traditional farming practices within RAMSAR wetlands (e.g. Ebro river delta, Albufera wetland in Valencia) threatened by intensification (Fasola and Ruíz, 1997).

In contrast to these highly targeted schemes, regions with an intermediate agri-environmental budget usually have a higher percentage of extensive cereal systems and hence a large proportion of land that could potentially be covered by agri-environmental schemes (e.g. Castilla-La Mancha, Castilla-León, Extremadura, Aragón or Murcia). This inevitably reduces payments per ha UAA (i.e. a broader and shallower approach).

The only Spanish region where none of the above explanations seem to apply are the Balearic Islands. Although this region has the highest per capita income in Spain, it comes last with regard to agri-environmental

payments/ha/UAA, and no zonal schemes are currently envisaged there. The UAA covers 54% of the Balearic Autonomous Region (close to the national average of 49%), but the sector is of minimal importance in the region's economy (only 1.5% of the GDP and 2.4% of the workforce). Although more research would need to be conducted to understand the current patterns of weak AEP implementation in this region, possible explanations could be that the economy of the islands is almost entirely geared towards the coast (tourism) and that there is currently little threat of intensification or land abandonment in most of the islands' agricultural areas – although it is striking that the Canary Islands, as the most similar counterpart to the Balearic Islands, has the highest payments/ha/UAA.

The reality of scheme implementation on the ground

The discussion so far has addressed the distribution of agri-environmental budgets in Spain. This section briefly investigates the reality of scheme implementation on the ground with the aim of highlighting the large discrepancies that exist between AEP formulation and the number and types of schemes that have actually been implemented to date in Spanish regions.

As of December 1997, a total of 77 schemes had been fully or partially implemented, representing 37.5% of the 205 schemes initially proposed[36]. The proportion of approved horizontal and protected area schemes of national and international importance is slightly above average with 63 implemented schemes out of 166 originally proposed (38%), and slightly below average in the case of zonal schemes with only 14 out of 39 schemes implemented so far (36%). Among the zonal schemes, there is no correlation between scheme type (i.e. livestock reduction, landscape protection, etc.) and successful implementation. As would be expected from the discussion above, the percentage of implemented schemes varies greatly between regions, although the inter-regional variation neither follows a clear geographic pattern, nor is it related to the wealth of the regions or the regional importance of the agricultural sector.

These implementation patterns show that, in many cases, regional governments have taken a long time to implement schemes. Partly, this has been due to the timing of final scheme approval by the national government (January-June 1995), which has meant that only a small proportion of the schemes were implemented by the regions before 1995. Indeed, Table 8.3 shows that only two schemes were implemented in 1993, five in 1994, while

[36] This figure can only be an approximation because of implementation of new schemes that were not planned initially, and because other originally planned schemes have been abandoned altogether.

the bulk have only been implemented very recently (36 in 1995, 26 in 1996, and 8 in 1997). Undoubtedly, the pace of scheme implementation has also been affected by the highly variable administrative structure and expertise among different regional governments, available budgets (also in terms of scheme administration and monitoring), and agri-environmental interests of specific regional actors involved in the policy-making process. Overall, only first tentative steps have been made in the process of implementation of the relatively ambitious Spanish agri-environmental programme.

Table 8.3 Agri-environmental schemes implemented by the autonomous regions between 1993 and 1997

Year	Horizontal schemes (national) (n)	Protected areas schemes (national) (n)	Region-specific schemes (regional) (n)	Number of implemented schemes (n)
1993	0	1	1	2
1994	3	1	1	5
1995	21	6	9	36
1996	19	5	2	26
1997	5	2	1	8

Source: authors

Participation rates and early scheme successes: some preliminary indications[37]

It is evident from the above that the Spanish agri-environmental programme is still small and, as yet, in its early stages of development. Nonetheless, implemenation has increased steadily since the first schemes were established, partly as a result of gradual parliamentary approval for the planned schemes, and partly due to their increasing acceptance by the farmers themselves. However, implementation delays have had a severe impact with regard to payments to farmers. By the end of 1995, for example, farmers had only received payments for the following schemes: *reduction in irrigation water use* near the Daimiel National Park in Castilla-La Mancha

[37] It should be noted that the dificulties of co-ordination between the national agricultural ministry and the regional administrations limits the accuracy of the data presented in this section. The figures are, therefore, only preliminary.

