OVERVIEW OF COSTS AND BENEFITS ASSOCIATED WITH REGULATION IN SCOTTISH AGRICULTURE

Including elements of SNIFFER Project ER02: Measuring the Administrative Burden of Environmental Regulation in the Agricultural Sector

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Executive Summary

Background
Farming is a diverse and complex industry associated with both positive and negative non-market effects, particularly on the environment and animal health and welfare. Market failures are common and can provide a rationale for policy intervention, where there are social benefits from doing so. Crudely, such intervention may take the form of information provision, incentive schemes or regulatory controls – although these options are not mutually exclusive and are often used in combination.

Whilst incentive schemes potentially offer some efficiency gains, regulatory controls are often used where environmental damage or animal disease exhibits threshold effects beyond which damage rapidly escalates and/or is difficult to reverse, and where incentive schemes have high transaction costs. In such cases, mandated performance standards or practices typically offer greater reassurances than reliance on the uptake of voluntary incentive schemes. Regulation is therefore recognised to bring about benefits. However, intervention via regulation can be controversial and unpopular with industry since it is perceived as imposing costs through enforced adjustments to inputs, processes or outputs, as well as administrative requirements. In some cases regulation can however lead to greater operational efficiency.

Governments are increasingly aware of the problems that poorly designed regulation can have and "Better Regulation" has become an important policy driver at both European and national level. The objectives of this report are:

- To describe the regulations associated with Scottish agriculture
- To provide an overview of the methodology for assessing costs and benefits of regulation in agriculture in Scotland, including a critique of the standard cost model
- To assess the costs and benefits associated with key regulations in Scottish agriculture and with specified environmental regulations
- To identify best practice in the implementation of regulations in agriculture in other countries
- To identify areas where there are opportunities to improve the effectiveness of regulation in Scottish agriculture.

Agriculture regulation in Scotland
During the initial review, 102 regulations were identified that relate to Scottish agriculture; however this is not an exhaustive list. Some of these regulations are also relevant to other industries, and the full set does not exclusively apply to the agriculture sector. The identified regulations fell into five categories:

- Agricultural support and rural development
- Pollution control, natural heritage and waste
- Animal health and welfare
- Employment legislation
- Other (notably land use planning and food safety)

Procedures for assessing the costs and benefits of regulation

In common with other policy areas, the assessment of the costs and benefits of agricultural regulation is an integrated part of the Regulatory Impact Assessment (RIA) process in Scotland. Guidance on the UK Impact Assessment (IA) process is offered by the UK Better Regulation Executive, but draws on other sources such as the Treasury Green Book. The RIA process in Scotland follows the Better Regulation Executive guidelines, with the Scottish Government Improving Regulation Unit (IRU) overseeing the process, providing advice and auditing RIAs. Supplementary IRU guidance in Scotland covers the following points: Micro Business Test; Legal Aid Impact Test; "Test Run" of business forms; Ministerial sign-off; Review Regulatory Impact Assessments.

The cost of regulation is frequently considered to fall into two separate components: the policy cost and the administrative cost. The policy cost is defined as the cost of changing inputs, outputs or processes in order to comply with a regulation. The administrative cost is the cost of undertaking administrative tasks required to comply (e.g. familiarisation, recording and providing data, cooperating with inspections).

Measuring the cost of regulation can be hampered by a lack of representative data and difficulties in assessing dynamic competitiveness effects. Monetisation of the benefits of regulation, particularly where environmental goods are concerned, is particularly challenging.

The Standard Cost Model (SCM)

The SCM is a methodology for measuring the administrative cost of regulation imposed on business by government and does not examine the policy cost. In essence, it is a consistent way of breaking down the administration required to comply with a regulation into a range of manageable, measurable components.

The SCM is not a way of measuring administrative costs more accurately; it is primarily a way of being able to repeat measurements and demonstrate change. It is therefore most effective when employed as an integrated part of an ongoing programme of admin cost reduction, rather than as a one-off assessment of costs. The following recommendations are made regarding the potential use of the SCM:

1. It is unnecessary to fully replicate the ABME/SCM exercise undertaken in UK central Government as many lessons have already been learned and do not to be re-learned.
2. Any Scottish exercise should focus on key regulations and seek to complement, rather than replicate, the UK exercise. There is considerable scope for reducing the cost of an ABME/SCM exercise through targeting and the use of existing data sources. Information and experience gained through Scotland's Environmental and Rural Services (SEARS) will be highly relevant to such an exercise. Indeed, it may be that SEARS already offers more agriculturally relevant insights and remedies than a separate SCM exercise would, even though the latter does not provide a quantitative measurement of admin cost reduction.
3. The UK ABME/SCM will be revised/repeated in 2010; this represents a window of opportunity for partnership.

4. Achieving reductions in admin burden on their own are unlikely to improve industry confidence in regulation. Again, this is implicitly already a key component of SEARS and the degree of stakeholder engagement already achieved will contribute to industry confidence. Reductions need to be clearly demonstrated to the industry, not just achieved, and this may also require the close involvement of the industry if a measurement and re-measurement process is put in place.

Case studies

From the initial scoping of 102 regulations, twelve regulations were selected for analysis in case studies. Most of the selected regulations were either wholly or partly the result of EU obligations. The predominance of EU-derived regulations in the agriculture and environment policy areas can limit the scope for domestic initiatives to reduce regulatory policy costs, and administrative costs may then be a particular focus. An overview of the regulation costs and benefits are given below. In terms of the overall balance of costs and benefits of the regulations, some case study results were characterised by lack of detailed valuation, in part reflecting the difficulty of valuing costs and, in particular, benefits. In the case studies examined, the existence of social benefits is acknowledged even where full monetary valuation of these benefits is methodologically challenging. In some cases incremental costs are examined where RIA's examine the difference between options for implementing a policy against a do nothing or do minimum benchmark.

Table i. Summary of the case study results

Regulation	*EU or Domestic*	*Comments on overall size and balance of costs and benefits*	*Recommendations*
1. SSI 2004 No. 518 The Common Agricultural Policy Schemes (Cross-Compliance) (Scotland) Regulations 2004	EU	Studies generally conclude that cross compliance has a very limited cost for farmers, associated with co-operating with inspections. Benefits include compliance with good farm practice (resulting in potentially lower costs and extra revenue) and potential improvement in public goods provided by agriculture over and above that provided by regulations that underlie cross-compliance.	A study quantifying the present and future benefits could be undertaken, but with potential methodological challenges.
2. SSI 2005 No. 225 The Land Management Contracts (Menu Scheme) (Scotland) Regulations 2005	Domestic legislation designed to meet EU obligations	Subjective assessment indicates that overall costs and benefits are likely to be low. Admin costs are associated with: applying; record keeping and inspections; processing applications; compliance monitoring. The main policy costs arise from: income foregone/costs incurred and deadweight losses. Benefits include: access to modulated funds; on-farm improvements; improved farm/chain efficiency; environmental improvements	Additionality of benefits (i.e. the benefits over and above those that would have been realised without the regulation) needs to be determined, although low share of Pillar II budget perhaps lowers the priority of assessing this. Possible need to improve targeting and uptake, although constraints on budget levels and payment calculations will hinder this.
3. SSI 2005 No.	Domestic	Difficult to quantify benefits from	Early evidence suggests that the

348 Water Environment (Controlled Activities) (Scotland) Regulations 2005	legislation designed to meet EU obligations	avoided water pollution as the CARs will have significant (indirect) benefits in the medium-long term.	regulations are performing well, however they should be kept under review to ensure that any lessons arising can be incorporated.
4. SSI 2003 No. 51 The Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2003	EU	Low admin costs expected from completing manure management plans and co-operating with inspections. Main policy costs associated with upgrading storage. Benefits include reduced fertiliser purchases and the range of benefits arising from reduced pollution. Uncertain magnitude of benefits, due to debate surrounding the underpinning science and the economic benefits of cleaner water, makes overall balance of costs/benefits difficult to determine.	More accurate figures on the economic costs and benefits of previous action are required and may be possible through development of the current monitoring system. Look at opportunities for persuading the EC to revisit the scientific basis of the Nitrates Directive, in line with recent UK House of Commons committee recommendation. Revisit the current approach used to change farmers' (mis)use of fertiliser and manures.
5. SSI 2000 No. 323 The Pollution Prevention and Control (Scotland) Regulations 2000	EU	Main costs arise from applying for permits, record keeping and upgrading facilities. Magnitude of costs uncertain but with recognised environmental and societal benefits, such as reduced pollution incidents and NH_3 emissions.	The PPC case study examined the potential for adapting existing SCM data to estimate admin costs in Scotland. It found that existing standard costs would need to be adapted with caution if applied in Scotland.
6. The Control of Pollution (Silage, Slurry & Agricultural Fuel Oil) (Scotland) Regulations 2001, 2003	Domestic	Costs associated with improving storage facilities. Benefits have been improved working conditions and significantly reduced pollution incidents due to structural failures. Balance of costs/benefits difficult to assess, due to the lack of relevant data on the values of costs and benefits.	Effort should be made *ex ante* to put in place provisions to assess the regulations effectiveness *ex post,* so that post-implementation reviews can be undertaken. Quantification of costs and benefits could be developed further.
7. SI 1989 No. 1263 The Sludge (Use in Agriculture) Regulations 1989	EU	Costs (of record keeping and treatment) likely to be outweighed by the benefits (provision of low cost alternative nutrient source; avoidance of disposal costs and associated environmental impact).	There are no urgent problems to be remedied and planned amendments are to be made according to the legislative timetable.
8. Disposal of fallen livestock under The Animal By-Products (Scotland) Regulations 2003 (SSI 2003/411)	EU	Costs (compensation payments, and waste treatment and disposal) likely to be outweighed by the benefits (avoiding and preventing highly costly animal disease outbreaks; reducing TSE spreading risk; improving public health with respect to incidence of human vCJD cases).	Any possible change of the Regulations should be carefully investigated and communicated with the stakeholders in advance. A review of the parent EU Regulation,1774/2002 is now under way, with the intention of securing a more risk based approach.
9. SSI 2007 No. 559 The Sheep and Goats (Identification and Traceability) (Scotland) Amendment Regulations 2007	EU	The change in tagging and record keeping requirements led to cost savings. However the full benefits of the scheme in terms of traceability will not be realised until linked to a (potentially expensive) system for monitoring movements. Potential costs associated with a lack of traceability in the meantime (e.g. a	Need to focus on ensuring that the regulations are implemented effectively, and that future regulations are balanced with ongoing industry concerns about cost, proportionality and practicality. This will be particularly important if the EC continues on the path towards introducing EID in 2010. As with the

		disease outbreak) are difficult to quantify.	current Regulation, it is imperative that the Scottish industry is able to cope with the physical and financial implications in order to comply.
10. SSI 2005 No. 434 The Tuberculosis (Scotland) Order 2005	EU and domestic legislation	Costs arise from testing /inspection and movement restrictions, while the benefits accrue from the avoided costs of greater incidence of bTB. The overall benefits of the 2005 Order in Scotland have not been quantified in a monetary sense and it is therefore not possible to compare this directly to the monetary costs. Benefits are expressed therefore in terms of expected false negative tests. Based on industry comment, the level of cost to benefit is generally seen as favourable since the Order has helped prevent the spread of TB in Scotland.	Industry views on post movement testing have been positive as it is considered essential to protect the health status of Scotland and stakeholder support is strongly in favour. In view of the continued escalation of TB in England and Wales, the Scottish Government needs to keep the legislation under review to ensure that it continues to provide effective safeguards.
11. SSI 2002 No. 255 The TSE (Scotland) Regulations 2002 Now replaced by 2006 SSI	EU	The main costs are record keeping, over thirty months cattle scheme, laboratory approval, meat hygiene inspection, over 24 month fallen stock, national Scrapie plan and rams genotype scheme. The benefits to industry from disease control include avoided production and market losses, improved food safety and associated improvements in public health and confidence. Keeping the prevalence level at its minimum level in Scotland entails a high cost. The total benefit of the regulations needs to be quantified	A detailed cost-effectiveness analysis of the TSE regulations could be undertaken, which takes into account wider impacts, including the benefits to the industry, such as eradication of TSEs in farmed livestock.
12. SSI 2006 No. 606 The Welfare of Animals (Transport) (Scotland) Regulations 2006	EU	Costs arise due to transporter authorisation, and vehicle specifications and inspection. The overall balance of costs/benefits is uncertain, due to the difficulties associated with monetary valuation of improved animal welfare.	Key focus areas are: rest times, journey length and space allowances. Close consultation with industry and research partners could help to draw out any differences between perceived and actual animal welfare benefits.

Agricultural regulation in New Zealand and Denmark

A brief case study of agricultural regulation and the regulatory review process in New Zealand was undertaken, in order to identify examples of alternative approaches and best practice that might be applicable in Scotland. New Zealand has carried out a number of reviews of the regulatory environment recently, highlighting the Government's commitment to ensuring an open and fair commercial environment. The outcomes of the reviews are generally global in their applicability and provide useful guidance on priority areas for further investigation. Tools used for assessing regulations are also being developed and could provide examples for similar work in Scotland. Three areas were examined in more detail: TB, water pollution and animal transport. These case studies help to illustrate the outcomes based, light regulatory touch generally associated with New Zealand regulations, and highlights current developments in the environmental area in particular.

Denmark and Scotland share many similarities (e.g. in terms of population, area, location, climate and the role of agriculture in the economy). However, they also differ in important respects; for example Scotland's landscape is dominated by upland areas that limit agriculture to mainly pasture based systems. In contrast, Denmark is a low lying country where production is dominated by the pig and dairy sectors and the water pollution associated with these is one of the challenges facing their regulator. In terms of the overall performance of their regulatory landscape, Denmark sits in fifth place in the 2008 Doing Business rankings, just one above the UK. It shares the same target for reducing admin burden as the UK (25% by 2010), and was an early adopter of the SCM as a means of measuring admin costs. In terms of SCM usage and admin reduction targets, it differs from Scotland, which is adopting a mainstreaming approach to improving regulation.

Other routes to better regulation

Undertaking a SCM based ABME is only one of a range of initiatives that could be undertaken to improve regulation. Identifying the best course of action requires a clearly defined vision of how and why one wants to improve regulation, and this may involve expending greater effort on gathering information and securing stakeholder involvement. For example the table below shows four different goals that could all fall within the scope of improving regulation.

Policy goal	*Strategy*
Lower admin burden	Admin burdens reduction involving an SCM-based measurement exercise and simplification programme. Expensive, but benefits likely to outweigh costs. Benefits to regulator indirect.
Greater industry confidence in regulation	Improved valuation of costs and benefits. Admin burdens reduction (see above) but with significant industry buy-in through stakeholder engagement.
Better quality regulation	Benchmarking could be undertaken using a metric such as the Environmental Regulatory Regime Index, however this requires good quality data.
Economic efficiency	Improved valuation of costs and benefits - this should improve the design of regulation where there is discretion; where there is no discretion, this should (a) help make the case for derogations (where C>B, and the regulations provide flexibility) or (b) improve confidence in the regulation (where B>C).

Finally, the regulatory regime in Scotland and the UK as a whole needs to be viewed in context of the public benefits it provides. While the regulatory regime in the UK imposes costs on business, these need to be viewed in light of the significant benefits it provides to business by, for example: protecting the natural resource base; strengthening the competition regime; protecting consumers; encouraging people to take paid employment; and reducing the costs of accidents and ill health. By some measures the UK has a relatively benign business environment, which may be at odds

with some industry perceptions. Furthermore, commitment to improving regulation has been demonstrated through recent UK and Scottish initiatives, and the ongoing efforts of the Scottish Government and its agencies to involve stakeholders in the development of regulation. At the UK level, a dedicated unit (the Better Regulation Executive) has been set up to drive forward the better regulation agenda through initiatives such as the Administrative Burdens Measurement Exercise and associated Simplification Programme. In the Scottish agriculture sector, the SEARS partnership has been welcomed as a way of reducing the administrative costs of regulation by identifying and reducing burdens.

1. Introduction

1.1 Background

Given the range of public goods and externalities associated with land management and the level of support payments available to farming, some regulation of agriculture is inevitable to ensure social benefits. However, the farming industry has claimed that the amount of regulation is disproportionate when compared with the level of risks and public expenditure. Whilst claims such as "Red tape may be final straw for Scots farming" (Buglass 2007) are clearly overheated, they do reflect popular concern to put "common sense back at the heart of the government's approach to European regulation" (National Farmers' Union of Scotland 2006).

Yet regulation serves a purpose since it is "the supervision and control of the economic activities of private enterprise by government in the interest of economic efficiency, fairness, health and safety" (Bannock *et al*; 2003, p329). Hence the magnitude and distribution of regulatory burdens need to be viewed against the social benefits delivered, and against alternative means of overcoming various forms of market failure. It is also important to acknowledge different aspects of regulatory requirements since administrators are charged with meeting a number of operational criteria. These include achieving desired outcomes in a cost effective manner but also managing regulation in an equitable, transparent and accountable manner (e.g. Stigler 1971; Stiglitz 1986; Laffont & Tirole 1993; Gunningham et al., 1998; Conlon, 2005).

Nevertheless, concerns over the potential adverse effect of regulatory burdens on businesses and their competitiveness have prompted increasing attention to achieving "Better Regulation". For example, at the European level, this is typified by the Lisbon agenda in setting the goal for the EU to become the most dynamic and competitive, knowledge-based economy in the world. Equally, at the UK level, the Hampton Review focused on reducing administrative burdens and promoting efficient and effective approaches to regulatory inspection and enforcement. At the Scotland level, Scotland's Environmental and Rural Services (SEARS)[1] represents an important contemporary initiative, providing easier access to information as well as co-ordinating and reducing the numbers of separate inspections and reducing the burden of information provision to lower administrative costs to farms and other rural businesses.

This report seeks to contribute further towards understanding of agricultural regulation in Scotland and has the following objectives:

- To describe the regulations associated with Scottish agriculture
- To provide an overview of the methodology for assessing costs and benefits of regulation in agriculture in Scotland, including a critique of the standard cost model
- To assess the costs and benefits associated with key regulations in Scottish agriculture and with specified environmental regulations

[1] http://www.sears.scotland.gov.uk/

- To identify best practice in the implementation of regulations in agriculture in other countries
- To identify areas where there are opportunities to improve the effectiveness of regulation in Scottish agriculture.

1.2 Rationale for policy intervention in agriculture

As a production activity, agriculture represents a small but significant component of the Scottish economy, accounting directly for over £2bn of output and 50k jobs nationally (SG, 2008). Reflecting linkages between agriculture and other parts of the economy, these direct effects are amplified by indirect and induced multiplier effects – estimated at 1.8 for output and 2.0 for employment – further increasing agriculture's contribution (SG, 2007).

Beyond these market effects, agriculture also generates non-market effects throughout the economy in the form of externalities and public goods. These include positive benefits such as contributions towards the maintenance or enhancement of aesthetic landscapes, biodiversity and rural cohesion (Slee et al., 2001; Moran et al., 2004). However, agriculture also generates significant negative effects in the form of environmental damage such as air and water pollution and habitat degradation (Pretty et al., 2001 & 2005). Equally, individual (in)action with respect to biosecurity can lead to the spread of infectious animal diseases, imposing external costs on others (Stott, 2003; Sumner et al., 2006).

The existence of externalities and public goods associated with agriculture reflects a divergence between private and social costs and benefits. This may merit public intervention in order to improve outcomes for society, provided that the costs of intervention do not outweigh the benefits gained. In addition, the distribution of gains and losses is typically uneven across different groups within society and political acceptability is also an important determinant of interventions (Gunningham et al., 1998; Goulder & Parry, 2008).

1.3 Instrument choice & design

Whilst a wide range of instruments exist for interventions to correct market failures, they may crudely be characterised as information provision, incentives or classic "command & control" regulations (Stiglitz, 1986; Bemelmans-Videc et al., 1993). That is, farming activities can be guided, rewarded and/or mandated. Some examples are offered in Tables 1.1 and 1.2.

Table 1.1 Examples of policy instruments

	Information and education	*Incentive-based structures*	*Classic regulation and its variants*
Types of intervention	-Govt-provided info -Reporting requirements -Technical/quality standards -Naming and shaming	-Creating markets; Tradable permits/quotas -Price caps; targets -Taxes -Rewards: tax credits/subsidies /awards	-This covers a wide range of statutory measures, often backed up with monitoring, enforcement and sanctions, e.g.: prohibiting activities, prior permissions, etc.

Table 1.2 Examples of intervention responses to agricultural problems (MacLeod & Bevan 2007)

Problem	*Cause*	*Response*
Poor bathing water quality resulting from farm pollution	*Negative externality*: the full social cost from farm pollution is not internalised by the polluter.	Bathing Water Directive Nitrates Directive Water Framework Directive
Maintaining high value farmed ecosystems	*Positive externality*: the value of the biodiversity gain to society due to grazing is not received by the farmer	Payments to farmers in Natura 2000 sites (EU protected areas) for carrying out agreed actions
Public health problems arising from dietary choices	*Informational Failure:* the consumer has limited understanding of the nutritional value of foodstuffs	Introduction of "Traffic light labelling" and public awareness campaign

Although official guidance stresses the need for any policy intervention to demonstrate additionality and a positive cost-benefit effect for society (HMT, 2003), the choice between different classes of instrument depends on a number of factors. These include effectiveness at delivering net gains to society, but also the transaction costs of implementation plus the distribution of impacts across different groups in society (Laffont & Tirole 1993; Gunningham et al., 1998; Hepburn, 2006; Goulder & Parry, 2008; Pannell, 2008).

Information provision can address instances of market failure where individual and collective decisions are poor due to a lack of awareness, and private and social outcomes can be improved jointly in a "win-win" situation. However, relatively few externalities fall into this category and the effectiveness of information provision alone is typically limited. However, it is usually deployed in support of other instruments as part of a policy mix.

In general, incentives offer potential efficiency gains by requiring relatively less information and allowing greater flexibility and innovation than that offered by

uniform regulatory controls. However, environmental and animal health outcomes often exhibit threshold effects beyond which damage increases rapidly or becomes irreversible. In such cases, regulatory controls may offer greater assurances that minimum standards will be observed and maintained than under voluntary responses to incentive schemes. Moreover, the administrative costs of monitoring actual outcomes can be significantly higher than simply observing mandatory management practices. Consequently, whilst incentives are typically deployed in pursuit of positive non-market effects, regulation is used more often as a cost effective means of reducing negative effects.

1.4 Compliance costs

The purpose of regulation is to pursue social benefits, to enhance positive externalities and reduce negative ones. In so doing, costs will be incurred as resource usage adjusts to better reflect a socially desirable pattern. Such costs fall into two main classes: administrative costs and policy costs. The policy cost is defined as the cost of changing inputs, outputs or processes in order to comply with a regulation. The administrative cost is the cost of undertaking administrative tasks required to comply (e.g. familiarisation, recording and providing data, cooperating with inspections).

The administrative costs are the "transaction" costs of implementation, and include public administrative costs but also farm administrative costs. For example, on-site inspections to establish baselines and monitor adherence to prescribed practices or achievement of specific outcomes require staff time and record keeping on both sides. Such transaction costs can be significant and are the focus of a number of initiatives, including the Standard Cost Model (SCM) detailed in Chapter 2 and, in Scotland, SEARS. For the latter, significant effort has already been expended under Phase 1 to identify public and (especially) private administrative costs and ways in which they can be reduced by combining and streamlining a number of information and inspection functions across several public agencies without recourse to legislative change. This has been welcomed by stakeholders, and will continue under a planned Phase 2 that may also consider options requiring legislative change (pers. comm. SEARS team).

Second, whilst there may be administrative costs of complying with regulatory controls, there will also be other compliance costs associated with changes in actual productive activities – these are the policy costs. For example, for regulatory controls couched in terms of environmental or biosecurity performance, farms may respond in one of three ways: by adopting different inputs (e.g. different fertilisers or livestock breeds); and/or using a different technology (e.g. slurry treatment or vaccines); and/or reducing output (e.g. lower yields or stocking densities; ceasing production).

For regulatory controls couched in terms of specific practices or technology standards, the degree of freedom for flexibility in responses will typically be less. In either case, whilst aggregate social gains may be achieved, each of the response options may impose losses at the individual farm-level in the form of additional costs incurred and/or income forgone.

However, the magnitude of these losses is highly context-specific and thus difficult to determine *a priori*. For example, in some cases, if production and marketing systems

were previously inefficient, regulatory standards may potentially improve farm profitability through encouraging better management and opening new market opportunities (the "Porter hypothesis" - Porter & van de Linde, 1995). Equally, dynamic adjustment may deliver previously unknown efficiency gains through innovation or allow some costs to be passed along the supply-chain. Conversely, whilst scope for improvement may be present in many cases, constraining the production choice of any already relatively efficient farm will necessarily result in a net (private) cost - especially given the price-taking nature of most individual farms leaving little scope for passing additional costs on.

Unsurprisingly, given these different perspectives, empirical evidence for the impact of regulations on business competitiveness is mixed. Yet, notwithstanding some data limitation problems and a relative lack of agricultural-specific studies, a general finding is that *ex ante*, static estimates often exaggerate the costs to industry. That is, whilst counter examples are possible, dynamic adjustment and innovation often deliver lower compliance costs and, moreover, other factors (e.g. labour costs) are often more important to overall competitiveness (Adams, 1997; Heinzerling, 1998; Sheldon, 2006; Ackerman, 2006; Cole & Elliot, 2007; Pasurka, 2008).

Nevertheless, it is acknowledged that regulatory burdens are an important issue and that attempts should be made to reduce them wherever possible and to establish the benefits of retaining them. Hence a number of high-profile initiatives have focused on improving regulatory quality to better balance effectiveness against the inevitable administrative and compliance costs (e.g. BRTF, 2005; CES, 2005; Hampton, 2005) and official guidance stresses the need for impact assessment to examine the balance of costs and benefits (e.g. HMT, 2003; BRE, 2008). Where regulatory requirements are derived from European or International obligations, whilst valuation of benefits may contribute to attempted renegotiations, short-term analysis may legitimately focus on cost effectiveness – seeking the least costly way of complying with an external standard.

1.5 Scope of report

This report does not estimate specific regulatory burdens nor present comprehensive cost-benefit analyses of individual regulations. Rather it presents an overview of agricultural regulation in Scotland in order to highlight possible areas for improvement in both regulatory design and in deployment of the analytical framework for judging costs and benefits.

Selection of Case Studies

The selection of case studies involved three steps. Firstly, an initial list of regulations associated with Scottish agriculture was generated, based on a literature review and the team's experience. This was reviewed by policy officials in the Scottish Government and a long list of 102 arrived at. Secondly, this was reduced to an interim list of 35 (see Appendix A) by focusing on regulations that (a) lie within the Scottish Government's ambit, (b) are specific to agriculture and (c) affect on farm operations. The list of 35 was reviewed by the project steering group. Thirdly, a final list of 12 case studies was drawn up using the following criteria:

- a significant proportion (i.e. >50%) of the case studies should be on regulations for which there is potential for inefficiency (i.e. where costs>benefits) or which were perceived to be problematic (see e.g. MacLeod and Bevan (2007); Scottish Parliament (2006a, 2006b; Ambler and Chittenden 2007 p21); Davidson (2006); Pearce (2004).
- the case studies should cover a mixture of agricultural sectors.
- four specific environmental protection regulations are to be included (Water Environment (Controlled Activities) (Scotland) Regulations 2005; SSI 2003 No. 51 The Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2003; SSI 2000 No. 323 The Pollution Prevention and Control (Scotland) Regulations 2000; The Control of Pollution (Silage, Slurry & Agricultural Fuel Oil) (Scotland) Regulations 2001, 2003).
- the case studies should be spread across the main policy areas of agricultural regulation.
- the case studies should include a range of different regulatory measures and reasons for intervention.
- the case studies should provide a mixture of regulations where (a) the SG is legally obliged to legislate (i.e. because of EU law) and (b) where the SG is not legally obliged to legislate.

The overall aim was to cover a broad spectrum of regulations, rather than focus on regulations that were all of one type (i.e. all the regulations that were seen as problematic by the industry or the regulations with the highest admin costs). In addition, some of the criteria proved difficult to meet. The range of policy areas covered was constrained by the fact that the SG main remit in terms of farm-specific regulation is in the areas of: (a) farm payments/rural development; (b) environmental protection; (c) animal health and welfare. Employment legislation tends to be outwith the SG remit and not farm specific, while food safety tends to be off-farm. Achieving a range of different measures proved difficult as most of the regulations on the short list were classic regulation. The final list of regulations and the reasons for their selection are outlined in table 1.3.

Table 1.3 Final list of case studies

Policy Area	*Regulation*	*Enabling Legislation*	*Reasons for selection*
Agricultural support/ rural dev	1. Scottish Statutory Instruments 2004 No. 518 The Common Agricultural Policy Schemes (Cross-Compliance) (Scotland) Regulations 2004	Regulation (EC) No. 1782/2003 and Commission Regulation (EC) No. 796	Significant costs (admin and social), high profile regulation, widespread impact.
	2. Scottish Statutory Instruments 2005 No. 225 The Land Management Contracts (Menu Scheme) (Scotland) Regulations 2005	Council Regulation (EC) No. 1257/1999(55)	High profile regulation, widespread impact. Potential to identify lessons for LMO's
Pollution control/ habitats and natural heritage/ waste	3. SSI 2005 No. 348 Water Environment (Controlled Activities) (Scotland) Regulations 2005	Directive 2000/60/EC of the European Parliament; Water Environment and Water Services (Scotland) Act 2003	Suggested by SNIFFER/SEPA
	4. Scottish Statutory Instrument 2003 No. 51 The Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2003	EC Directive (91/676/EEC); Statutory Instrument 1996 No. 1564 (S.137)	Suggested by SNIFFER/SEPA Cited as problematic, high profile
	5. SSI 2000 No. 323 The Pollution Prevention and Control (Scotland) Regulations 2000	Council Directive 96/61/EC; Pollution Prevention and Control Act 1999	Suggested by SNIFFER/SEPA Cited as problematic, significant admin costs; covers intensive farming
	6. The Control of Pollution (Silage, Slurry & Agricultural Fuel Oil) (Scotland) Regulations 2001, 2003	UK Control of Pollution Act 1974	Suggested by SNIFFER/SEPA
	7. Statutory Instrument 1989 No. 1263 The Sludge (Use in Agriculture) Regulations 1989	Council Directive No. 86/278/EEC	Evidence of inefficiency, non-EU origin
Animal health and welfare	8. Disposal of fallen livestock under The Animal By-Products (Scotland) Regulations 2003 (SSI 2003/411)	EU Regulation (EC) No 1774/2002	Evidence of inefficiency, cited as problematic
	9. Scottish Statutory Instruments 2007 No. 559 The Sheep and Goats (Identification and Traceability) (Scotland) Amendment Regulations 2007	Council Regulation (EC) No 21/2004	Evidence of inefficiency, cited as problematic, high profile opposition
	10. Scottish Statutory Instrument 2005 No. 434 The Tuberculosis (Scotland) Order 2005	UK Animal Health Act 1981	Example of non-EU origin regulation
	11. Scottish Statutory Instrument 2006 No. 530 The TSE (Scotland) Regulations 2006	Regulation (EC) No. 999/2001 of the European Parliament	Significant admin costs, cited as problematic
	12. Scottish Statutory Instrument 2006 No. 606 The Welfare of Animals (Transport) (Scotland) Regulations 2006	Council Regulation (EC) No. 1/2005	Cited as problematic

2. Overview of the assessment of cost and benefits of regulation and an assessment of the potential application of the Standard Cost Model in Scotland

2.1 Assessing the costs and benefits of regulation

In common with other policy areas, the assessment of the costs and benefits of agricultural regulation is an integrated part of the Impact Assessment (IA) process. The IA process is outlined in the flowchart in figure 2.1 (Appendix D).

The Better Regulation Executive provides guidance on various aspects of the IA process. Their guidelines on the assessment of costs and benefits are as follows (Better Regulation Executive 2008):

"Costs and benefits
26. Cost and benefit information is presented in separate sections of the Summary: Analysis & Evidence page. However, a common procedure is applied to the presentation of both costs and benefits.
27. For the annual and total cost and benefit calculations included in the summary, the following common principles apply.

– All costs and benefits accrued over and above the 'status quo' or 'do minimum' option are the focus of the analysis.
– The summary must take account of the full range of costs and benefits: economic, social and environmental; these should be monetised as far as possible.
– Spurious accuracy in the presentation of the cost and benefit figures should be avoided with ranges used where appropriate.

28. Costs falling on other Government departments (such as the costs of the judicial system, and of legal aid) should also be included.
29. Description and scale of key monetised costs and benefits accrued by the main groups affected by the proposal or other impacts (such as particular environmental impacts) should be clearly stated. Generally, these should usually only cover the first round effects of the policy. However, further impacts may need to be considered in some circumstances – see examples in Treasury's Green Book guidance on appraisal and evaluation.
30. Annual cost and benefit figures should be presented in constant prices i.e. at today's general price level, so that comparisons can be easily made. It is recognised that in some cases annualisation of costs and benefits may be more appropriate and the presentation of these figures should be discussed with your department's Better Regulation Unit.
– 'One off' costs and benefits occur when organisations or individuals undergo transition to adapt to the new regulation or intervention. The total one-off cost or benefit should be divided by the numbers of years over which these costs and benefits take place. Both the average annual 'one off' costs and benefits and the years over which transition occurs must be specified on the summary page.
– Average annual costs and benefits (excluding 'one off') represent the average ongoing costs and benefits incurred over the time period under analysis.
31. The total costs and benefits in present value (PV) terms associated with the proposal should be calculated in accordance to Treasury guidance about recommended discount rates (see the Green Book: appraisal and evaluation in central Government).
32. Other key non-monetised costs and benefits by main affected groups should be quantified or qualified on the summary page in cases where monetisation is not feasible. For example, this could include specifying major environmental impacts where appropriate.
33. Any key assumptions, sensitivities or risks underpinning the cost and benefit calculations that affect the conclusions drawn from the analysis should be highlighted on the summary page.
34. Cost benefit analysis provides the basis on which to assess whether an option's benefits meets or exceeds its associated costs. It also allows alternative options to be compared in a meaningful way.
– The price base year (i.e. the year from which the prices used in the analysis are expressed) and the time period over which the analysis takes place should be stated.
– The range of the Net Present Value must be stated. This could be either positive or negative depending on whether total benefits exceed or are less than total costs. The range produced will be indicative of the level of certainty around the figures in the analysis.
– The best estimate of the Net Present Value must also be stated."

In essence an RIA is designed to examine a range of policy options in reference to a "do nothing" or "do minimum" option. Costs captured within an RIA will therefore represent the incremental cost of an option compared to this benchmark.

The guidance states that the summary must take account of the full range of costs and benefits: economic, social and environmental; and these should be monetised as far as possible. Other key non-monetised costs and benefits by main affected groups should be quantified or qualified on the summary page in cases where monetisation is not feasible. Major environmental impacts are specified as an example of where monetisation may not be feasible, and the valuation of non-market goods can indeed pose challenges.

Detailed guidance on how to assess costs and benefits is provided in the Treasury Green Book (HM Treasury 2007), which gives advice on practical matters such as discounting and valuing costs and benefits where no market data exists. For example, figure 2.2 (Appendix D) shows the Green Book approach to identifying the most appropriate valuation technique for non-market benefits.

In Scotland, the assessment of costs and benefits is undertaken by departmental policy experts as part of the Regulatory Impact Assessment (RIA) process. The Scottish Government Improving Regulation Unit (IRU) oversees the process, providing advice and auditing RIAs. The RIA process in Scotland follows the Better Regulation Executive guidelines, although the IRU provides supplementary guidance ("Scottish Extras") on IA (see Box 1 in Appendix D). The supplementary guidance covers the following points:

- Micro Business Test
- Legal Aid Impact Test
- "Test Run" of business forms
- Ministerial sign-off
- Review Regulatory Impact Assessments

2.2 Evaluation of the Standard Cost Model (SCM) and its potential application to agriculture in Scotland

2.2.1 Overview of the Standard Cost Model

This section gives a brief overview of the SCM, for more detail see the UK SCM Manual (Better Regulation Executive 2005) and the International SCM Manual (available at: http://www.administrative-burdens.com/*)*.

The SCM is a methodology for measuring the administrative cost of regulation imposed on business by government. It was developed in the Netherlands and is

sometimes referred to as the “Dutch Model”. In essence, it is a consistent way of breaking down the administration required to comply with a regulation into a range of manageable, measurable components (see figure 2.3, Appendix D). It should be noted that the SCM only "estimates the costs of a defined set of administrative activities" (NAO 2007, p16); it does not measure the policy costs or any of the benefits of a regulation. Furthermore, it does not measure "'one-off costs' nor the 'financial costs' of complying with regulation, such as paying tax or licence fees" (NAO 2007, p16).

Each regulation is broken down into information obligations (IOs), data requirements (DRs) and activities. IOs are obligations to provide information to the public sector and consist of one more DRs, each of which necessitates certain administrative activities. For example, a regulation may involve the IO of applying for a licence, which has data requirements such as: providing a description of the installation; providing details of emissions, and measures currently in place to monitor emissions. Each of these DRs will in turn require certain activities. The seven sets of standard activities are (Defra 2006b):

1. Familiarisation with requirements
2. Gathering and assessing relevant information/figures
3. Preparing figures (including calculating, presenting, checking and correcting)
4. Reporting (including written descriptions, copying, filing, distributing or submitting information/reports)
5. Making settlements or payments
6. Holding meetings
7. Inspections

The cost of these activities (from which the total cost of the regulation is derived) is calculated using the basic SCM formula:

Activity Cost = Price x Quantity
= *(tariff x time) x (population x frequency)*

For example, figure 2.4 shows the breakdown of the activities involved in applying to the regulator for a permit to operate an installation under the Pollution Prevention and Control Regulations 2000 (England and Wales). In this example, the cost of familiarisation (across all sectors, not just agriculture) is:

Activity Cost = (£14.06 x 22hrs22.37minutes) x (1610 x 1)
= £315.01 x 1610
= £507,166

A 30% overhead is added to these costs to give the internal admin cost for the activities. The external cost of the activities is the cost of the goods and services purchased to undertake the activity, e.g. in applying for a permit the business may employ consultants or accountants. The total admin cost is the sum of the internal and external costs.

The calculation in figure 2.4 (Appendix D) distinguishes between admin cost and admin burden. The admin burden is the admin cost minus the cost of activities the business would have undertaken anyway (either for organizational reasons or in

response to other regulations) in a business-as-usual (BAU) scenario. The UK Administrative Burdens Measurement Exercise (ABME), from which the example in figure 2.4 is taken, is unusual in making this important distinction and attempting to quantify BAU factors.

While conceptually simple, the actual SCM process is lengthy and requires significant resources. The steps involved are outlined in table 2.1.

Table 2.1 Steps in the measurement using the SCM (Better Regulation Executive 2005, p32; see http://www.berr.gov.uk/whatwedo/bre/index.html)

Phase 0: Start-up
Initial meetings of the department, Better Regulation Executive, consultants and other key stakeholders
Phase 1: Preparatory Analysis
Step 1: Identification of information obligations, data requirements and administrative activities and classification by origin
Step 2: Identification and demarcation of related regulations
Step 3 Identification of segments
Step 4 Identification of population, rate and frequency.
Step 5 Business interviews versus expert assessment
Step 6 Identification of relevant cost parameters
Step 7 Preparation of interview guide
Step 8 Expert review of steps 1-7
Phase 2: Time and cost data capture and standardisation
Step 9 Selection of typical businesses for interview
Step 10 Businesses interviews
Step 11 Completion and standardisation of time and resource estimates for each segment by activity
Step 12 Expert review of steps 9-11
Phase 3: Calculation, data submission and reports
Step 13 Extrapolation of validated data to national level
Step 14 Reporting and transfer to database

Detailed description of the SCM process, and assumptions underpinning it is beyond the scope of this brief overview. However, attention is drawn to the following key point:

"The SCM relies on deriving estimates of the *standard cost of meeting each information obligation/data requirement* (IO/DR) within a regulation for a *'normally efficient business'*. Given the need to manage the overall costs of data collection while providing information about a very large number of information obligations/data requirements (IO/DRs), the SCM relies on the input of a very limited number of experts and/or businesses regardless of the number of businesses affected by each IO/DR. As such, *it does not produce a statistically representative measurement of costs*: instead, it is a pragmatic approach to measurement that *gives indicative estimates* of the magnitude of costs. These estimates *provide a starting point for setting reduction targets* and highlighting the areas to focus upon. Moreover, the nature of the estimation process means that the greater the level of disaggregation of

the cost estimates, the greater the potential margins of error surrounding the cost estimate." Defra (2006a, p11)

Variations of this caveat are repeated frequently in SCM literature, and it underlines a fundamental feature of the SCM: its strength lies in measuring (and demonstrating) change in admin costs over time, which is why it is often used in burden reduction initiatives. In the words of the Better Regulation Executive (2005, p7) the SCM "does not give a statistically representative measurement…instead it is a pragmatic approach to measurement that gives indicative data on the size of burdens to allow reduction targets to be set and areas to focus on identified"

In 2003 a group of European countries formed the SCM Network in order to foster a common approach to reducing regulatory burden. Table 2.2 shows the current members of the network:

Table 2.2 Current members of the SCM Network

Australia, Victoria	Ireland
Austria	Latvia
Belgium	Luxembourg
Czech Republic	The Netherlands
Cyprus	Norway
Denmark	Poland
Estonia	Portugal
Finland	Slovenia
France	Spain
Germany	Sweden
Hungary	United Kingdom
Italy	

Of particular relevance to Scotland is the SCM work that has been undertaken as part of the UK central Government Administrative Burdens Measurement Exercise under the aegis of the Better Regulation Executive.