(for 1993-1995), *wildlife protection on extensive cereal croplands* in Castilla-León (for 1994 and 1995), and *landscape conservation on common extensive grasslands and native livestock breeding* in Asturias (only for 1995). By the end of 1997 the situation had improved, with about 90 schemes providing regular payments to farmers.

Table 8.4 shows implementation results of the Spanish agri-environmental programme in terms of participants, total area and livestock units entered, and expenditure. Despite the currently limited scope of the Spanish agri-environmental programme (see above), the figures show that land area and livestock units entered into agri-environmental schemes have doubled each year, and that the number of management agreements has increased steadily. Similarly, the number of both farmers and officials receiving training and participating in educational courses (not shown in the Table) has increased significantly from about 400 in 1995 to 3,500 in 1997. Parallel to this, total agri-environmental expenditure has increased over the years to a total of 187 MECU (by December 1997). In light of these figures, the trends over the past five years suggest an optimistic outlook for the future of the Spanish agri-environmental programme.

Table 8.4 Implementation results of the Spanish agri-environmental programme

Year	Participants (N°)	Area entered (ha)	Livestock units entered (LU)	Expenditure (MECU)
1993	1,335	420	0	12.2
1994	2,305	836	0	17.5
1995	7,533	1,450	3,476	29.6
1996	28,408	5,588	11,330	56.5
1997	33,323	8,668	33,245	75.9

Source: authors

Although both the percentage of farms included in agri-environmental schemes (2.1%) and the area covered (3.3%) do not yet comprise a significant proportion of the Spanish agricultural sector, some schemes already have considerable impacts in the specific areas where they are being applied. For example, the 175,000 ha of land already entered into the *scheme aimed at reducing the use of irrigation water* near Daimiel National Park represent almost 100% of the original area targeted by the

scheme. Further, the *scheme for the conservation of communal pastures in Asturias* has also been successful, with nearly 100,000 ha already entered, representing two thirds of the eligible area. Meanwhile, the *scheme for the protection of cereal steppes in Castilla-León* has met with less enthusiasm, with only 16% of the initially expected 1.2 million ha included by December 1997.

In Spain as a whole, schemes falling into the categories of *landscape conservation* and *fire prevention in extensive grasslands* have had the highest uptake rates, both in terms of contract numbers and area entered into the schemes. As a result, farmers participating in these schemes have also received the largest agri-environmental payments. This category is followed by schemes aimed at wildlife protection in extensive croplands. The third category in terms of acceptance comprises horizontal schemes for extensification of cereal production. Altogether, these three categories comprise nearly half of all participants, area entered and payments. Future research, in particular through scheme monitoring programmes, will be necessary to investigate in more detail the effectiveness of these first Spanish agri-environmental schemes in terms of both socio-economic and environmental impacts.

Conclusions

Compared to many other EU countries, Spain has been relatively slow to implement its agri-environmental programme in response to Regulation 2078. Scheme implementation has suffered continuous delays, leading to less than 40% of initially envisaged schemes to be implemented by the end of 1997. Undoubtedly, the traditional productivist orientation of agricultural decision-makers is a key explanation for this delay (Wilson *et al.*, 1999), but widespread government budget restrictions, together with severe financial competition with forestry schemes associated with Regulation 2080/92 (often with objectives that clash with agri-environmental schemes), have also played a role. The slow pace of implementation has also been influenced by the fact that policy-makers lacked previous experience with such schemes – a situation exacerbated by the on-going confrontation of policy-makers with agricultural interest groups who have continued to emphasise the importance of further restructuring and modernising Spanish farming.

The chapter has also highlighted how environmental and historical factors have led to the present combination of traditional environmentally valuable extensive agricultural systems in many areas of Spain, resulting in a rural landscape that is one of the richest in the EU with regard to

abundance and diversity of wildlife. Yet, agricultural practices that have contributed to the creation and maintenance of valuable habitats have also been paralleled by intensification and land abandonment which, in turn, have led to severe environmental degradation in some areas. This has meant that agri-environmental schemes have often clashed with opposing interests of the farming lobby who have regarded these schemes as a constraint to modernisation, rather than as an opportunity to guarantee the continuation of farming in certain areas, to protect the environment, and to act as a substitute for traditional production subsidies.