2.2.2 Application of the SCM in the Administrative Burdens Measurement Exercise

The ABME was launched in response to the Better Regulation Task Force's report "Regulation: Less is More". It was implemented between September 2005 and May 2006 in three phases:

1. Preparatory analysis - identifying regulations and breaking them down into constituent parts (information obligations, data requirements and activities)
2. Time and cost data capture and standardisation
3. Calculation, data submission and reporting

Sixteen Government departments took part in the exercise (including Defra), which covered all regulations in force in May 2005 (excluding tax and financial services, which were covered in separate studies). In total, the exercise studied 1400 regulations, 20,000 information obligations and 80,000 activities and required

contacting 350,000 firms so that 8500 interviews could be undertaken. At its peak the ABME involved 700 external staff and 300 internal staff.

The findings of the Defra ABME are reported in detail in Defra (2006a). Selected findings are summarised in tables 2.3 – 2.5 (Appendix D).

Key points are:

- Defra had (at May 2005) 362 regulations within the scope of the exercise and 3210 information obligations or data requirements (IO/DRs)
- the total admin cost to business for these regulations is estimated to be £735.7m (£2006)
- a small number of regulations and IO/DRs are responsible for a large proportion of the cost, e.g. "the 20 most costly regulations in Defra account for about three-quarters of the total cost" see table 2.3 (Defra 2006, p13) and 61 IOs (out of 3210) accounting for about four-fifths of the total cost: "a comparatively small number of key activities are driving a significant proportion of the administrative costs falling to business" (Defra 2006, p13)
- the majority of the most costly regulations fall within the (a) animal health and welfare and (b) environment policy areas
- across all of Defra's regulations, 67% of the admin costs arise as a result of international (mainly EU) obligations, however this % varies considerably between different policy areas (see table 2.5, Appendix D); of the 67%, 46% provide no domestic discretion, and 21% provide for some domestic discretion in terms of which information businesses have to produce.
- admin cost v admin burden. An indication of how much of the costs are burden (i.e. costs incurred undertaking activities over and above those that would have been carried out anyway) is given by the % of businesses (for all industries covered by Defra regulations) that said they would have undertaken the data provision for some other organisational purpose. Two thirds (65%) said they would not have undertaken the data provision, while 24% said they would have "to some extent" and 11% would have "to large extent". . This implies that the admin burden is likely to be between 65% and 89% of the admin cost in the set of businesses surveyed.

While these findings are based on the UK ABME, they provide useful insights because in many cases there is a great deal of similarity between the regulatory landscape in Scotland and the rest of the UK, despite the devolution of responsibility for agricultural and environmental policy. This is partly because about half of the admin burden of Defra's regulations are the result of EU obligations, which provide little scope for interpretation by the devolved administrations (see table 2.5). However, there are also likely to be differences in terms of the admin cost between Scotland and the rest of the UK in some policy areas, as a result of: (a) different regulations (e.g. in terms of bovine TB or land reform); (b) variations in the ways in which the same regulations are implemented (e.g. in terms of the license fees and approaches to enforcement); (c) differences in economic structure (e.g. predominance of grassland; nationalised water company); (d) differences in terms of demography and the physical environment (e.g. lower population density, high quality environment). So, while the overall findings are of relevance to Scotland, the admin costs of individual policies

will be quite different in some cases. The issue of the transferability of costs from the ABME to Scotland is explored further in case study 5 (PPC Regulations).

2.2.3 The SCM in practice: review of the performance of the SCM in the UK central Government ABME

Main purpose of the ABME/SCM

A point made throughout SCM guidance (e.g. see Defra (2006a, p11) is that the main purpose of the SCM is to provide something to measure progress against because "it's important to show how things have changed (for the better)..." (Hammond 2008) if you want to demonstrate that you're serious about tackling regulatory burden - "...if businesses do not perceive the difference, then you really have failed". In order to demonstrate change in the admin burden it is essential to "get business involved in measurement and re-measurement" (Hammond 2008). This matters because simply achieving change may not be sufficient to allay industry concerns about regulation. Even though significant admin burden reductions have been achieved in Denmark and Holland (20%), they either (a) haven't been noticed by business as they have been spread thinly across many firms or, (b) when noticed, haven't been attributed to the admin burden reduction initiatives. Also new businesses tend not to notice reductions in burden as they are unfamiliar with the previous regulatory regime, so have no basis for comparison. It seemed to Hammond (2008) that changing perceptions of regulatory burden is as difficult, if not more so, than actually reducing the burden, and that despite the Better Regulation initiatives and the relatively light touch regulatory regime in the UK "perceptions are still negative". In this light, current stakeholder engagement with, and support for, SEARS is both significant and welcome. The Scottish Government intends to commission research to establish customer's experiences of interacting with SEARS.

Practical Issues

There are a huge number of activities to measure, which makes it difficult to break down all tasks by firm size and industry sector – this level of segmentation would make the exercise unmanageably large. Also it can be difficult to get a standard cost for some activities, especially from interviews. There can be a great deal of variance in the costs, depending on how people interpret the questions. It proved particularly difficult to get hold of people to interview in certain industries, notably fishing and agriculture, where respondents were often unavailable and/or uninterested. This problem can be tackled by tailoring the data collection, e.g. using out of hours calls, and avoiding busy times such as harvest or lambing. Existing data collection mechanisms such as the Farm Accounts Survey (FAS) could also be used, as could information gathered through SEARS – although it is acknowledged that the latter has tended to gather qualitative rather than quantitative data.

Hammond (2008) emphasized the "need to put it (the questions about time) in ways people understand" and suggested that "expert panels are one of the most effective ways of getting information". These work by presenting a "straw man" (a scenario outlining what you think would be involved in admin for a regulation) to a panel of industry representatives for discussion. This proved to be less time consuming than phone interviews. Another way round the problem of segmentation is to identify the size of most of the firms; if most are small then focus resources on this segment (most

farms will be micro (0-9 employees) or small (10-49) by the SCM manual definition). Another reason for focusing on small firms is that they are often time constrained and tend to find admin problematic.

Advantages
According to Hammond (2008) there are two big advantages to the ABME/SCM approach. Firstly, “it gives you a good understanding of the regulatory landscape”, e.g. it helps you to identify where the same information is being collected multiple times, or where admin is particularly problematic. Secondly, “it helps to put momentum behind the simplification measures”. The NAO (2007, p7) concurred with this assessment, observing that (a) the ABME may deliver "a better understanding among policy officials of the regulatory regime and how it affects business" and (b) that "setting targets has provided a new focus and impetus to Government efforts to reduce the administrative burdens of regulation". The impetus for change is important as the impact of the ABME/SCM depends on the scope that exists for pursuing change in light of its findings.

2.2.4 Cost and Cost-Effectiveness of the ABME/SCM
An SCM based ABME involves considerable resources. Full costings for the ABME were not available, in part due to the difficulty of estimating the costs of the internal resources used in the exercise. A preliminary appraisal has been carried out, using the best available data (see table 2.6, Appendix D). The results indicate that the UK central Government ABME/SCM (across all industries and Government departments apart from HM Revenues and Customs) will have a cost of approximately £21.2m (NPV, £2006) over its five year lifespan. It is estimated that a full ABME would cost approximately £2.7m to apply to all RERAD regulations (assumed to be 181 regulations, across all industries). Preliminary evidence suggests that the cost reductions achieved by the ABME in UK central Government are significantly greater than the costs (B:C ratio of 31). However, it should be noted that these conclusions rest on a series of assumptions and are therefore somewhat uncertain. For example, this result is based on the assumption that all the savings in reaching the 25% admin cost reduction target by 2010 can be attributed to the ABME. The ABME has clearly been a vital part of the drive to reduce admin costs. Nevertheless, a full feasibility study should clarify the validity of these assumptions and undertake rigorous, transparent costing.

Undertaking an SCM-based ABME is not the only way to improve regulation. The valuation of benefits is frequently missing from Impact Assessments, and better valuation is perhaps another way in which some regulations could be improved. The cost of the ABME per IO is £1061, which compares favourably with the resources required for valuation. In some ways, this is not a valid comparison as an ABME and valuation answer different questions; the former identifies less costly ways of implementing a regulation, while the latter addresses the question of whether or not a regulation should be implemented at all. Nevertheless, given that adherence to the official guidance for IAs appears to be somewhat variable, it would perhaps be helpful if it were followed more rigorously or - where not - some explanation were offered as to why not. For example, in some cases, the costs of a valuation exercise may be disproportionate to the additional insights gained or of little operational relevance if compliance with an external standard is required under an international obligation.

2.2.5 Reducing the costs of implementing an ABME/SCM approach in Scotland
The estimated cost of undertaking an ABME in Scotland (see table 2.6, Appendix D) should be considered a high estimate as there is considerable scope for these costs to be reduced. As Defra (2007b, p3) note:

"while administrative burden measurement is useful, it is not necessary for all countries to undertake such a resource-intensive exercise to adequately inform simplification programmes, providing there is a representative sample of data for specific policy areas."

There is a sizeable body of secondary data that could be used to cut down the amount of primary gathering required in Scotland (see table 2.7 for potential sources). Data already exists on the structure of farming in Scotland, and now that an SCM-based ABME has been undertaken by UK central Government, there is a large amount of data on the information gathering activities required for Defra regulations, which could be adapted for use in a Scottish ABME. The data is available in a web-based calculator format (see figure 2.4, Appendix D) or as an Access database. An updated version of the Access database will be available from the Better Regulation Executive in September 2008. An examination of the limitations of using UK ABME data to calculate the admin costs of regulations in Scotland in given in case study 5.

Another way to reduce the costs is to have a targeted approach, i.e. apply the method in key policy areas, such as areas where admin costs are likely to be a particular problem. According to Hammond (2008), this approach has been adopted in France, and the Irish Government is also considering doing a cut down ABME. This is understandable when one considers that a relatively small number of regulations are responsible for the bulk of the admin burden (see table 2.3, Appendix D). It makes sense to focus on these regulations and identify the causes of the costs. If the complexity of the regulatory data requirements is driving the costs (as opposed to the sheer number of businesses affected), there may well be a case for using the ABME/SCM approach.

Table 2.7 Potential Secondary Data Sources for a Scottish ABME

Data required	*Potential sources*
Identification of IOs/DRs	Defra ABME, BRE Admin Burdens Calculator, 2008 SEPA Survey of Regulated Industries?
Quantification of time taken per IOs/DRs	Defra ABME, BRE Admin Burdens Calculator, 2008 SEPA Survey of Regulated Industries?
Internal costs (e.g. farm wage rates)	Defra ABME, BRE Admin Burdens Calculator, Agricultural Census, Farm Accounts Survey
External costs (e.g. consultants)	Defra ABME, BRE Admin Burdens Calculator, Agricultural Census, Farm Accounts Survey
Population data	Agricultural Census, Farm Accounts Survey, Scottish Pollutant Release Inventory

2.3 Conclusions
The ABME/SCM approach to better regulation has significant strengths, not least of which are that it: demonstrates commitment to reducing regulatory burden; improves the regulator's understanding of the regulatory landscape; provides momentum for

simplification plans; enables comparison of changes in administrative burden, through time and between government departments and countries.

The preliminary appraisal of the ABME/SCM approach indicated that it may well be a cost-effective exercise. However, in practice, the effectiveness of the approach will depend very much on how it is implemented and the policy aims that one is trying to achieve. Humpherson (2006) warns of the dangers of misunderstanding the purpose of the SCM:

"The great allure of the SCM is its appearance of scientific objectivity and of (largely illusory) accuracy. The key thing is not so much that regulation y cost £x, but that the whole regulatory system is targeting reductions and seeking to achieve simplifications."

The SCM is not a way of measuring administrative costs more accurately, it is primarily a way of being able reliably to repeat measurements over time and demonstrate change, i.e. it is a technique that provides cost estimates of low validity but high reliability. It is therefore most effective when employed as an integrated part of an ongoing programme of admin cost reduction, rather than as a one-off assessment of costs. In this context, the overlap between existing SEARS activities and any potential SCM analysis would merit consideration. That is, significant effort has already been expended under SEARS to identify and reduce burdens and this information could inform - or possibly make redundant – a generic or agricultural SCM exercise.

Recommendations

1. It is unnecessary to fully replicate the ABME/SCM exercise undertaken in UK central Government as many lessons have already been learned and do not to be re-learned, e.g. data gathering techniques should to be tailored to the respondents in terms of timing, format, question wording etc. There is considerable scope for reducing the cost of an ABME/SCM exercise through targeting and the use of existing data sources.
2. Any Scottish exercise should focus on key regulations (i.e. high admin cost and irritation, high complexity, Scotland specific) as a disproportionate proportion of the administrative burden arises from a small number of regulations. Sharper focus would enable a Scottish exercise to complement, rather than replicate the UK exercise by, e.g., improving the validity (larger samples) and granularity (estimating standard costs for smaller segments of industry) of the standard costs. There is considerable scope for reducing the cost of an ABME/SCM exercise through targeting and the use of existing data sources. Information and experience gained through SEARS will be highly relevant to such an exercise. Indeed, it may be that SEARS already offers more agriculturally relevant insights and remedies than a separate SCM exercise would, even though the latter might be more quantitative in nature.
3. The UK ABME/SCM will be revised/repeated in 2010; this represents a significant window of opportunity for partnership.
4. Achieving reductions in admin burden on their own are unlikely to improve industry confidence in regulation. Reductions need to be clearly demonstrated to the industry, not just achieved, and this requires the close involvement of the industry in the measurement and re-measurement process.

3. The costs and benefits associated with key regulations in Scottish agriculture and with specified environmental regulations

3.1 Introduction

A series of 12 case studies were undertaken in order to provide evidence on: (a) the overall balance of costs and benefits of key regulations and (b) identify ways in which regulation could be improved. The case studies were selected following the process outlined in chapter 1, and effort was made to have a series of case studies that: included inefficient or problematic regulations; covered a mixture of agricultural sectors and policy areas; included key environmental regulations; included a range of different regulatory measures and reasons for intervention; included a mix of regulation of international and domestic origin. The final list of case studies, and the lead authors are given in table 3.1.

Table 3.1 Case studies and authors

Regulation	*Enabling Legislation*	*Lead author*
1. SSI 2004 No. 518 The Common Agricultural Policy Schemes (Cross-Compliance) (Scotland) Regulations 2004	Regulation (EC) No. 1782/2003 and Commission Regulation (EC) No. 796	Kev Bevan, SAC
2. SSI 2005 No. 225 The Land Management Contracts (Menu Scheme) (Scotland) Regulations 2005	Council Regulation (EC) No. 1257/1999(55)	Andrew Moxey, Pareto Consulting
3. SSI 2005 No. 348 Water Environment (Controlled Activities) (Scotland) Regulations 2005	Directive 2000/60/EC of the European Parliament; Water Environment and Water Services (Scotland) Act 2003	Michael MacLeod, SAC
4. SSI 2003 No. 51 The Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2003	EC Directive (91/676/EEC); Statutory Instrument 1996 No. 1564 (S.137)	Kev Bevan, SAC
5. SSI 2000 No. 323 The Pollution Prevention and Control (Scotland) Regulations 2000	Council Directive 96/61/EC; Pollution Prevention and Control Act 1999	Michael MacLeod, SAC
6. The Control of Pollution (Silage, Slurry & Agricultural Fuel Oil) (Scotland) Regulations 2001, 2003	UK Control of Pollution Act 1974	Sue Evans, Sue Evans Research Services
7. SI 1989 No. 1263 The Sludge (Use in Agriculture) Regulations 1989	Council Directive No. 86/278/EEC	Caroline McBain, SAC
8. Disposal of fallen livestock under The Animal By-Products (Scotland) Regulations 2003 (SSI 2003/411)	EU Regulation (EC) No 1774/2002	Bouda Vosough Ahmadi, SAC
9. SSI 2007 No. 559 The Sheep and Goats (Identification and Traceability) (Scotland) Amendment Regulations 2007	Council Regulation (EC) No 21/2004	Caroline McBain, SAC
10. SSI 2005 No. 434 The Tuberculosis (Scotland) Order 2005	UK Animal Health Act 1981	Julian Bell, SAC
11. SSI 2006 No. 530 The TSE (Scotland) Regulations 2006	Regulation (EC) No. 999/2001 of the European Parliament	Bouda Ahmadi, SAC
12. SSI 2006 No. 606 The Welfare of Animals (Transport) (Scotland) Regulations 2006	Council Regulation (EC) No. 1/2005	Caroline McBain, SAC

Approach to the case studies
Due to the large number of case studies that had to be undertaken in a short period of time, and the limited resources available for each case study, the approach to each case study was tailored to fit the nature of the regulation in question and the quality of the existing evidence. Assessment of the orders of magnitude of the costs and benefits was based on existing analyses as far as possible. Where there were no existing studies, the overall balance of costs and benefits was assessed subjectively by identifying the main elements of the regulation, and highlighting and estimating the significant costs and benefits.

In order to assist in assessment of costs and benefits, and to identify possible ways of improving the regulations, a series of interviews were held with the NFUS, Scottish Crofting Federation, Scottish Tenant Farmers Association and the SRPBA. In addition, *ad hoc* discussions with policy official and domain experts were held on specific topics. During this process the following organisations were contacted (figures in brackets are the number of people contacted): Scottish Government (12); SEPA (5); SNH (2); SAC (7); NFUS (4); SRPBA (1); STFA (1); National Sheep Association; SSPCA (1); CIWF (1); DairyCo (1); Scotbeef (1); Welsh Country Foods; Armstrong Hauliers (1); National Fallen Stock Company (1); and one independent vet. Note these figures do not include members of the steering group or the project team. The draft reports were circulated within the Scottish Government, SNIFFER and SEPA, and findings presented to policy officials at a seminar.

Brief summaries of the each case study are given below, and the full results are provided in Appendix B.

3.2 Findings in brief

1. Scottish Statutory Instruments 2004 No. 518 The Common Agricultural Policy Schemes (Cross-Compliance) (Scotland) Regulations 2004

In order to receive direct farm support, farmers and crofters must comply with a range of requirements covering environmental protection, public, animal and plant health plus animal welfare. Cross compliance comprises of two sets of regulations – Statutory Mandatory Requirements (SMR) and Good Agricultural and Environmental Conditions (GAEC) – with the former covering rules previously in existence. GAEC, however, established new rules for managing soils and protecting landscapes. SEERAD completed a brief RIA in 2005, but this did not assess the costs and benefits of cross compliance. No RIA was deemed necessary for the amended regulation introduced in 2007. However, a number of studies assessing the impact of cross compliance have been undertaken in recent years. These studies generally conclude that cross compliance has a very limited cost for farmers (and crofters). Indeed for many farmers the administrative cost of CAP related form filling has eased for most farmers where a country has decoupled income support from production. A 2007 study for the EC based on five countries, not only confirmed the low cost of cross compliance, but also looked at options for further simplifying associated paperwork. Stakeholders also voiced limited concerns about cross compliance with the exception of duplication of inspections. However, the establishment of SEARS has significantly improved the inspection process. While immediate concerns with cross-compliance

legislation is limited, the need for such regulation long term should be based on the direct benefits that arise from this regulation.

2. Scottish Statutory Instruments 2005 No. 225 The Land Management Contracts (Menu Scheme) (Scotland) Regulations 2005

Introduced in 2005 as the Tier II element of Land Management Contracts, the Menu Scheme (MS) was a non-competitive payment scheme operating under the Rural Development Regulation (RDR). It has subsequently evolved into Land Management Options under Rural Development Contracts, but still offers some insights as a case study. The MS rationale stemmed from seeking to address various forms of market failure to deliver economic, environmental and social benefits, with the novel non-competitive element potentially easing transition to wider uptake of RDR measures. No RIA was conducted in advance and a formal evaluation of costs and benefits has yet to be undertaken, but the MS appears to have performed reasonably against criteria of transparency, accountability , proportionality, and consistency and, given that individual measures were guided by experience of various previous grant schemes, a degree of effectiveness was anticipated. However, a large proportion of potential applicants never applied and, of those that did, the average claim was only for around 60% of the funding allowance available. Given that guaranteed funding was available via a relatively easy application process, this suggests that perceived proportionality was poor for some measures for some land managers. However, overall budget constraints and RDR/WTO requirements on payment calculations mean that this would have been difficult to address. Take-up was highest for measures that were perceived as easiest to comply with, raising possible concerns over the degree of additionality achieved through non-competitive public funding.

3. SSI 2005 No. 348 Water Environment (Controlled Activities) (Scotland) Regulations 2005

This case study focused on the Water Environment (Controlled Activities) (Scotland) Regulations as they apply to agriculture. These regulations were introduced in 2005 as part of the process of implementing the Water Framework Directive in Scotland. The regulations establish a framework for the control of the activities impacting on the water environment, notably: abstraction; impoundment; and activities liable to cause pollution. The regulations seek to achieve their aims through three tiers of control: general binding rules; registration; licensing.

The appraisal of the regulations illustrates the difficulty of weighing up the costs and benefits of individual policies. The impact assessment approach treats each regulation as if it were a stand-alone measure, however, the CARs are part of a wider strategy designed to improve the water environment through integrated river basin management. It is therefore necessary to look at the overall performance of the strategy that the CARs are a part of. This will be done with the RBMP which is being subject to an RIA presently and will be published in draft form for consultation at the end of 2008. Early evidence suggests that the regulations are performing well, however they should be kept under review to ensure that any lessons arising can be incorporated.

4. Scottish Statutory Instrument 2003 No. 51 The Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2003

The 1991 Nitrates Directive aims to reduce the level of nitrates in water that originates from agriculture. The directive has been transposed into Scots law through a number of regulations of which the Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2003 is the latest. These regulations cover the actions farmers should take to prevent, or at least minimise, the loss of nitrate from the farm to the water environment. Two Scottish RIAs have been undertaken. While both RIAs try to assess the economic costs, they make no attempt to quantify the economic benefits. As a result, the level of confidence in the usefulness of the Scottish RIAs is at best moderate. The partial RIA completed in 2007 by Defra for England also fails to properly quantify the benefits of lower nitrate levels. The recently published House of Commons review of the Nitrates Directive in England also raises concerns about the analysis underpinning the regulation, though accepts that action must be taken to make England compliant with the directive. Stakeholders differ in their viewpoints on the regulation, with the NFUS mainly concerned with the financial burden on livestock farmers. However, farmers in Scottish NVZ's will be eligible for capital grant support through the SRDP. All stakeholders agreed that given the recent large rise in fertiliser prices, promoting the financial benefits of nutrient management plans should be a priority.

5. SSI 2000 No. 323 The Pollution Prevention and Control (Scotland) Regulations 2000

The Pollution Prevention and Control (Scotland) Regulations 2000 established a new pollution control regime based on the application of Best Available Technology. They apply to what are considered to be the industries posing the greatest risk of pollution, including intensive pig and poultry installations above a certain size threshold. Robust valuation of the costs and benefits of the regulations was beyond the scope of the case study, instead the possibility of using existing Standard Cost Model (SCM) derived data to assess the admin costs of the PPC regulation in Scotland was explored. The conclusion is that for a regulation such as PPC, which covers a diverse range of industries, the standard cost is likely to lead to significant under or overestimates for some industries. Specifically, it is likely that estimation of the admin costs of the PPC regulations based on unadjusted standard costs from the ABME will lead to significant overestimates for intensive agriculture in Scotland. In order to use the SCM approach, the way in which the standard costs may vary between sectors should be identified and the standard costs adjusted to account for:

- Differences between the agricultural sector being analysed and the overall mix of industries and businesses used to generate the standard cost
- Differences between the same agricultural sectors in Scotland and the rest of the UK

6. The Control of Pollution (Silage, Slurry & Agricultural Fuel Oil) (Scotland) Regulations 2001, 2003

This case study examines the costs and benefits of regulations designed primarily to reduce the number of pollution incidents arising from the inappropriate storage of silage and slurry. Likely costs and benefits have been identified through discussion with Scottish Environment Protection Agency, and by study of the background and development of the regulations. Consideration is given to on-farm compliance, to the distribution of costs and benefits, and to compliance with the principles of good regulation. The 2008 amendment reflects the principles of better regulation by making the regulations more flexible, and thereby more proportionate and better targeted. The main costs are associated with improving storage facilities. Benefits include improved working conditions and significantly reduced pollution incidents due to structural failures. The balance of costs/benefits is difficult to assess, due to the lack of relevant data on the values of costs and benefits.

7. Statutory Instrument 1989 No. 1263 The Sludge (Use in Agriculture) Regulations 1989

The Sludge (Use in Agriculture) Regulations 1989 and The Sludge (Use in Agriculture) (Amendment) Regulations 1990 establish maximum annual applications for metals contained in sludge and set maximum permitted metal concentrations in agricultural soil treated with sludge. They implement the EU Sludge Directive (86/278/EEC) (OJ No. L181/6). The European Union regulates use of sewage sludge in agriculture to prevent harmful effects on soil, vegetation, animals and humans.

At present there are statutory regulations, non-statutory codes of practice and a voluntary agreement (i.e. the safe sludge matrix) governing the application of sewage sludge to agricultural land. The water industry, food industry and other major stakeholders are pressing for the standards to be made statutory in order to increase confidence and to allow them to be brought within the enforcement regime operated by SEPA. Making the standards statutory would also reduce the risk of having to use other, more expensive, and potentially less environmentally sustainable disposal systems (e.g. incineration and landfill). Importantly for farmers in the current environment of rising fertiliser prices, sewage sludge represents a cheap alternative source of phosphorus, potash and nitrogen. Sewage sludge also improves soil structure.

8. Disposal of fallen livestock under The Animal By-Products (Scotland) Regulations 2003 (SSI 2003/411)

The EU Animal By-Products Regulation based on a wide-ranging review by the European Commission of the Animal Waste Directive (90/667/EEC), lays down the health rules governing the disposal and processing of animal by-products not intended for human consumption. In Scotland the EU regulation is enforced along with some national requirements reflected in The Animal By-Products (Scotland) Regulations 2003. These regulations make it illegal to bury or burn fallen stock on-farms throughout Scotland apart from areas that are designated remote.

The impact (cost) of fallen stock scheme on farmers in England has been estimated by Defra to be at £14m, £15m and £15m for 2006, 2011 and 2015 respectively. Given the lower animal population in Scotland, the regulation's estimated impact of £11.6m on Scottish farmers seems reasonable. The benefits of this regulation are the reduced

risk of disease outbreak of foot and mouth disease and Avian Influenza which can carry very large costs in terms of production losses, movement restrictions and animal welfare levels.

9. Scottish Statutory Instruments 2007 No. 559 The Sheep and Goats (Identification and Traceability) (Scotland) Amendment Regulations 2007

These regulations implement EC Regulation (EC) No. 21/2004 which establishes a system for the identification of sheep and goats through double tagging. The previous UK national system had benefits in terms of traceability but compliance was an issue and this led to the loss of a previous derogation for double tagging. The new system has benefits in terms of decreased cost as movement tags are no longer required and record keeping is simpler. The full benefits of the scheme will not be realised until linked to a system for monitoring movements, for example electronic identification (currently set for implementation in 2010). Industry views have been mixed and the NFUS is currently petitioning for the removal of the requirement to double tag. The Scottish Government will need to ensure that further proposed animal identification measures are practical and useful within the Scottish agricultural system.

10. Scottish Statutory Instrument 2005 No. 434 The Tuberculosis (Scotland) Order 2005

This legislation is based on EU Directive 1964/432 as amended. Additional controls in terms of pre and post movement testing were introduced in SSI 2005 No.434 the TB (Scotland) Order as part of the strategic framework for the control of bTB the aim being to reduce the risk of spreading disease through the movement of cattle. Only minor changes were introduced in the 2007 Order and the RIA for the 2005 Order therefore remains the point of reference in this case study.

In Scotland the legal requirement is that no one should accept onto a holding any cattle from a high risk area unless the cattle have been tested within the 60 day period prior to movement. Despite several breakdowns, Scotland has so far prevented the development of any high disease incidence areas, unlike the situation elsewhere in GB where the incidence of disease is increasing. While the introduction of this legislation is believed to have helped limit the incidence of the disease other factors such as changes in the pattern of trade between England and Scotland, may be partly or wholly responsible. The introduction of post movement testing has brought additional direct costs for the Scottish Government and Scottish farmers but has also brought benefits. In particular additional cases of bTB have been detected by the post movement test. Industry views on post movement testing have been positive as it is considered essential to protect the health status of Scotland and stakeholder support is strongly in favour. The costs of implementing the legislation are estimated to be low compared to the benefits to the Scottish industry. In view of the continued escalation of TB in England and Wales, the Scottish Government needs to keep the legislation under review to ensure that it continues to provide effective safeguards.

11. Scottish Statutory Instrument 2006 No. 530 The TSE (Scotland) Regulations 2002

In 2002, the Scottish Parliament introduced the TSE (Scotland) Regulations in response to the introduction of the Community TSE Regulations (Regulation (EC) 999/2001) and to strengthen domestic legislation issued in response to the BSE

epidemic in UK. In 2006, the Scottish Regulations were revoked and replace by SSI 530/2006. The total costs of enforcing the TSE regulations in Scotland and GB have been estimated at £30.27 million and £125.22 million per year respectively. Record keeping of the activities is the main cause of high administration costs. Besides that, testing and inspection activities which include over thirty months cattle scheme, laboratory approval, meat hygiene inspection, over 24 month fallen cattle, national Scrapie plan and rams genotype scheme are the main cost generating items. The benefits to industry from disease control include avoided production and market losses, improved food safety and associated improvements in public health and confidence. Available data suggest that keeping the TSEs level at its minimum level (minor outbreaks) in Scotland will continue demanding a high cost until Scotland and eventually UK become definitely free of the diseases. Both the government and private industry will benefit from achieving disease free status. However, little has been done to quantify those benefits. Thus, a detailed cost-effectiveness analysis of the TSE regulations should be undertaken, which takes into account wider impacts, including the benefits to the industry, such as eradication of TSEs in farmed livestock as well as its impact on the public health.

12. Scottish Statutory Instrument 2006 No. 606 The Welfare of Animals (Transport) (Scotland) Regulations 2006

The Welfare of Animals (transport) (Scotland) Regulations 2006 make provision for the administration and enforcement of Council Regulation (EC) No. 1/2005. The Regulation aims to improve animal welfare through raising transportation standards, and provides for greater enforcement capability in respect of all species. The new rules were generally supported by farming industry and welfare groups. However, several are potentially burdensome on farmers and commercial transporters. The Scottish Regulation attempted to strike a balance between animal welfare benefits, cost and ease of compliance/enforcement, primarily through the use of derogations. Key areas unchanged by the EC Regulation - journey time, rest periods and space allowances - will be reviewed by the EC by 2011. The EC launched a public discussion on these areas on 23 June 2008.

3.3 Conclusions

Tables 3.2 and 3.3 summarise the findings of the case studies and make suggestions as to how they could be improved. While some of the studies show that the benefits were likely to outweigh the costs, overall the results are characterised by uncertainty. This in part reflects the difficulty of valuing costs and benefits. There were limited resources available for each study; more in-depth analysis may enable this uncertainty to be reduced and any trends identified. It also reflects the lack of evidence that exists, particularly regarding the impacts of regulation. While most had been subject to some form of impact assessment, none of these assessments contained a rigorous attempt to quantify the benefits. Furthermore, only around half had quantified the costs of the regulation in question. While undertaking valuation, particularly of non-market costs and benefits, can be difficult and expensive, its absence makes it difficult to be sure of the overall efficiency of a regulation, and makes it more difficult to counter criticism that the costs of regulation are disproportionate. The NFUS six point process for implementing EU legislation recognises this weakness and calls for "a full cost-

benefit analysis, open to public scrutiny, prior to implementation" (NFUS 2006). However, as the Better Regulation Executive (2008a) IA guidelines note: "The effort applied at each step should be proportionate to the funds involved, outcomes at stake, and the time available." While noting the lack of quantification of environmental and social impacts in EC IAs, Nielsen et al (2006, p7) concur with this: "Impact Assessments can be expensive and time consuming…This means that effort put into Impact Assessment needs to be proportional to likely impacts.".

Table 3.2 Summary of the case study RIA's

Regulation	*Origins: EU or domestic?*	*Scottish RIA done?*	*Does the RIA quantify:*		
			Costs		*Monetised Benefits*
			Policy	*Admin*	
1. SSI 2004 No. 518 The Common Agricultural Policy Schemes (Cross-Compliance) (Scotland) Regulations 2004	EU	No	N	N	N
2. SSI 2005 No. 225 The Land Management Contracts (Menu Scheme) (Scotland) Regulations 2005	Domestic legislation designed to meet EU obligations	No	N/A	N/A	N/A
3. SSI 2005 No. 348 Water Environment (Controlled Activities) (Scotland) Regulations 2005	Domestic legislation designed to meet EU obligations	Yes	No	Partial	No
4. SSI 2003 No. 51 The Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2003	EU	Yes	No	No	No
5. SSI 2000 No. 323 The Pollution Prevention and Control (Scotland) Regulations 2000	EU	No (UK RIA)	Partial	Partial	No
6. The Control of Pollution (Silage, Slurry & Agricultural Fuel Oil) (Scotland) Regulations 2001, 2003	Domestic	Yes	Partial	No	No
7. SI 1989 No. 1263 The Sludge (Use in Agriculture) Regulations 1989	EU	Yes	Yes	Yes	No
8. Disposal of fallen livestock under The Animal By-Products (Scotland) Regulations 2003 (SSI 2003/411)	EU	Yes	Partial	No	No
9. SSI 2007 No. 559 The Sheep and Goats (Identification and Traceability) (Scotland) Amendment Regulations 2007	EU	Yes	Yes	Yes	No
10. SSI 2005 No. 434 The Tuberculosis (Scotland) Order 2005	EU and domestic	Yes	No	Yes	Partial
11. SSI 2002 No. 255 The TSE (Scotland) Regulations 2002	EU	Yes	Partial	N/A - v. small	No
12. SSI 2006 No. 606 The Welfare of Animals (Transport) (Scotland) Regulations 2006	EU	Yes	Yes	Yes	No

Table 3.3 Assessment of costs and benefits and regulation-specific suggestions for improvement

Regulation	*EU or Domestic*	*Comments on overall size and balance of costs and benefits*	*Recommendations*
1. SSI 2004 No. 518 The Common Agricultural Policy Schemes (Cross-Compliance) (Scotland) Regulations 2004	EU	Studies generally conclude that cross compliance has a very limited cost for farmers, associated with co-operating with inspections. Benefits include compliance with good farm practice (resulting in potentially lower costs and extra revenue) and potential improvement in public goods provided by agriculture over and above that provided by regulations that underlie cross-compliance.	A study quantifying the present and future benefits could be undertaken, but with potential methodological challenges.
2. SSI 2005 No. 225 The Land Management Contracts (Menu Scheme) (Scotland) Regulations 2005	Domestic legislation designed to meet EU obligations	Subjective assessment indicates that overall costs and benefits are likely to be low. Admin costs are associated with: applying; record keeping and inspections; processing applications; compliance monitoring. The main policy costs arise from: income foregone/costs incurred and deadweight losses. Benefits include: access to modulated funds; on-farm improvements; improved farm/chain efficiency; environmental improvements	Additionality of benefits (i.e. the benefits over and above those that would have been realised without the regulation) needs to be determined, although low share of Pillar II budget perhaps lowers the priority of assessing this. Possible need to improve targeting and uptake, although constraints on budget levels and payment calculations will hinder this.
3. SSI 2005 No. 348 Water Environment (Controlled Activities) (Scotland) Regulations 2005	Domestic legislation designed to meet EU obligations	Difficult to quantify benefits from avoided water pollution as the CARs will have significant (indirect) benefits in the medium-long term.	Early evidence suggests that the regulations are performing well, however they should be kept under review to ensure that any lessons arising can be incorporated.
4. SSI 2003 No. 51 The Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2003	EU	Low admin costs expected from completing manure management plans and co-operating with inspections. Main policy costs associated with upgrading storage. Benefits include reduced fertiliser purchases and the range of benefits arising from reduced pollution. Uncertain magnitude of benefits, due to debate surrounding the underpinning science and the economic benefits of cleaner water, makes overall balance of costs/benefits difficult to determine.	More accurate figures on the economic costs and benefits of previous action are required may be possible through development of the current monitoring system. Look at opportunities for persuading the EC to revisit the scientific basis of the Nitrates Directive, in line with recent UK House of Commons committee recommendation. Revisit the current approach used to change farmers' (mis)use of fertiliser and manures.
5. SSI 2000 No. 323 The Pollution Prevention and Control (Scotland) Regulations 2000	EU	Main costs arise from applying for permits, record keeping and upgrading facilities. Magnitude of costs uncertain but with recognised environmental and societal benefits, such as reduced pollution incidents and NH_3 emissions	The PPC case study examined the potential for adapting existing SCM data to estimate admin costs in Scotland. It found that existing standard costs would need to be adapted with caution if applied in Scotland.
6. The Control of Pollution (Silage,	Domestic	Costs associated with improving storage facilities. Benefits have been	Effort should be made *ex ante* to put in place provisions to assess

Slurry & Agricultural Fuel Oil) (Scotland) Regulations 2001, 2003		improved working conditions and significantly reduced pollution incidents due to structural failures. Balance of costs/benefits difficult to assess, due to the lack of relevant data on the values of costs and benefits	the regulations effectiveness *ex post,* so that post-implementation reviews can be undertaken. Quantification of costs and benefits could be developed further.
7. SI 1989 No. 1263 The Sludge (Use in Agriculture) Regulations 1989	EU	Costs (of record keeping and treatment) likely to be outweighed by the benefits (provision of low cost alternative nutrient source; avoidance of disposal costs and associated environmental impact).	There are no urgent problems to be remedied and planned amendments are to be made according to the legislative timetable.
8. Disposal of fallen livestock under The Animal By-Products (Scotland) Regulations 2003 (SSI 2003/411)	EU	Costs (compensation payments, and waste treatment and disposal) likely to be outweighed by the benefits (avoiding and preventing highly costly animal disease outbreaks; reducing TSE spreading risk; improving public health with respect to incidence of human vCJD cases).	Any possible change of the Regulations should be carefully investigated and communicated with the stakeholders in advance. A review of the parent EU Regulation, 1774/2002 is now under way, with the intention of securing a more risk based approach.
9. SSI 2007 No. 559 The Sheep and Goats (Identification and Traceability) (Scotland) Amendment Regulations 2007	EU	The change in tagging and record keeping requirements led to cost savings. However the full benefits of the scheme in terms of traceability will not be realised until linked to a (potentially expensive) system for monitoring movements. Potential costs associated with a lack of traceability in the meantime (e.g. a disease outbreak) are difficult to quantify.	Need to focus on ensuring that the regulations are implemented effectively, and that future regulations are balanced with ongoing industry concerns about cost, proportionality and practicality. This will be particularly important if the EC continues on the path towards introducing EID in 2010. As with the current Regulation, it is imperative that the Scottish industry is able to cope with the physical and financial implications in order to comply.
10. SSI 2005 No. 434 The Tuberculosis (Scotland) Order 2005	EU and domestic legislation	Costs arise from testing /inspection and movement restrictions, while the benefits accrue from the avoided costs of greater incidence of bTB. The overall benefits of the 2005 Order in Scotland have not been quantified in a monetary sense and it is therefore not possible to compare this directly to the monetary costs. Benefits are expressed therefore in terms of expected false negative tests. Based on industry comment, the level of cost to benefit is generally seen as favourable since the Order has helped prevent the spread of TB in Scotland.	Industry views on post movement testing have been positive as it is considered essential to protect the health status of Scotland and stakeholder support is strongly in favour. In view of the continued escalation of TB in England and Wales, the Scottish Government needs to keep the legislation under review to ensure that it continues to provide effective safeguards.
11. SSI 2002 No. 255 The TSE (Scotland) Regulations 2002 Now replaced by 2006 SSI	EU	The main costs are record keeping, over thirty months cattle scheme, laboratory approval, meat hygiene inspection, over 24 month fallen stock, national Scrapie plan and rams genotype scheme. The benefits to industry from disease control include	A detailed cost-effectiveness analysis of the TSE regulations could be undertaken, which takes into account wider impacts, including the benefits to the industry, such as eradication of TSEs in farmed livestock.

		avoided production and market losses, improved food safety and associated improvements in public health and confidence. Keeping the prevalence level at its minimum level in Scotland entails a high cost. The total benefit of the regulations needs to be quantified	
12. SSI 2006 No. 606 The Welfare of Animals (Transport) (Scotland) Regulations 2006	EU	Costs arise due to transporter authorisation, and vehicle specifications and inspection. The overall balance of costs/benefits is uncertain, due to the difficulties associated with monetary valuation of improved animal welfare.	Key focus areas are: rest times, journey length and space allowances. Close consultation with industry and research partners could help to draw out any differences between perceived and actual animal welfare benefits.