As a result of the existence of many threatened and valuable wildlife habitats in the Spanish countryside, the Spanish agri-environmental programme has been focused mainly on the protection of extensive agricultural systems, while paying less attention to agricultural pollution problems. This reflects the spatial and conservation importance of 'cultural landscapes' in Spain, as well as highlighting the importance of the key policy aim of reducing (or even reversing) rural depopulation. However, this policy approach also reflects the reduced importance of pollution problems in extensive agricultural systems, as well as the pressure exerted by the agricultural lobby for the modernisation and intensification of agricultural production in the more intensively farmed regions of the country – the latter resulting in the fact that fewer agri-environmental schemes have so far been implemented in Spain's intensive agricultural areas.

Two further contradictions in the environmental targeting approach of the Spanish agri-environmental programme can be identified: first, the lack of priority given both to agricultural systems capable of yielding the greatest conservation value and to those threatened by erosion problems and, second, the importance placed on schemes located within areas of special natural value (i.e. national or natural parks, wetlands included in the RAMSAR agreement, and *Special Protection Areas* for birds). Thus, there is remarkably little emphasis on schemes targeting Mediterranean mountain areas and *dehesas* (open savannah-like woodlands which cover over two million ha), although these ecosystems contain a large proportion of extensive livestock breeding areas in Spain. This is particularly revealing as the mountainous and hilly areas with extensive grazing and marginal croplands are very common in many parts of Spain and suffer from serious problems of land abandonment and depopulation, often leading to severe soil erosion. Spanish *dehesas* have not received the attention they should get in proportion to their area and natural values, and the same is the case for the 2.2 million ha of olive groves who have been largely left out by the Spanish agri-environmental programme. Indeed, schemes implemented in these types of landscape account for only 5% of the total agri-environmental budget.

Meanwhile, about 40% of the budget has been allocated to areas that already had some type of environmental protection. In part this is due to the fact that protected areas in Spain cover large areas (2.9 million ha in 1994; Fernández, 1996), and the chance of inclusion of some of these areas into the Spanish agri-environmental programme has, therefore, been high, but it may also simply reflect the high conservation value of extensive agricultural systems often located within these protected areas. Thus, the recognition that conservation of these protected areas inevitably involves the continuation of traditional farming practices has certainly contributed to the emphasis given to schemes targeting areas that are already protected in some form, but it does not, however, fully explain the large gap that exists between these types of ecosystems and the neglected landscapes mentioned above. It could be argued, therefore, that areas with established protection status are over-represented in the Spanish agri-environmental programme, while other equally vulnerable systems are under-represented.

In addition to these targeting contradictions with regard to specific types of agricultural systems, the Spanish agri-environmental programme also displays considerable inter-regional variations. This has been largely due to the relative autonomy of the regional governments in agricultural and environmental policy decision-making matters. Although there are no statistically significant correlations, it appears that less money per ha UAA is spent in regions where farming plays a larger role in the regional economy, as in these regions budget allocations depend more heavily on the implementation of deep and narrow (i.e. small-scale but high-cost) schemes (e.g. avoidance of intensification in rice plantations leading to irreversible damage to RAMSAR wetlands). However, the relative wealth of regions seems to have no influence on regional budget allocations, even though regions are forced to pay part of AEP costs themselves. This lack of clear socio-economic trends in the design of the Spanish agri-environmental programme is not easy to explain, but it may be linked to the absence of overall political guidelines during the drafting stage. The current Spanish agri-environmental programme may, therefore, be more a collection of individual schemes generated by the presence of specific agricultural and/or environmental problems than a single coherent political instrument.

The outlook for the Spanish agri-environmental programme is, nevertheless, relatively good. Despite the fact that Spain's agri-environmental programme is still in its infancy, there are some promising signs as some schemes have already been successfully implemented and more schemes are likely to come on stream in the near future. Most schemes implemented to date have been well accepted, with the exception of schemes that have offered excessively low payments or that contain management prescriptions that are perceived to be too severe (the latter is

particularly the case with the *20-year set-aside scheme*). The pace of scheme approval and implementation has quickened in recent years, and a catalytic effect of the first schemes can be expected. Thus, once the first schemes give positive results and have proven to Spanish farmers that it can be an advantage to be a scheme participant, the implementation and acceptance of the rest is likely to improve. On this basis, the renewal and/or extension of schemes included in the first five-year period of Regulation 2078 will play a key role, and there is a clear wish among increasing numbers of agricultural decision-makers in Spain for agri-environmental schemes to continue beyond the initial phase.