4. Best practice in the implementation of regulations in agriculture in other countries

4.1 Performance of the overall regulatory environment

The World Bank Group has devised the Doing Business index, which ranks countries according to how conducive their regulatory environment is to the operation of business (see: www.doingbusiness.org). The index averages the country's score on 10 topics: Starting a Business; Dealing with Licenses; Employing Workers; Registering Property; Getting Credit; Protecting Investors; Paying Taxes; Trading Across Borders; Enforcing Contracts; Closing a Business. The rankings in table 4.1 are from the Doing Business 2009 report, covering the period June 2007 to June 2008. Although many of these regulations fall out with the scope of this report and are not specific to the agriculture sector, it does provide an overview of the overall regulatory environment across all industries.

Table 4.1 Doing Business ranking and Admin Burden reduction target for selected countries

	Doing Business Ranking[a]	*Admin Burden Reduction Target*[b]
Singapore	1	Not known
New Zealand	2	No target
USA	3	Not known
Hong Kong	4	Not known
Denmark	5	25% by 2010
UK (central Govt)	6	25% by 2010
Ireland	7	Not known
Canada	8	Not known
Australia	9	25%by 2011
Norway	10	No target
Sweden	17	25% by 2010
Belgium	19	Targets to be set in 2009
Germany	25	25% by 2011
The Netherlands	26	25% by 2011
Austria	27	25% by 2010
France	31	25% by 2012
Portugal	48	Not known
Spain	49	30% by 2012
Italy	65	25% by 2012
Czech Rep.	75	20% by 2010
Poland	76	25% by 2010
Argentina	113	Not known
Brazil	125	Not known
a. www.doingbusiness.org b. http://www.administrative-burdens.com		

The UK's high placing in the Doing Business rankings would seem to suggest that the UK (and Scotland, which shares much of the UK's business legislation) has a relatively benign regulatory environment. This is consistent with Le Roux *et al* (2008), which looked at environmental regulations specifically, who concluded that Scotland has "...a high quality regulatory regime, low costs of compliance for industry and a mixture of moderate to high environmental quality".

Also shown in table 4.1 are the admin burden reduction targets. Many of the national targets are broadly in line with the Commission of the European Communities (2007) Action Programme For Reducing Administrative Burdens target of a 25% reduction by 2012. The admin burden reduction targets should be treated as indicative as they do not all use the same criteria, e.g. in terms of policy areas included, or what the reduction is measured against, i.e. relative to a baseline year or counterfactual scenario. Also, it is worth noting that the admin burden reduction targets focus on regulatory quantity but tell us little about regulatory quality, a complex concept based on notions of good governance (for further discussion of regulatory quality see Radaelli and De Francesco (2005)).

4.2. Regulation of agriculture

A recent study (Defra 2007) of the admin burdens in European agriculture found that:

- a short list of regulations are consistently burdensome for some farmers across Europe: Single Payment Scheme, Livestock Identification & Movement, Welfare of Farmed Animals, Nitrates, Veterinary Medicines, Pesticides, Rural Development / Agri-environment schemes, and Pollution Prevention and Control.
- Inspections, keeping records and reading guidance were areas identified as being particularly burdensome.
- In general, it seems that 'newer' regulations are perceived to be more burdensome than those which have been on the statute books for some time. This is likely to be because of the burdens associated with familiarisation with new regulations, or with changes to regulations.
- There is clearly a lot of variability in administrative burdens across Europe. Within a country, the impacts of regulation will vary according to farm size and type; between countries, levels of burden will be affected by implementation by that government, and by regional differences in agriculture sectors.
- Overall, responses from old Member States indicate higher levels of administrative burden than responses from new Member States, especially with respect to inspections and reading guidance. This may be due to different implementation in new Member States, or to use of procedures which have had the benefit of seeing best practice in other Member States.

The last point may partly explain the frequent complaint that the regulation of agriculture in Scotland is more stringent (and therefore costly) than elsewhere. For

example, the NFUS have argued that “There is a strong perception, and evidence, that European Directives are implemented more strictly in the UK than elsewhere in the EU and, in some cases, more strictly in Scotland than elsewhere in the UK” (Scottish Parliament 2006). While this is a common perception, the evidence that Scotland, or the UK, consistently "gold plates" regulation relative to other EU members is not conclusive (MacLeod and Bevan 2007). The results presented in Defra (2007) would seem to indicate that the administrative burden on UK agriculture is low compared to some other countries (see table 4.2). However, these results should be treated with some caution due to differences in the cost measurement methodologies. In addition the evidence is mixed and much of the debate rests on anecdote or business surveys of limited rigour. While it is possible to highlight individual regulations that have been implemented more stringently, the overall picture is less clear.

Table 4.2 Estimated Admin Cost in Agriculture (billion euros)

	Admin cost (bn euros) 1	*Admin cost (bn $ 2007)*	*GDP (ppp $bn 2007) 2*	*Agriculture % of GDP 2*	*Value of agriculture (PPP $bn 2007)*	*Admin cost as a % of agricultural production*
Denmark	0.14 (2004)	0.20	203.7	1.5	3.1	6.5%
UK	0.21 (2006)	0.29	2137	0.9	19.2	1.5%
Sweden	0.07 (2004)	0.10	334.6	1.4	4.7	2.1%
Netherlands	0.43 (2002)	0.63	639.5	2.1	13.4	4.7%
Czech Rep.	0.64 (2005)	0.91	248.9	2.8	7.0	13.1%

1. Defra 2007, p7; Figures in brackets are the years of measurement

2. CIA World Factbook (https://www.cia.gov/library/publications/the-world-factbook/)

While the regulatory regime in the UK imposes costs on business, these need to be viewed in light of the significant benefits it provides to business by, for example: protecting the natural resource base; strengthening the competition regime; protecting consumers; encouraging people to take paid employment; and reducing the costs of accidents and ill health (Keter 2004, p43).

4.3 Comparison of the regulation of agriculture in Scotland with New Zealand and Denmark

Two brief country studies were undertaken to identify any examples of best practice that might be applicable to Scotland. New Zealand and Denmark were chosen as they are similar to Scotland in terms of population, but provide interesting contrasts in terms of their approach to regulation and the structure of their farming sectors. The case studies are in Appendix C, and key features are outlined in table 4.3.

Table 4.3 Comparison of Scotland, New Zealand and Denmark

		Scotland	New Zealand	Denmark
Population		5,116,900	4,115,771	5,484,723
GDP (PPP[2]: US$ bn 2007)		172	106.9	203.7
GDP per capita (PPP: US$ 2007)		33,680	26,200	37,400
GDP by sector (%)	- agriculture - industry - services	1.2 26.8 72	4.3 26.9 68.8	1.5 26.0 72.4
Main agricultural sectors		By value of output (net of subsidies): Beef, dairy, barley, potatoes, sheep and lamb.	Sheep, beef, dairy	Barley, wheat, potatoes, sugar beets pork, dairy products.
Key regulatory issues		Marginal profitability, managing change in uplands, loss of biodiversity, diffuse water pollution in some areas	Concern about environmental regulations limiting competitiveness, key areas relate to climate change and access to water. Also concern about new employment and animal welfare regulations	N and P pollution of the North Sea; drinking and surface water becoming polluted from animal wastes and pesticides
Are RIAs used?		Yes	Yes	Yes
Estimated admin burden for agriculture (billion US$ 2007)		0.04** (est.)	No data available	0.20bn*
Admin burden reduction target		No target	No target	25% by 2010
Is SCM Used?		No	No, but has been piloted	Yes

Sources: The World Factbook 2007 (CIA), Scottish Economic Statistics 2007;
Economic Report on Scottish Agriculture 2006, Wikipedia
*Defra 2007
**Assuming that admin burden is proportionate to GVA, and the GVA of Scottish agriculture is 14% of UK (Defra 2007; Scottish Government 2008)

Summary of New Zealand v Scotland Comparison

New Zealand's regulatory environment is widely considered to be of a high standard. This is frequently commented on by business people operating in multiple jurisdictions and endorsed by international surveys such as the World Bank study *Doing Business*. New Zealand's ranking of second in the World Bank survey continues into 2008. The New Zealand government recognises that quality of regulatory frameworks and the regulatory environment play a key role in determining business growth, productivity and innovation. The government is committed to the

[2] purchasing power parity

continuous improvement of the regulatory environment as a key part of achieving New Zealand's economic goals. The perception that New Zealand has a high quality regulatory environment makes it an useful country to study in order to identify examples of best practice.

The policy development process is broadly in line with the approach used in Scotland. Much work has been done recently in reviewing the process and looking for ways to establish the burden on various sectors and streamline regulations where possible.

Quality Regulation Review 2007
The New Zealand government completed a review of the quality of New Zealand's regulatory frameworks, the findings of which were released in September 2007.

Key messages from business community that came out of the review are listed below:

- Duplicated or excessive reporting requirements as well as requirements that are considered to be overly complex (the strongest frustrations arise when there is no explanation of the purpose for collecting information)
- Inconsistent treatment across regions, particularly at the local authority level, resulting in a lack of "fairness" and impressions of either over- or under-enforcement
- Regulation that is disproportionate to the real level of risk or that disregards prior track records (e.g. in relation to licensing requirements)
- Absence of safe harbours in the regulation resulting in a lack of certainty over what is required to reach compliance with the law
- A need for more effective guidance or information to assist compliance
- Regulation and regulators perceived as acting as barriers to business development and growth
- Delays and uncertainty in the processing of regulatory requirements

In going forward, the New Zealand Government will use the experiences from the Review to inform the future work programme on quality regulation. The government's approach will focus on four key objectives:

1. Ensuring the quality of new regulation
2. Improving the quality of existing regulation
3. Developing a culture of good regulatory practice
4. Building the capability of regulators and business

The need to consider the stock and flow of regulation, as well as all stages of the regulatory lifecycle was highlighted in the review. A whole government approach would be needed to address concerns about the cumulative impact of regulation on business. This will require agencies to be innovative and open-minded in their approaches to working together with other stakeholders. Agencies will need to be aware that fixes for poor regulatory outcomes are diverse, with no "one size fits all".

The importance of implementation will also be emphasised as a number of the issues raised by business during the Review related to the way regulations are implemented, rather than the regulation's purpose or design.

The government intends to build on the work already undertaken in the review and develop a programme of annual sector studies. The studies will focus on one sector or one piece of cross-sector legislation each year. They will provide an in-depth analysis of the key regulatory issues affecting sectors, including the productivity, innovation and global connectedness of firms, and focus on finding solutions to these issues.

In addition to sector studies, the government intends to build on other initiatives undertaken during the Quality Regulation Review. This will include considering ways that the RIA requirements could be further enhanced. A website dedicated to business consultation on compliance costs could prove to be a useful resource (http://www.businessconsultation.govt.nz/). One area that will be considered carefully is the process around the development of policy proposals for the implementation, monitoring and review of regulatory proposals.

The Ministry of Economic Development is also looking at a two year trial of a Business Cost Calculator to quantify the compliance costs of regulation. The Business Cost Calculator is similar to the SCM, but includes a wider range of costs (and includes policy costs as well as admin costs) and focuses more on *ex ante* estimates of costs for new regulations. The Business Compliance Cost Calculator was launched by the Government in April this year to help government departments assess the cost of new regulation before it is implemented. The calculator will also help improve consistency in the way regulatory decisions are made and create opportunities for greater international comparison on key pieces of regulation. The government is considering whether a fast track legislative vehicle could be used as a permanent mechanism for quickly remedying failures in regulatory frameworks.

Regulatory Impact Assessment

A review of the RIA and RIS process was conducted in 2008. The report suggested that there were weaknesses in terms of problem definition, assessment of the size of the issue and analysis of the costs and benefits. Consultation is a strength and it was also found that there was more analytical substance behind proposals than was being communicated.

New Zealand Case studies

The feedback from the major reviews suggests that while there is room for improvement, the regulatory environment for businesses is in fairly good shape. There are however concerns that the burden on farmers is increasing in the form of government regulations as well as industry and market requirements – particularly in the environment area. Three areas were looked at more closely: water issues, animal transport and Tb.

Water issues

By international standards, freshwater in New Zealand is both clean and in good supply, however some aspects are getting worse in areas dominated by intensive land use.

Under New Zealand's Resource Management Act 1991 (RMA) regional councils prepare of objectives, policies, and methods to achieve integrated management of the natural and physical resources of the region.

Under the RMA regional councils prepare integrated management plans – this is a work in progress in terms of water issues and as the case study illustrates different areas are at different stages.

The case studies also highlight the degree of industry involvement in self regulating or partnering government initiatives through programmes such as the clean stream accords and 10 by 10.

Measures being considered and implemented include land use controls to decrease nutrients entering waterways. Rule changes to make resource consents for farming a requirement is under consideration in some areas. Requirements to have nutrient budgets and on-farm mitigation measures for example riparian planting, bridging and fencing are part of the tool box.

A key concern for farmers is how farming is classified under the RMA as this will dictate what activities are permitted and whether a resource consent is required. Resource consent applications can be both expensive and take a long time to complete depending on the particular consultation requirements. The RMA was cited in the quality regulations review as a potential barrier whereby a single objector, who can be a direct business competitor, can block a development. In working at the regional level, there can be issues of consistency of measures with councils using different approaches and classifications. This is avoided to an extent under the Scottish regulations for NVZs given that areas are either vulnerable or not. However, the New Zealand system does allow flexibility in who is regulated, and how, to best fit the particular circumstances of a water catchment area.

Bovine Tuberculosis (Tb)

The New Zealand system for TB control appears to be effective and farmers recognise the need and benefits of compliance. The key difference in the New Zealand case is the non-protected status of wild vectors, primarily possums, in spreading infection. There are close to 130 infected cattle herds, and 18 deer herds. Some industry lobby groups are pushing for an eradication strategy and it is claimed that this has a 95 percent probability of success. Currently, all deer and cattle are given a Tb status tag. The frequency of testing and movement restrictions depend on Tb risk in the area.

Scottish regulation is comparable with England's but is more stringent in terms of post movement control. The nature of the devolved relationship means that another layer of complexity is added as Scotland doesn't have full control of enforcement. In New Zealand, the Animal Health Board has taken back responsibility for vector control programmes from local councils to allow for a more coherent national strategy.

Animal Transport
Animal welfare in New Zealand is governed under the Animal Welfare Act 1999. The Act makes specific provision for the transport of animals. The person in charge of a vehicle in which an animal is being transported is responsible for ensuring that the animal's welfare is properly attended to and, in particular, that proper and sufficient food and water are supplied.

Codes are developed under the Act and set out the recommendations and minimum standards. A voluntary Code for the Welfare of Animals Transported within New Zealand currently exists and this will be replaced with a new code of welfare for animal transport, currently being developed. The current code contains detail on loading densities, food and drink requirements, journey duration, rest periods and stock handling amongst other things. Codes expand on the principles of the Act. Recommended best practices in the codes are not legally binding, but minimum standards are – failing to meet a minimum standard can support a prosecution under the Animal Welfare Act 1999.

The Ministry of Agriculture and Forestry is trying to develop the code to be as outcome based (i.e. animal based) as possible. The focus is on fitness of the animal for that particular journey and what consideration should be given, rather than prescriptive details such as maximum journey times, or food and water requirements. It is important to note that this is possible within New Zealand given that travel times and climatic extremes are minimised.

New Zealand has an outcome-focused and scientifically-based domestic animal welfare systems that are highly-regarded internationally. An outcomes based approach allows for flexibility that can mean the most effective ways can be employed to avoid excessive costs for industry, however these approaches can also be difficult to monitor.

A 2006 New Zealand proposal to establish the EC/New Zealand Animal Welfare Cooperation Forum, to formalise and improve information exchange on key animal welfare matters formalised this relationship. The Forum is very much an "equal partner/mutual benefit" arrangement.

Lessons for Scotland
The number and range of reviews undertaken in recent years highlights the New Zealand government's commitment to ensuring an open and fair commercial environment and enhanced performance of the economy.

The reviews contain recommendations that can be applied universally. Although some of the recommendations may appear to be common sense, the value lies in finding out from the business community, and government agencies, where the key issues are and provide focus for implementing remedial measures.

The recommendations will also lead to real benefits throughout the regulation process – from clearer guidance on design and assessment, to more efficient communication with affected parties. Benefits in the implementation of regulations should also increase as duplication is reduced and systems streamlined.

The outcome of work regarding the use of the standard cost model will be of interest to other countries. A more user friendly, targeted tool that is scalable depending on the economic impact of any proposed regulation would be a useful tool in compiling a RIA and assessing the change in compliance cost burden over time. Other innovations such as the two year trial of a business compliance cost calculator and the business consultation website could be applied in other jurisdictions.

Scotland v Denmark comparison

Denmark and Scotland share many similarities. They are small, temperate, northern European countries. They have populations of about 5 million, and market economies with high GDP per capita. Agriculture has played an important role in the economic development of both countries, but now represents <2% of economic output. They also differ in important respects; for example Scotland's landscape is dominated by upland areas that limit agriculture to mainly pasture based systems. In contrast, Denmark is a low lying country well suited to arable production. This is reflected in the main agricultural outputs (see table 4.3). Production in Denmark is dominated by the pig and dairy sectors and the water pollution associated with these is one of the challenges facing their regulator. The strengths and weaknesses of Scottish agriculture compared to Danish are outlined in table 4.4.

Table 4.4 SWOT analysis of Scottish agriculture compared to Danish (adapted from Bevan 2007)

Strengths	*Weaknesses*
-Good farm structure compared to Denmark. -An agricultural brand image, especially regarding beef, that is world class. -Reputable assurance systems that provide high product status, though Danes set exceptional standards.	-The relatively low inherent productivity of much of Scotland for purely agricultural purposes. -Productivity at the farm level that is well behind the standards set by Denmark. -The structure, balance and conduct of most of the Scottish agri-food industry has understandably been shaped by the old CAP, Scotland is probably at the beginning of the adjustment process. The Danes, with their focus on pigs and dairy, are much better adjusted. -Compared to the supply chain efficiency set by the Danish pig industry, most Scottish supply chains appear anarchic
Opportunities	*Threats*
-There is considerable room for improvement. Pillar 2 (especially Axis 1) funding to improve the competitive position of Scottish agriculture is paramount. A light regulatory touch will also be important. Allowing Scottish agriculture to adjust to market signals will be important. Good use of technology will be key.	-Further CAP reform that leads to the reduction of Pillar 1 support for production agriculture is understandably viewed as a major threat. -Further trade liberalisation (globalisation) resulting in reduced protection for Scottish beef producers. Competition from Irish beef imports is also an issue. Even the Danish pig industry has concerns about the potential of the South American pig industry. -Because of the single market, Scotland should not lose competitiveness against Denmark as a result of regulation.

Bevan (2007) concluded:

"It is perhaps Denmark that Scotland should be most trying to emulate agriculturally. The Danes are basically very market orientated. Yet they also appreciate the

limitations of market forces in developing globally competitive products, and the power of collaboration in overcoming those limitations."

In terms of the overall performance of their regulatory landscape (across all business sectors), Denmark sits in fifth place in the 2008 Doing Business rankings, just one above the UK (see table 4.1). It shares the same target for reducing admin burden as the UK (25% by 2010), and was an early adopter of the SCM as a means of measuring admin costs. In terms of SCM usage and admin reduction targets, it differs from Scotland, which is adopting a mainstreaming approach to improving regulation (see chapter 5).

Administrative Costs
In 2004 Denmark used the SCM to measure the administrative cost of government regulation. This exercise estimated the administrative cost of agricultural regulation to be 0.14bn euros (Defra 2007). This is equivalent to 6.5% of agricultural production (see table 4.2). In contrast, the UK had the lowest admin cost of the five countries in the study at 1.5%. This difference is likely to be due to differences in regulation and in mix of farming types. However, some caution should be exercised when making comparisons between countries as:

"agriculture is difficult to define in this context. The nature of the methodology for reducing administrative costs is that it measures costs based on the activity of a Ministry or government department, rather than on a business sector. The distinction between activities is different in different countries" (Defra 2007, p7).

The measurement exercise revealed that 80% of the administrative costs were wholly or partly the result of international obligations (mainly EU) (Danish Ministry of Food, Agriculture and Fisheries 2005) compared to 67% in the UK (Defra 2006). In Denmark, the following five orders were responsible for 71% of the total administrative costs:

"• Order no. 821 of 23 July 2004 concerning direct support to the farmers based on the single payment scheme. Information obligations in this regulation totals yearly administrative costs of 311 million DKK.
• Order no. 676 of 16 July 2003 concerning the agricultural use of fertilizer and concerning vegetation during the plan period from 2003 to 2004. The yearly administrative costs for this order total 198 million DKK
• Order no. 892 of 9 October 1996 concerning keeping of log etc. involving yearly administrative costs of 86 million DKK.
• Order no. 181 of 19 March 2003 concerning payment of premium for livestock. The yearly administrative costs that are ascribed to the Directorate for Food, Fisheries and Agro Business total 72 million DKK. Another 72 million DKK have been attributed to the Ministry of Family and Consumer Affairs, as a number of other information obligations in the regulation are of veterinary origin.
• Order no. 492 of 7 June 1994 concerning spray journals and inspection of spray equipment in agriculture. The information obligations of this order totals yearly costs of DKK 64 million."
(Danish Ministry of Food, Agriculture and Fisheries 2005, p5)

While this is similar to the situation in the UK, where most of the admin costs result from a small number of regulations, comparison with table 2.5 (see Appendix D) shows that there are differences in the regulations responsible for the admin cost.

5. Conclusions

Background

Farming is a diverse and complex industry delivering both positive and negative non-market effects. Such market failures are common and provide a rationale for policy intervention to alter resource allocations and the distribution of costs and benefits. Crudely, such intervention may take the form of information provision, incentive schemes or regulatory controls – although these options are not mutually exclusive and are often used in combination. Governments are increasingly aware of the problems that poorly designed regulation can have and "Better Regulation" has become an important policy driver at both European and national level.

Case studies

The initial review revealed in the order of 100-200 agricultural regulations, however the exact number is difficult to define as it depends on what is included, for example whether all amendments are included, or whether non-farm specific regulations are included. During the selection of the case studies 102 regulations were identified; however this is not an exhaustive list. The regulations fell into five categories:

- Agricultural support and rural development
- Pollution control, natural heritage and waste
- Animal health and welfare
- Employment legislation
- Other (notably land use planning and food safety)

Twelve regulations were selected for study. Most of the selected regulations were either wholly or partly the result of EU obligations. This reflects the patterns in the long list of regulations, and is consistent with a recent study, which found that 67% of the administrative costs associated with Defra's policy areas arise from EU obligations (Defra 2006). The predominance of EU-derived regulations in the agriculture and environment policy areas limits the scope for domestic initiatives to reduce regulatory costs. Suggestions for improving specific regulations are given in chapter 3. In terms of the overall balance of costs and benefits of the regulations, some case study results were characterised by lack of detailed valuation, in part reflecting the difficulty of valuing costs and, in particular, benefits. In the case studies examined, the existence of social benefits is acknowledged even where full valuation of these benefits has not taken place. The dearth of benefits valuation in regulatory impact assessments (RIAs) may reflect a pragmatic approach to policy appraisal in the face of analytical costs and the operational reality of international obligations. However, the downside to this approach is that it may reduce industry confidence and the rationale for deviation from official impact assessment guidance should be made clear.

Agricultural regulation in New Zealand

A brief case study of agricultural regulation and the regulatory review process in New Zealand was undertaken, in order to identify examples of alternative approaches and best practice that might be applicable in Scotland. New Zealand has carried out a

number of reviews of the regulatory environment recently, highlighting the Government's commitment to ensuring an open and fair commercial environment. The outcomes of the reviews are generally global in their applicability and provide useful guidance on priority areas for further investigation. Tools used for assessing regulations are also being developed and could provide examples for similar work in Scotland. Three areas were examined in more detail: TB, water pollution and animal transport. These case studies help to illustrate the outcomes based, light regulatory touch generally associated with New Zealand regulations.

Measuring changes in administrative burden and the Standard Cost Model (SCM)

The SCM is a methodology for measuring the administrative cost of regulation imposed on business by government. In essence, it is a consistent way of breaking down the administration required to comply with a regulation into a range of manageable, measurable components. The SCM only measures a (predefined) set of administrative activities; it does not measure the policy costs or any of the benefits of a regulation. The SCM is an integral part of the UK central Government's Administrative Burdens Measurement Exercise (ABME). This approach to better regulation has significant strengths, not least of which are that it: demonstrates commitment to reducing regulatory burden; improves the regulator's understanding of the regulatory landscape; provides momentum for simplification plans; enables comparison of changes in administrative burden, through time and between government departments and countries. The preliminary appraisal of the ABME/SCM approach indicated that it may well be a cost-effective exercise. However, in practice, the effectiveness of the approach will depend very much on how it is implemented and the policy aims that one is trying to achieve.

The SCM is not a way of measuring administrative costs more accurately; it is primarily a way of being able repeat measurements and demonstrate change. It is therefore most effective when employed as an integrated part of an ongoing programme of admin cost reduction, rather than as a one-off assessment of costs. In this context, the existing SEARS (Scotland's Environmental and Rural Services) activities is an existing approach in Scotland to identifying and reducing admin burden but does not provide the quantitative elements that a SCM analysis is designed to provide. Significant effort has already been expended under SEARS to identify and reduce burdens and this information could inform - or possibly make redundant – a generic or agricultural SCM exercise. Specific recommendations regarding the SCM are given in chapter 2.

Other routes to better regulation

Undertaking a SCM based ABME is only one of a range of initiatives that could be undertaken to improve regulation, and this may involve expending greater effort on gathering information and securing stakeholder involvement. Identifying the best course of action requires a clearly defined vision of how and why one wants to improve regulation. For example the table below shows four different goals that could all fall within the scope of improving regulation.

Policy goal	*Strategy*
Lower admin burden	Admin burdens reduction involving an SCM-based measurement exercise and simplification programme. Expensive, but benefits likely to outweigh costs. Benefits to regulator indirect.
Greater industry confidence in regulation	Improved valuation of costs and benefits. Admin burdens reduction (see above) but with significant industry buy-in through stakeholder engagement.
Better quality regulation	Benchmarking could be undertaken using a metric such as the Environmental Regulatory Regime Index, however this requires good quality data.
Economic efficiency	Improved impact assessment through better valuation of benefits - this should improve the design of regulation where the SG has discretion; where there is no discretion, this should (a) help make the case for derogations etc (where C>B) or (b) improve confidence in the regulation (where B>C).

Finally, the regulatory regime in Scotland and the UK as a whole needs to be viewed in context. While the regulatory regime in the UK imposes costs on business, these need to be viewed in light of the significant benefits it provides to business by, for example: protecting the natural resource base; strengthening the competition regime; showcasing best practice; protecting consumers; encouraging people to take paid employment; and reducing the costs of accidents and ill health. By some measures the UK has a relatively benign business environment, which is at odds with industry perceptions. While it is true that the UK has more stringent environmental and animal welfare standards than some of its key competitors, evidence suggests that regulatory costs are not a major factor in determining competitiveness. Furthermore, commitment to improving regulation has been demonstrated through recent UK and Scottish initiatives, and the ongoing efforts of the Scottish Government and its agencies to involve stakeholders in the development of regulation. At the UK level, a dedicated unit (the Better Regulation Executive) has been set up to drive forward the better regulation agenda through initiatives such as the Administrative Burdens Measurement Exercise and associated Simplification Programme. In Scotland, the SEARS partnership has been welcomed as a way of reducing the administrative costs of regulation.

The Scottish Government is currently developing an approach to improving regulation in Scotland that is distinct from the UK central agency approach and is "genuinely fit for purpose and able to deliver tangible results and offers more than is currently available from the attempts by Westminster and Brussels" (Regulatory Review Group/Scottish Government 2008 p5). The key elements of this approach are:

- High level political commitment to improving the regulatory environment, thereby boosting competitiveness and productivity.
- Establishment of a close relationship between Minister, officials and the Regulatory Review Group.

- Mainstreaming a better regulation focus rather than making it the preserve of a specialist unit.
- Recognising the importance of effective regulation in meeting environmental and social objectives; using risk-based approaches and reviewing existing legislation.
- Recognising the need for continuous improvement.
- Working to achieve policy objectives without immediate recourse to legislation.

The regulatory landscapes in Scotland and the rest of the UK are therefore undergoing periods of change, which should provide significant improvements in the regulation of agriculture and the environment, while enabling wider lessons to be learned about the relative performance of the different approaches to better regulation.

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Appendix A Interim list of regulations

ef=economic efficiency
eq=equity
h=health and safety
o=other

v=voluntary
cc=command and control
e=education and information
i=incentive-based measures

						Sectors primarily affected							
Policy area	*Regulation*	*Reason for intervention*	*Type of measures*	*Within Scottish Govt remit?*	*Specific to agriculture and affects on farm operations?*	*LFA sheep*	*LFA beef*	*Lowland cattle and sheep*	*Mixed*	*Cereals*	*General cropping*	*Dairy*	*Pi*
Agricultural support/rural dev	LMC tier 1: Single Farm Payment/Cross compliance	ef, o	i	Y	Y	y	y	y	y	y		y	
Agricultural support/rural dev	LMC tier 2: Rural development contracts – Land Manager's	ef, o	i	Y	Y	y	y	y	y	y		y	
Agricultural support/rural dev	LMC tier 3: Rural development contracts – Rural Priorities	ef, o	i	Y	Y	y	y	y	y	y		y	
Agricultural support/rural dev	Agricultural Holdings (Scotland) Act 2003 (SLDT etc)	eq	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Water Framework Directive	ef	c e v	Y	N, but some regs arising from the WFD are	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Nitrates framework directive	ef	c, e	Y	~Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Integrated pollution prevention and control/ The Pollution Prevention and Control Regulations 2000	ef, h	c	Y?	N								!
Pollution control/ habitats and natural heritage/waste	The Control of Pollution (Silage, Slurry & Agricultural Fuel Oil) (Scotland) Regulations 2001, 2003	ef, h	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	"Controlled Activities Regulations for Waste"; The Waste (Scotland) Regulations	ef, h	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	The Introduction of the Waste Incineration Regulations in Scotland/ "middens bonfires"	ef, h	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Crops Residues (burning) Regulation 1993; Heather and Grass etc (Burning) Regulations 1986	ef, h	c	Y	N	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Revision of the Sludge (Use in Agriculture) (Scotland) Regulations	ef, h	c	Y	~Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	The Landfill Directive in Scotland	ef, h	i	Y	N	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Birds and Habitats Directive/ Natura 2000	ef	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	The Pesticides (Maximum Residue Levels in Crops, Food and Feeding Stuffs) (Scotland) Regulations 2005	ef, h	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	The Animal By-Products (Scotland) Regulations 2003/ Fallen Stock Scheme	ef, h	c	Y?	Y	y	y	y	y			y	!
Pollution control/ habitats and natural heritage/waste	Pernicious Weeds Act?	ef	c	Y?	~Y?	y	y	y	y	y	y	y	!
Animal health and welfare	Livestock register	ef, h, o	c?	Y?	Y	y	y	y	y			y	!
Animal health and welfare	Herd Register for Bovine Animals	ef, h, o	c?	Y?	Y		y	y	y			y	
Animal health and welfare	Cattle Identification Regs 1998	ef, h, o	c	Y?	Y		y	y	y			y	
Animal health and welfare	Sheep electronic identification The Sheep and Goat Identification (Scotland) Regulations 2000	ef, h, o	c	Y?	Y	y		y	y				
Animal health and welfare	Certificate of competence - Welfare Animals (Transport) Order 2006 - EC Regulation 1/2005	ef, o	c	Y	Y	y	y	y	y			y	!
Animal health and welfare	The Foot and Mouth Disease (Scotland) Order 2006 and the Foot and Mouth Disease (Slaughter and Vaccination) (Scotland) Regulations 2006	ef, h, o	c	Y	Y	y	y	y	y			y	!
Animal health and welfare	Classical Swine Fever (Scotland) Order 2003	ef, o	c	Y	Y								!
Animal health and welfare	The Tuberculosis (Scotland) Order 2005	ef, o	c	Y	Y		y	y	y			y	
Animal health and welfare	The TSE (Amendment) Regulations (Scotland) 2004	ef, h, o	c	Y?	Y	y	y	y	y			y	
Animal health and welfare	Medicated Feeding Stuffs regs	ef, h, o	c	Y?	Y	y	y	y	y			y	!
Animal health and welfare	Retailers' Records for Veterinary Medicinal Products Regulations 2000	ef, h, o	c	Y	Y	y	y	y	y			y	!
Animal health and welfare	The Welfare of Farmed Animals (Scotland) Regulations 2000; The Welfare of Farmed Animals (Scotland) Amendment Regulations 2002; The	ef, o	c	Y?	Y								
Employment legislation	Seasonal Agricultural Workers Scheme	ef	c	N	Y	y	y	y	y	y	y	y	!
Employment legislation	Transport Working Time Directive	eq, h	c	Y	N	y	y	y	y	y	y	y	!
Employment legislation	The Agricultural Wages (Scotland) Order (No 55) 2007	eq	c	Y?	Y	y	y	y	y	y	y	y	!
Employment legislation	Gangmasters Licensing	eq, h	c	Y?	N	y	y	y	y	y	y	y	!
Other	EU hygiene controls, The Food Hygiene (Scotland) Regulations 2006, Dairy Hygiene Regs	h	c	Y?	Y							y	
Other	Traceability and Labeling of GMOs (Regulation (EC) No. 1830/2003	o	c	?	N								!

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Policy area	Regulation	Reason for intervention	Type of measures	Within Scottish Govt remit?	Specific to agriculture and affects on farm operations?	Sectors primarily affected							
						LFA sheep	LFA beef	Lowland cattle and sheep	Mixed	Cereals	General cropping	Dairy	Pi
Agricultural support/rural dev	LMC tier 1: Single Farm Payment/Cross compliance	ef, o	i	Y	Y	y	y	y	y	y		y	
Agricultural support/rural dev	LMC tier 2: Rural development contracts – Land Manager's	ef, o	i	Y	Y	y	y	y	y	y		y	
Agricultural support/rural dev	LMC tier 3: Rural development contracts – Rural Priorities	ef, o	i	Y	Y	y	y	y	y	y		y	
Agricultural support/rural dev	Agricultural Holdings (Scotland) Act 2003 (SLDT etc)	eq	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Water Framework Directive	ef	c e v	Y	N, but some regs arising from the WFD are	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Nitrates framework directive	ef	c, e	Y	~Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Integrated pollution prevention and control/ The Pollution Prevention and Control Regulations 2000	ef, h	c	Y?	N								!
Pollution control/ habitats and natural heritage/waste	The Control of Pollution (Silage, Slurry & Agricultural Fuel Oil) (Scotland) Regulations 2001, 2003	ef, h	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	"Controlled Activities Regulations for Waste"; The Waste (Scotland) Regulations	ef, h	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	The Introduction of the Waste Incineration Regulations in Scotland/ "middens bonfires"	ef, h	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Crops Residues (burning) Regulation 1993; Heather and Grass etc (Burning) Regulations 1986	ef, h	c	Y	N	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Revision of the Sludge (Use in Agriculture) (Scotland) Regulations	ef, h	c	Y	~Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	The Landfill Directive in Scotland	ef, h	i	Y	N	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Birds and Habitats Directive/ Natura 2000	ef	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	The Pesticides (Maximum Residue Levels in Crops, Food and Feeding Stuffs) (Scotland) Regulations 2005	ef, h	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	The Animal By-Products (Scotland) Regulations 2003/ Fallen Stock Scheme	ef, h	c	Y?	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Pernicious Weeds Act?	ef	c	Y?	~Y?	y	y	y	y			y	!
Animal health and welfare	Livestock register	ef, h, o	c?	Y?	Y	y	y	y	y	y	y	y	!
Animal health and welfare	Herd Register for Bovine Animals	ef, h, o	c?	Y?	Y	y	y	y	y			y	!
Animal health and welfare	Cattle Identification Regs 1998	ef, h, o	c	Y?	Y		y	y	y			y	
Animal health and welfare	Sheep electronic identification The Sheep and Goat Identification (Scotland) Regulations 2000	ef, h, o	c	Y?	Y		y	y	y			y	
Animal health and welfare	Certificate of competence - Welfare Animals (Transport) Order 2006 - EC Regulation 1/2005	ef, o	c	Y	Y	y		y	y				
Animal health and welfare	The Foot and Mouth Disease (Scotland) Order 2006 and the Foot and Mouth Disease (Slaughter and Vaccination) (Scotland) Regulations 2006	ef, h, o	c	Y	Y	y	y	y	y			y	!
Animal health and welfare	Classical Swine Fever (Scotland) Order 2003	ef, o	c	Y	Y	y	y	y	y			y	!
Animal health and welfare	The Tuberculosis (Scotland) Order 2005	ef, o	c	Y	Y								!
Animal health and welfare	The TSE (Amendment) Regulations (Scotland) 2004	ef, h, o	c	Y?	Y		y	y	y			y	
Animal health and welfare	Medicated Feeding Stuffs regs	ef, h, o	c	Y?	Y	y	y	y	y			y	
Animal health and welfare	Retailers' Records for Veterinary Medicinal Products Regulations 2000	ef, h, o	c	Y	Y	y	y	y	y			y	!
Animal health and welfare	The Welfare of Farmed Animals (Scotland) Regulations 2000; The Welfare of Farmed Animals (Scotland) Amendment Regulations 2002; The	ef, o	c	Y?	Y	y	y	y	y			y	!
Employment legislation	Seasonal Agricultural Workers Scheme	ef	c	N	Y	y	y	y	y	y	y	y	!
Employment legislation	Transport Working Time Directive	eq, h	c	Y	N	y	y	y	y	y	y	y	!
Employment legislation	The Agricultural Wages (Scotland) Order (No 55) 2007	eq	c	Y?	Y	y	y	y	y	y	y	y	!
Employment legislation	Gangmasters Licensing	eq, h	c	Y?	N	y	y	y	y	y	y	y	!
Other	EU hygiene controls, The Food Hygiene (Scotland) Regulations 2006, Dairy Hygiene Regs	h	c	Y?	Y							y	
Other	Traceability and Labeling of GMOs (Regulation (EC) No. 1830/2003	o	c	?	N								!

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Policy area	Regulation	Reason for intervention	Type of measures	Within Scottish Govt remit?	Specific to agriculture and affects on farm operations?	Sectors primarily affected							
						LFA sheep	LFA beef	Lowland cattle and sheep	Mixed	Cereals	General cropping	Dairy	Pi
Agricultural support/rural dev	LMC tier 1: Single Farm Payment/Cross compliance	ef, o	i	Y	Y	y	y	y	y	y		y	
Agricultural support/rural dev	LMC tier 2: Rural development contracts – Land Manager's	ef, o	i	Y	Y	y	y	y	y	y		y	
Agricultural support/rural dev	LMC tier 3: Rural development contracts – Rural Priorities	ef, o	i	Y	Y	y	y	y	y	y		y	
Agricultural support/rural dev	Agricultural Holdings (Scotland) Act 2003 (SLDT etc)	eq	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Water Framework Directive	ef	c e v	Y	N, but some regs arising from the WFD are	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Nitrates framework directive	ef	c, e	Y	~Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Integrated pollution prevention and control/ The Pollution Prevention and Control Regulations 2000	ef, h	c	Y?	N								!
Pollution control/ habitats and natural heritage/waste	The Control of Pollution (Silage, Slurry & Agricultural Fuel Oil) (Scotland) Regulations 2001, 2003	ef, h	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	"Controlled Activities Regulations for Waste"; The Waste (Scotland) Regulations	ef, h	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	The Introduction of the Waste Incineration Regulations in Scotland/ "middens bonfires"	ef, h	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Crops Residues (burning) Regulation 1993; Heather and Grass etc (Burning) Regulations 1986	ef, h	c	Y	N	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Revision of the Sludge (Use in Agriculture) (Scotland) Regulations	ef, h	c	Y	~Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	The Landfill Directive in Scotland	ef, h	i	Y	N	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Birds and Habitats Directive/ Natura 2000	ef	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	The Pesticides (Maximum Residue Levels in Crops, Food and Feeding Stuffs) (Scotland) Regulations 2005	ef, h	c	Y	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	The Animal By-Products (Scotland) Regulations 2003/ Fallen Stock Scheme	ef, h	c	Y?	Y	y	y	y	y	y	y	y	!
Pollution control/ habitats and natural heritage/waste	Pernicious Weeds Act?	ef	c	Y?	~Y?	y	y	y	y			y	!
Animal health and welfare	Livestock register	ef, h, o	c?	Y?	Y	y	y	y	y	y	y	y	!
Animal health and welfare	Herd Register for Bovine Animals	ef, h, o	c?	Y?	Y	y	y	y	y			y	!
Animal health and welfare	Cattle Identification Regs 1998	ef, h, o	c	Y?	Y		y	y	y			y	
Animal health and welfare	Sheep electronic identification The Sheep and Goat Identification (Scotland) Regulations 2000	ef, h, o	c	Y?	Y		y	y	y			y	
Animal health and welfare	Certificate of competence - Welfare Animals (Transport) Order 2006 - EC Regulation 1/2005	ef, o	c	Y	Y	y		y	y				
Animal health and welfare	The Foot and Mouth Disease (Scotland) Order 2006 and the Foot and Mouth Disease (Slaughter and Vaccination) (Scotland) Regulations 2006	ef, h, o	c	Y	Y	y	y	y	y			y	!
Animal health and welfare	Classical Swine Fever (Scotland) Order 2003	ef, o	c	Y	Y	y	y	y	y			y	!
Animal health and welfare	The Tuberculosis (Scotland) Order 2005	ef, o	c	Y	Y								!
Animal health and welfare	The TSE (Amendment) Regulations (Scotland) 2004	ef, h, o	c	Y?	Y		y	y	y			y	
Animal health and welfare	Medicated Feeding Stuffs regs	ef, h, o	c	Y?	Y	y	y	y	y			y	
Animal health and welfare	Retailers' Records for Veterinary Medicinal Products Regulations 2000	ef, h, o	c	Y	Y	y	y	y	y			y	!
Animal health and welfare	The Welfare of Farmed Animals (Scotland) Regulations 2000; The Welfare of Farmed Animals (Scotland) Amendment Regulations 2002; The	ef, o	c	Y?	Y	y	y	y	y			y	!
Employment legislation	Seasonal Agricultural Workers Scheme	ef	c	N	Y	y	y	y	y	y	y	y	!
Employment legislation	Transport Working Time Directive	eq, h	c	Y	N	y	y	y	y	y	y	y	!
Employment legislation	The Agricultural Wages (Scotland) Order (No 55) 2007	eq	c	Y?	Y	y	y	y	y	y	y	y	!
Employment legislation	Gangmasters Licensing	eq, h	c	Y?	N	y	y	y	y	y	y	y	!
Other	EU hygiene controls, The Food Hygiene (Scotland) Regulations 2006, Dairy Hygiene Regs	h	c	Y?	Y							y	
Other	Traceability and Labeling of GMOs (Regulation (EC) No. 1830/2003	o	c	?	N								!

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Policy area	Regulation	Reason for intervention	Type of measures	Within Scottish Govt remit?	Specific to agriculture and affects on farm operations?	Sectors primarily affected: LFA sheep	LFA beef	Lowland cattle and sheep	Mixed	Cereals	General cropping	Dairy	Pi
Agricultural support/rural dev	LMC tier 1: Single Farm Payment/Cross compliance	ef, o	i	Y	Y	y	y	y	y	y		y	
Agricultural support/rural dev	LMC tier 2: Rural development contracts – Land Manager's	ef, o	i	Y	Y	y	y	y	y	y		y	
Agricultural support/rural dev	LMC tier 3: Rural development contracts – Rural Priorities	ef, o	i	Y	Y	y	y	y	y	y		y	
Agricultural support/rural dev	Agricultural Holdings (Scotland) Act 2003 (SLDT etc)	eq	c	Y	Y	y	y	y	y	y	y	y	)
Pollution control/ habitats and natural heritage/waste	Water Framework Directive	ef	c e v	Y	N, but some regs arising from the WFD are	y	y	y	y	y	y	y	)
Pollution control/ habitats and natural heritage/waste	Nitrates framework directive	ef	c, e	Y	~Y	y	y	y	y	y	y	y	)
Pollution control/ habitats and natural heritage/waste	Integrated pollution prevention and control/ The Pollution Prevention and Control Regulations 2000	ef, h	c	Y?	N								)
Pollution control/ habitats and natural heritage/waste	The Control of Pollution (Silage, Slurry & Agricultural Fuel Oil) (Scotland) Regulations 2001, 2003	ef, h	c	Y	Y	y	y	y	y	y	y	y	)
Pollution control/ habitats and natural heritage/waste	"Controlled Activities Regulations for Waste"; The Waste (Scotland) Regulations	ef, h	c	Y	Y	y	y	y	y	y	y	y	)
Pollution control/ habitats and natural heritage/waste	The Introduction of the Waste Incineration Regulations in Scotland/ "middens bonfires"	ef, h	c	Y	Y	y	y	y	y	y	y	y	)
Pollution control/ habitats and natural heritage/waste	Crops Residues (burning) Regulation 1993; Heather and Grass etc (Burning) Regulations 1986	ef, h	c	Y	N	y	y	y	y	y	y	y	)
Pollution control/ habitats and natural heritage/waste	Revision of the Sludge (Use in Agriculture) (Scotland) Regulations	ef, h	c	Y	~Y	y	y	y	y	y	y	y	)
Pollution control/ habitats and natural heritage/waste	The Landfill Directive in Scotland	ef, h	i	Y	N	y	y	y	y	y	y	y	)
Pollution control/ habitats and natural heritage/waste	Birds and Habitats Directive/ Natura 2000	ef	c	Y	Y	y	y	y	y	y	y	y	)
Pollution control/ habitats and natural heritage/waste	The Pesticides (Maximum Residue Levels in Crops, Food and Feeding Stuffs) (Scotland) Regulations 2005	ef, h	c	Y	Y	y	y	y	y	y	y	y	)
Pollution control/ habitats and natural heritage/waste	The Animal By-Products (Scotland) Regulations 2003/ Fallen Stock Scheme	ef, h	c	Y?	Y	y	y	y	y	y	y	y	)
Pollution control/ habitats and natural heritage/waste	Pernicious Weeds Act?	ef	c	Y?	~Y?	y	y	y	y			y	)
Animal health and welfare	Livestock register	ef, h, o	c?	Y?	Y	y	y	y	y	y	y	y	)
Animal health and welfare	Herd Register for Bovine Animals	ef, h, o	c?	Y?	Y	y	y	y	y			y	)
Animal health and welfare	Cattle Identification Regs 1998	ef, h, o	c	Y?	Y		y	y	y			y	
Animal health and welfare	Sheep electronic identification The Sheep and Goat Identification (Scotland) Regulations 2000	ef, h, o	c	Y?	Y		y	y	y			y	
Animal health and welfare	Certificate of competence - Welfare Animals (Transport) Order 2006 - EC Regulation 1/2005	ef, o	c	Y	Y	y		y	y				
Animal health and welfare	The Foot and Mouth Disease (Scotland) Order 2006 and the Foot and Mouth Disease (Slaughter and Vaccination) (Scotland) Regulations 2006	ef, h, o	c	Y	Y	y	y	y	y			y	)
Animal health and welfare	Classical Swine Fever (Scotland) Order 2003	ef, o	c	Y	Y	y	y	y	y			y	)
Animal health and welfare	The Tuberculosis (Scotland) Order 2005	ef, o	c	Y	Y								)
Animal health and welfare	The TSE (Amendment) Regulations (Scotland) 2004	ef, h, o	c	Y?	Y		y	y	y			y	
Animal health and welfare	Medicated Feeding Stuffs regs	ef, h, o	c	Y?	Y	y	y	y	y			y	
Animal health and welfare	Retailers' Records for Veterinary Medicinal Products Regulations 2000	ef, h, o	c	Y	Y	y	y	y	y			y	)
Animal health and welfare	The Welfare of Farmed Animals (Scotland) Regulations 2000; The Welfare of Farmed Animals (Scotland) Amendment Regulations 2002; The	ef, o	c	Y?	Y	y	y	y	y			y	)
Employment legislation	Seasonal Agricultural Workers Scheme	ef	c	N	Y	y	y	y	y	y	y	y	)
Employment legislation	Transport Working Time Directive	eq, h	c	Y	N	y	y	y	y	y	y	y	)
Employment legislation	The Agricultural Wages (Scotland) Order (No 55) 2007	eq	c	Y?	Y	y	y	y	y	y	y	y	)
Employment legislation	Gangmasters Licensing	eq, h	c	Y?	N	y	y	y	y	y	y	y	)
Other	EU hygiene controls, The Food Hygiene (Scotland) Regulations 2006, Dairy Hygiene Regs	h	c	Y?	Y							y	
Other	Traceability and Labeling of GMOs (Regulation (EC) No. 1830/2003	o	c	?	N								)

Appendix B Case Studies of regulation in Scotland

1. Scottish Statutory Instruments 2004 No. 518 The Common Agricultural Policy Schemes (Cross-Compliance) (Scotland) Regulations 2004

In order to receive direct farm support, farmers and crofters must comply with a range of requirements covering environmental protection, public, animal and plant health plus animal welfare. Cross compliance comprises of two sets of regulations – Statutory Management Requirements (SMR) and Good Agricultural and Environmental Conditions (GAEC) – with the former covering rules previously in existence. GAEC, however, established new rules for managing soils and protecting landscapes. The Scottish Executive Environment and Rural Affairs Department (SEERAD) completed a brief RIA in 2005, but this did not assess the costs and benefits of cross compliance. No RIA was deemed necessary for the amended regulation introduced in 2007. However, a number of studies assessing the impact of cross compliance have been undertaken in recent years. These studies generally conclude that cross compliance has a very limited cost for farmers (and crofters), even though the cost of meeting the underlying legislation may be significant. Indeed for many farmers the administrative cost of CAP related form filling has eased for most farmers where a country has decoupled income support from production. A 2007 study for the EC based on five countries, not only confirmed the low cost of cross compliance, but also looked at options for further simplifying associated paperwork. Stakeholders also voiced limited concerns about cross compliance with the exception of duplication of inspections. However, the establishment of SEARS has significantly improved the inspection process. While immediate concerns with cross-compliance legislation is limited, the need for such regulation long term should be based on the direct benefits that arise from this regulation.

1.1 Introduction

The mid term review of the CAP in 2003 resulted in a major change in farm support across the EU. With the aim of helping EU agriculture become more market orientated, member states were given the opportunity to decouple subsidy support from the beginning of 2005. For Scottish farmers and crofters, the change meant that support income previously gained on livestock numbers and crop areas were combined into a Single Farm Payment Scheme. However, the Energy Crop and Protein Crop Schemes were retained and a new livestock scheme (the Scottish Beef Calf Scheme) was introduced. Some farmers and crofters also continued to receive direct support through the Less Favoured Areas Support Scheme.

In return for receiving money through these schemes, Scottish farmers and crofters have to comply with a range of requirements. Cross compliance was established by the Scottish Statutory Instrument 2004 No. 518 – The Common Agricultural Policy Schemes (Cross-Compliance) (Scotland) Regulations 2004. A small number of changes to the original legislation were introduced in The Common Agricultural Policy Schemes (Cross-Compliance) (Scotland) Amendment Regulations 2007, which came into force in March 2007. Importantly, many of the requirements gathered under the cross compliance regulations were already in existence.

In short, two sets of regulations were contained in the combined legislation.

The Statutory Management Requirements (SMR) covered a number of existing rules that farmers and crofters already had to meet on; the environment, public and plant health, animal health and welfare, and livestock identification and traceability. The specific SMRs are:

1. Conservation of wild birds;
2. Protection of groundwater against pollution;
3. The use of sewage sludge in agriculture;
4. Protection of water in Nitrate Vulnerable Zones (NVZs);
5. Conservation of flora and fauna;
6. Identification and registration of animals – pigs;
7. Framework for the identification and registration of animals;
8. Identification and registration of beef animals regarding the labelling of beef and beef products;

8a. Identification and registration of animals – sheep and goats;

9. Restrictions on the use of plant protection products;
10. Restrictions on the use of substances having hormonal or thyrostatic action and beta-agonists in farm animals;
11. Food law
12. Prevention and control of transmissible spongiform encephalopathies (TSE);
13. Control of foot-and-mouth disease;
14. Control of certain animal diseases;
15. Control of bluetongue;
16. Welfare of farmed animals – specific requirements for calves;
17. Welfare of farmed animals – specific requirements for pigs;
18. Welfare of farmed animals.

The Good Agricultural and Environmental Conditions (GAEC) sets out a number of rules for managing soils and protecting the landscape and habitats, even if land is not being used for agricultural production. The individual conditions are set out under four broad categories.

A. Soil erosion:
    1. Post-harvest management of land;
    2. Wind erosion;
    3. Soil capping;
    4. Erosion caused by livestock;
    5. Maintenance of functional field drainage systems;
    6. Muirburn code.
B. Soil erosion:
    7. Arable crop rotation standards;
    8. Arable stubble management.
C. Soil structure:
    9. Appropriate machinery use.
D. Minimum level of maintenance:
    10. Undergrazing;
    11. Overgrazing;

12. Ploughing pasture of a high environmental or archaeological value;
13. Protection of rough grazings/semi natural areas;
14. Application of lime and fertiliser on rough grazings/semi natural areas;
15. Field boundaries;
16. Non-productive landscape features
17. Historic features;
18. Encroachment of unwanted vegetation

To ensure that farmers and crofters meet their cross compliance obligations, 360-370 farm businesses are inspected annually. This number is based on targeting 1% of farms inspected for Pillar 1 schemes and 1% of farms inspected for Pillar 2 schemes, with efforts made to combine inspections where possible. The Scottish Government Rural Payments and Inspections Directorate, the Scottish Environment Protection Agency (SEPA), Scottish Natural Heritage (SNH) and the State Veterinary Service (SVS) complete these inspections.

Where a farmer or crofter fails to comply with SRM or GAEC, a reduction in support income may be applied, even if the non-compliance occurs on land not used to draw down support. In addition, failure to meet many of these rules may also result in prosecution and fines. Therefore, cross compliance largely acts as a positive incentive to farm properly rather than address specific issues of market failure.

While farmers and crofters that do not draw income under one of the direct income support schemes, are not subject to GAEC, they are still obliged to meet the SRM.

1.2 Analysis

This section reviews a number of studies undertaken to assess the impact of cross compliance regulations in Scotland and the UK.

Scottish Regulatory Impact Assessments

SEERAD completed a Scottish RIA in 2005, though this aimed to assess the overall impact of the reform of the CAP rather than specifically cross compliance. A sub-assessment of the Scottish Beef Calf scheme was annexed to this RIA. No RIA was deemed necessary for the amendment regulation introduced in 2007.

Consequently, no RIA covering the introduction of cross compliance in Scotland has been completed. Subjective assessments of the costs and benefits of cross compliance are given in tables 1 and 2.

Table 1 Subjective assessment of the costs of cross-compliance[3]

	Action	*Scale of cost*
Admin	Co-operation with inspections	Low
Policy		

[3] The rankings of costs and benefits are subjective assessments of the relative scale of costs and benefits within case studies, and are not comparable across case studies

Table 2 Subjective assessment of the benefits of cross-compliance

	Action	*Scale of benefit*
Private	Compliance with good farm practice resulting in potentially lower costs and extra revenue.	Low - medium
Social	Potential improvement in public goods provided by agriculture "over and above" that provided by regulations that underlie cross-compliance.	Uncertain

EC administrative cost study (2007)

The EC commissioned Ramboll Management to assess the administrative burden on farms caused by the 2003 reform of the CAP. The study examined the impact on five countries – Denmark, France, Germany Ireland and Italy – which implemented the reforms using a range of models. Of these the model used by Ireland (full decoupling based on historical payments) is probably closest to that applied by Scotland.

The overall conclusion was that the extra paper work caused by cross compliance was very limited for all the countries examined. Of the five countries, cross compliance was most onerous for Danish, yet only accounted for 4.3% of administrative costs in 2006. For Irish farmers the figure was 2.46%, while for Italian farmers it was just 0.3%.[4]

The report also considered options for simplifying paperwork and the findings are being used to help formulate proposals in the CAP health check.

Defra study on cost of farm administration (2005)

Defra commissioned Promar International to investigate how the reform of the CAP agreed in 2003 would affect English farmers' paper work. An important part of this study was an assessment of the administrative time needed to satisfy cross compliance requirements.

The report found that English farmers will benefit from a significant fall in form filling because of the replacement of a range of subsidy application forms with the a "single farm payment" application. However, in the initial couple of years the demands of meeting cross compliance conditions would involve extra paperwork,

[4] The cost estimates include all the administrative costs imposed on farmers to comply with the CAP requirements. The total includes costs for external assistance and internal costs related to resources spent by the farmer. The estimates do not include the value of time spent by the public sector in administration of schemes or helping farms. Italian farmers get public assistance free of charge, hence the reason for their very low administrative costs.

though this would not be onerous. Moreover, the demands of cross compliance were expected to be much lower in subsequent years.

However, the change in administrative effort would vary between farm types. Beef farmers would benefit most markedly given the number of schemes previously applicable. While the unsupported sectors – pig, poultry and horticulture – faced extra paper work mainly because of cross compliance demands.

Impacts of cross compliance on farm costs (2007)

The Institute for European Environmental Policy completed this report to examine how cross compliance might affect farm costs based on experience in a number of EU countries. In short, the report argues that in most cases any increase in farm costs is not attributable to cross compliance, but the meeting of the underlying legislation (eg, the Nitrates Directive). Only in the case of the GAEC standards, which previously did not exist or were not compulsory for farmers to comply with, could extra farm costs be attributable.

Based on evidence collected in this report, it was concluded that the majority of farmers in the countries examined, faced only minimal costs due to cross compliance.

Cross-Compliance – A Policy Options Paper (2007)

Cumulus Consultants Ltd completed this report to provide the Land Use Policy Group, which represents UK statutory conservation, countryside and environment agencies, with a policy options paper for cross compliance. Essentially, the report examined how cross compliance could be developed by examining the experience to date in a number of EU countries.

The report stresses that the impact of cross compliance is still difficult to gauge because it was only implemented at the beginning of 2005. Consequently, the basis for evaluating potential future developments was limited. Furthermore, the potential impact of the CAP health check also added a degree of uncertainty to an options evaluation.

The report also included a section identifying the most common breaches of cross compliance. Animal identification and registration was the most common breach, though compliance with the nitrates, habitats, groundwater and sewage sludge directives also proving problematical.

Stakeholder Feedback

Stakeholders expressed limited concerns about cross compliance. Farmer representatives, on the whole accepted that cross compliance simply formalised good farming practice. And given the potential risk to direct payments, especially the single farm payment, farmers had a strong incentive to comply.

The main concern from the farming industry involved inconsistency of standards by inspectors regarding overgrazing. However, it was recognised that on issues like overgrazing, some differences between inspectors has to be expected because of the criteria was so subjective. It was also apparent from feedback that SERPID was generally helpful in both the organisation of visits and attitude during inspections. The inference was that every effort was made to guide and help farmers rather than simply impose penalties. Nevertheless, many farmers were fearful of the inspection process and the potential loss of income that might result.

The recent establishment of Scotland's Environmental and Rural Services (SEARS) is a positive step towards addressing many of the concerns regarding inspections.

By comparison, a key environmental stakeholder highlighted that the current enforcement regime heavily favoured the farmer on environmental matters. Given that environmental neglect can often only be proved over years, the current onus on proof within a year that a farmer has caused incontestable harm, is difficult to achieve. Consequently, only in clear cut cases such as poisoning of birds of prey, have fines resulted.

As to the long term future of cross-compliance, one stakeholder questioned what would happen (to cross-compliance) if the Single Farm Payment was phased out or detached from land. Assuming that support was switched mainly from the Single Farm Payment (Pillar 1) to Pillar 2 schemes, the inference is that farmers, crofters and landholders would be directly paid for contracting to provide the public goods that society wanted. With the retention of the polluter pays principle (ie, prosecution) for anybody who fails to meet the standards set out in the legislation that covers environmental protection, public, animal and plant health plus animal welfare.

1.3 Conclusions

Has a RIA been done?

One Scottish RIA was completed by SEERAD in 2005, though this aimed to assess the overall impact of the reform of the CAP rather than specifically cross compliance. A sub-assessment of the Scottish Beef Calf scheme was annexed to this RIA. No RIA was deemed necessary for the amendment regulation introduced in 2007.

Consequently, no RIA covering the introduction of cross compliance in Scotland has been completed.

Does the RIA quantify costs?

Not applicable.

Does the RIA quantify benefits?

Not applicable.

Does the RIA demonstrate that benefits exceed costs?

Not applicable.

Data required to improve assessment of costs and benefits

Not applicable.

Recommendations for improvement

Concerns with cross compliance regulations are limited. Farmers and crofters generally accept the objectives of cross compliance as consistent with good farming. Moreover, they have a strong incentive to comply because failure to comply may reduce their direct subsidy support. The recently announced move to streamline inspections by collaboration of agencies under SEARS has also been welcomed by the agricultural industry. Environmental stakeholders also broadly welcome cross compliance, though note that environmental damage is very difficult to prove within the timescales currently allowed.

It is with regard to the future development of cross compliance that a study specific to the needs of Scotland may be warranted. Critically, this study must address the costs and benefits directly attributable to cross-compliance, not those caused by any underlying legislation. Such a study will help inform the debate on how future support should be balanced between Pillar 1 and Pillar 2.

Does it meet the Better Regulations guidelines?

Transparency: High. Farmers and crofters recognise the regulations as indicated by the low level of non-compliance.

Accountability: High. While the basis of cross compliance regulations come from the EU, their design and implementation by the Scottish Government is recognised. Stakeholders were consulted as part of this process.

Proportionality: High. The cost of cross compliance is very limited and even where breaches are identified, farmers and crofters often have the opportunity to correct the breach before action is taken. Indeed, the overall administrative burden resulting from the 2003 CAP reforms has decreased for many farmers and crofters. Further simplification is expected as part of the current health check.

Consistency: Medium. The main cross compliance regulations were introduced in 2005 with a number of additions added since. The framework is now well established and provides a basis for how the CAP may evolve in future. Specifically, if the intention is to transfer funding from direct support (Pillar 1) to paying farmers and crofters for providing public goods and services, the basis now exists.

Targeting: Medium. In principle, because the potential loss of direct support is a key reason for compliance, individuals not in receipt of such payments may not comply.

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2. Scottish Statutory Instruments 2005 No. 225 The Land Management Contracts (Menu Scheme) (Scotland) Regulations 2005

Abstract

Introduced in 2005 as the Tier II element of Land Management Contracts, the Menu Scheme (MS) was a non-competitive payment scheme operating under the Rural Development Regulation (RDR). It has subsequently evolved into Land Management Options under Rural Development Contracts, but still offers some insights as a case study. The MS rationale stemmed from seeking to address various forms of market failure to deliver economic, environmental and social benefits, with the novel non-competitive element potentially easing transition to wider uptake of RDR measures. No RIA was conducted in advance and a formal evaluation of costs and benefits has yet to be undertaken, but the MS appears to have performed reasonably against criteria of transparency, accountability, proportionality, and consistency and, given that individual measures were guided by experience of various previous grant schemes, a degree of effectiveness was anticipated. However, a large proportion of potential applicants never applied and, of those that did, the average claim was only for around 60% of the funding allowance available. Given that guaranteed funding was available via a relatively easy application process, this suggests that perceived proportionality was poor for some measures for some land managers. However, overall budget constraints and RDR/WTO requirements on payment calculations mean that this would have been difficult to address. Take-up was highest for measures that were perceived as easiest to comply with, raising possible concerns over the degree of additionality achieved through non-competitive public funding.

Introduction

Land Management Contracts (LMCs) were introduced in Scotland as an administrative vehicle – a "wrapper" - for a variety of payment schemes under the reformed Common Agricultural Policy (CAP). A three-tier structure was created, with Tier I equating to the new Single Farm Payment (SFP) under Pillar I of the CAP and Tiers II and III relating to expenditure under Pillar II of the CAP, governed by the Rural Development Regulation (RDR).

Whilst Tier III represented an attempt to brigade a range of (mostly pre-existing) competitive land management and rural development grant schemes in order to simplify their application and administrative processes (mirroring the supposed simplification of multiple schemes into the SFP under Pillar I), Tier II represented the novel introduction of non-competitive funding for selected rural development activities. That is, whereas granting of a Tier III application would depend on how it ranked relative to other applications when judged against a set of evaluative criteria, granting of a Tier II application would depend solely upon it meeting minimum eligibility criteria.

More specifically, each individual eligible applicant was allocated a budgetary allowance based on their area of land and invited to seek funding up to this maximum by choosing to adopt one or more measures from a menu of options. Standard

payment rates were set for each option according to RDR guidelines, relating to either a proportion of costs incurred and/or income foregone. The menu spanned the three main axes of the RDR, offering options relating to improving competitiveness, delivering agri-environmental benefits and encouraging wider rural development (SG, 2005). Although governed by the RDR and requiring approval from the European Commission, the menu was constructed following extensive discussions with various stakeholder groups and drew heavily on experience with previous, competitive grant schemes.

The LMCMS was open to new applicants for only two years (2005 and 2006) under the previous Scottish Rural Development Plan (SRDP), but has evolved into a related mechanism called Land Managers' Options (LMOs) under the rebranded Rural Development Contracts (RDCs). Although there are some differences in the specific measures available, the overall approach remains the same. Moreover, since some LMCMS options were entered into for a five-year period, some legacy aspects of the arrangements have carried-forward, as they did for 2007 (SG, 2008a). The initial Tier II application process was, and remains, tightly linked to that for Tier I and is based on the common Single Application Form (SAF) with guidance and advice available through the same official channels for subsequent stages.

Rationale

The rationale for the LMCMS stemmed from two main sources. First, as with the underpinning RDR, the various measures were intended to address various types of market failure. In particular, the structure of the land management sector can cause information and co-ordination failures that lead to individual and collective under-investment in business competitiveness and in economic diversification and community initiatives. Axes I and III of the RDR address such problems through (for example) offering support for training and for capital investment and were used to guide the design of some LMCMS options aimed at economic and social benefits. Equally, the failure of markets to account sufficiently for environmental public goods and externalities - such as attractive landscapes and biodiversity - associated with land management is addressed by Axis II of the RDR and led to several agri-environment-type options being included in the LMCMS.

Second, the non-competitive nature of the LMCMS was also justified in the context of easing the transition to a decoupled Pillar I with higher rates of modulation. That is, the CAP reforms marked a significant change in the nature of agricultural support arrangements and the LMCMS was viewed as an (albeit modest) attempt to provide some stability and an opportunity for SFP-recipients to recoup modulated funds taken from Pillar I. It also potentially offered a low-risk route for increasing land managers' familiarity with rural development measures as a lead-in to perhaps then bidding for Tier III measures at a later date.

Regulatory Burden Analysis

The LMCMS ran under the EU's Rural Development Regulation and was enacted domestically under the "Scottish Statutory Instruments 2005 No. 225

AGRICULTURE The Land Management Contracts (Menu Scheme) (Scotland) Regulations 2005" (OFQPS, 2005). However, unlike other case studies presented in this report, it is an example of a payment scheme rather than regulatory controls per se. That is, compliance with the prescribed measures was on a voluntary basis in return for payment rather than being a compulsory obligation with penalties applied for non-compliance. Nevertheless, it is still possible to analyse the scheme on a similar basis to the other cases studies presented in this report.

Transparency - High

Initially, stakeholders were apparently wary of the LMCMS due to unfamiliarity with the concept blending with general concern regarding the whole process of CAP reform – an issue that led to deterioration in applicants' reported satisfaction with overall administration of CAP payment schemes (Campbell-Jack et al., 2006).

However, LUC/STAR (2006) suggest that a sustained information campaign by the Scottish Government (SG) and stakeholder bodies allayed a lot of worries and the (somewhat lengthy) guidance notes were deemed to be very helpful by those that had actually read them. Further publicity for LMOs may be needed to overcome persistent wariness amongst some groups and over-reliance on providing information electronically may risk alienating some groups.

Perhaps more importantly, financial aspects of the scheme were highly transparent. That is, calculation of the level of funding (the allowance) available to an applicant was based simply on the area of land managed, with rates tapering such that the differential between small and large farm allowances was reduced. Equally, the payment rates available for adopting individual menu options were publicised in advance, either as a rate per unit or a percentage share of actual costs incurred.

Accountability - High

The RDR underpins the LMCMS and thus accountability runs through elected members of UK government and of the European Parliament in terms of the high-level policy decisions and political negotiations that led to RDR and the reformed CAP. In practice, accountability for the design and implementation of the LMCMS was more generally viewed as lying with elected members and officials of the SG – although extensive stakeholder involvement in the consultation process may suggest some shared ownership and responsibilities.

Administrative accountability for the practical operation of the scheme in terms of processing applications, conducting inspections, making payments and handling appeals lies with SG officials, although elected members of the SG are ultimately held to be responsible.

Proportionality - Medium

The process of applying for the LMCMS and then complying with chosen prescriptive measures does require some effort on the part of scheme participants. However, the application process was relatively straightforward once understood and was well-integrated with the Single Application Form (SAF) for the SFP in Tier I of the LMC.

Consequently, for most applicants, the additional effort required was fairly modest. Moreover, since the non-competitive nature of the scheme led to a guaranteed level of funding, there was no payment risk involved in wasting time on a potentially unsuccessful application (a problem cited for Tier III measures).

Hence most claimants apparently accept the administrative burden of the scheme as proportionate - otherwise they would not have applied. However, it should be noted that the number of applicants is significantly less than the population of potential applicants and the proportion of individual allowances actually claimed by applicants is only around 60%. This suggests that administrative burdens may have indeed been sufficient to deter some applications. Whilst there are a range of possible reasons for low uptake, the fact that allocated, guaranteed funding was available via a relatively easy application process suggests that the perceived burden was not proportionate in all cases.

Separately, from the perspective of scheme administrators, the cost of processing an application was reported as £91.63 in 2005 (SG, 2006) but is no longer reported separately, reflecting its tighter administrative integration with other schemes. The overall administrative cost of processing the SFP and allied schemes was reported as £218.69 per claim in 2007 (SG, 2008b). The separate 2005 figure equates to a cost of around £0.05 per £1 of payment. This is higher than some other payment schemes, but lower than most agri-environment schemes – presumably reflecting on one hand the simpler, non-competitive nature of LMCMS but also on the other hand the labour intensive nature of processing individual applicants' expenses claims and the effect of agri-environmental options on the overall administrative effort required.

Consistency - High

Over time, with the replacement of LMCs with RDCs and the MS by LMOs, the precise mix of options evolved slightly to reflect changes in the underlying RDR and policy priorities. However, at any given point in time, identical menu options and payment rates have been available to all applicants. Thus whilst there has been some inconsistency over time – most notably with the enforced absence of any new applications in 2007 due to delays in approval of the new SRDP and subsequently with the (possibly only temporary) withdrawal of some measures – there has been consistency of treatment across applicants: everybody has been treated the same.

Although not currently affecting Tier II, the identification by Regional Proposal Assessment Committees (RPACS) of geographical variation in rural priorities for RDC Tier III measures may have some relevance to future evolution of Tier II measures in terms of regional consistency.

Targeting - Low

The LMCMS was targeted at land managers and the choice of menu options presumably reflected some attempt to target prioritised land management and rural development objectives. However, the non-competitive nature of the scheme meant that there was no scope for steering uptake of particular measures either nationally or regionally: in this sense, expenditure on individual measures was not targeted. This led to high uptake rates for some measures and low uptake rates for other measures,

with the former being for those measures judged easier to comply with (LUC/STAR, 2006). This raises issues about the additionality achieved by public expenditure, a point reflected in concerns expressed subsequently by the European Commission.

Equally, although available to all land managers, the number of applicants never exceeded around twelve thousand against a known SFP-claimant population in excess of twenty-thousand and an estimated population of other land managers (e.g. foresters) of several thousand. This means that many potential applicants (and their land) were not targeted effectively.

Non-applicants may have been deterred by perceived complexity (i.e. lack of transparency) of the application process, but a more general complaint appears to have been that the payment rates and individual allowances were not proportional (i.e. sufficiently attractive) to the perceived effort of applying relative to other uses of land managers' time. That is, the absolute sums available may have been too small for some claimants to bother with and/or the payment rates insufficiently attractive. However, overall budgetary constraints and the RDR/WTO restriction on payment calculations to costs incurred and income foregone would have made it difficult to increase take-up through more generous funding.

Some potential applicants may also have been discouraged by their specific circumstances restricting their ability to apply. In particular, crofters have argued that few menu options were relevant to them, partly because of geographical location but also partly because of additional constraints imposed by small-scale farming and the resulting very low effective payment rates (Smith & Shaw, 2006). In addition, although now addressed under RDC LMOs, the treatment of common land under the LMCMS arguably constrained attractiveness to crofters. Equally, tenant farmers may need their landlord's permission to adopt multi-year measures, again limiting relevance of the scheme. In both cases, these issues are not unique to Tier II but have also arisen for Tier III measures and similar grant schemes in the past.

Costs & Benefits

A formal evaluation of the LMCMS has yet to be undertaken, although one will be as part of the recently-commissioned evaluation of the full SRDP, and no RIA was taken in advance. Hence it is currently difficult to compare costs and benefits on a quantitative basis. However, it is possible to estimate the level of payments to applicants and the public administrative cost from a mix of published and unpublished figures supplied by the Scottish Government. These are summarised in Table 1 below. Private administrative costs to applicants are not known, but are likely to be modest for SFP-recipients given the close integration between Tier I and II applications on the SAF, although as noted some further effort will be entailed in complying with the subsequent compliance and payment processes and for at least a sub-section of applicants (potential or active) the costs were sufficient to discourage action.

Benefits are harder to estimate since they are either in the form of correcting marketing failures or facilitating a transition path from a predominantly coupled support system aimed at agricultural commodity production to a decoupled, rural

development support system. In either case, quantification of benefits awaits formal evaluation of the effectiveness of individual measures and the additional impact of their funded adoption. That is, estimation of the benefits gained requires an understanding of how well individual measures were designed to achieve stated objectives and how widely and well they were adopted, plus some attempt to gauge the counter-factual situation of if they had not been funded.

Table 1: Estimated annual public cost details for LMCMS over period 2005 to 2007

	Year		
	2005	2006	2007
Total payments	£17.7m	£21.7m	£19.8m
Total number of claimants	10017	11652	9541
Average options claimed per claimant	2.9	3.2	2.9
Average payment per claimant	£1824	£1860	£2075
Average allowance per claimant	£2982	£3064	£3041
Average % allowance claimed	62%	61%	68%
Total public administrative cost	£0.9m	£1.1m	£0.9m

Source: derived from LUC/STAR (2006), SG (2006) and SG (2008b) plus unpublished SG data. All figures are illustrative rather than definitive due to incomplete data and assumptions made.

In most cases, the design of individual measures followed prior experience with established competitive grant schemes. Consequently, it may be reasonable to assume that a degree of effectiveness will have been achieved and that some desired outcomes will have been secured. For example, prior experience of agri-environment schemes has established some understanding of best management practices and the type of public benefits achieved (although not without some criticism).

By contrast, the market failure and therefore public need for measures such as subsidised membership of quality assurance schemes or animal health & welfare programmes can be less easy to demonstrate - as reflected by their current suspension from the SRDP pending further negotiations with the European Commission. Equally, the merits of non-competitive funding relative to the more usual - and more easily targeted – competitive funding perhaps need to be articulated in greater detail and ideally estimated (Conlon, 2005; OECD, 2007).

In the absence of quantified benefits, Tables 2a and 2b report the relative adoption rates and expenditure for individual measures. LUC/STAR(2006) and Smith & Shaw (2006) reported that, unsurprisingly, claimants typically opted for activities that were easier to adopt and possibly already in place prior to their funding under the LMCMS. This perhaps suggests limited additionality such that the apparent popularity of quality assurance, animal health & welfare and access measures may merit further attention to check that the additional benefits achieved through their funding do actually outweigh the public costs incurred.

Table 3 offers a subjective assessment of overall costs and benefits, suggesting that (for scheme participants) the private costs are low due to the streamlined application process but that public administration is reasonably expensive, relative to some other grant schemes. Although possible lack of additionality under some measures may

represent a cost, the relatively small overall budget limits the potential size of this deadweight loss. Benefits to claimants include the perceived access to "their" modulated funds and the possibility of securing grant aid for on-farm improvements. Public benefits include overcoming information and co-ordination market failures to improve on-farm and supply-chain efficiencies, but also delivering some environmental benefits. However, whilst previous experience with similar measures suggests that some benefits are likely, again, the limited budget and individual allowances will constrain the overall size of such gains. The potential catalytic effect of familiarity with LMCMS options encouraging greater interest in Tier III measures has yet to be explored empirically.

Table 2a: Estimated number of claims for individual menu options by year

	Year		
Menu option	2005	2006	2007
Animal Health & Welfare	3850	12080	12175
Biodiversity cropping on in-bye	58	57	55
Buffer Areas	900	966	961
Management of linear features	4350	5262	5236
Farm & woodland visit	350	308	N/A
Farm Woodland Management	120	150	148
Improving access	3765	4730	3943
Management of moorland grazing	200	217	218
Management of rush pasture	1800	2040	2022
Nutrient management	660	674	665
Off-farm talk	200	188	N/A
Quality Assurance Scheme	7400	7695	N/A
Retention of winter stubbles	950	967	954
Summer cattle grazing	390	398	392
Training	1650	1305	N/A
Wild bird seed mixture	350	429	429
Woodland plan	100	39	N/A

Source: as per Table 1, but some 2005 figures inferred from a chart. N/A for some 2007 figures relate to options withdrawn in that year. Columns sum to more than total number of LMCMS claimants since an individual claimant can claim for more than one option.

Table 2b: Approximate total payments per menu option by year

	Year		
Menu option	2005	2006	2007
Animal Health & Welfare	£2452k	£3220k	£2868k
Biodiversity cropping on in-bye	£7k	£4k	£4k
Buffer Areas	£244k	£227k	£227k
Management of linear features	£2916k	£3205k	£3210k
Farm & woodland visit	£145k	£118k	-
Farm Woodland Management	£84k	£41k	£40k
Improving access	£6809k	£10117k	£10000k
Management of moorland grazing	£182k	£165k	£168k
Management of rush pasture	£2033k	£2289k	£2282k
Nutrient management	£184k	£167k	£165k
Off-farm talk	£48k	£31k	-

Quality Assurance Scheme	£838k	£668k	-
Retention of winter stubbles	£668k	£513k	£512k
Summer cattle grazing	£173k	£161k	£159k
Training	£756k	£567k	-
Wild bird seed mixture	£152k	£169k	£166k
Woodland plan	£52k	£6k	-

Source: as per Table 2a.

Table 3: Subjective assessment of costs and benefits of the LMCMS[5]

Costs

	Action	*Scale of cost*
Admin	Application process	Low
	Record keeping/inspection visits	Low
	Processing applications	Medium
	Compliance monitoring	Low
Policy	Income forgone/costs incurred	Low
	Deadweight loss	Low

Benefits

	Action	*Scale of benefit*
Private	Access to modulated funds	Low
	On-farm improvements	Low
Social	Improved farm/chain efficiency	Low
	Environmental improvements	Low

Discussion

The introduction of the LMCMS reflects the on-going evolution of government objectives for land management and rural development. That is, a changing emphasis away from simply supporting commodity production towards encouraging broader notions of sustainable land management and rural development has led to an increased focus on overcoming market failures such as under-investment in business structures and training or under-provision of environmental public goods. Whilst other instruments could be – and indeed are – deployed to address such issues, the use of payment schemes to incentivise the adoption of particular management practices and activities remains an important policy tool.

The LMCMS differs from other payment schemes in that it wss non-competitive, offering guaranteed funding (up to a pre-determined maximum allowance) for all eligible applicants. This offers some advantages to applicants in that the opportunities for funding are highly transparent and certain. Moreover, the design of the application process incurs relatively little additional administrative effort for most

[5] The rankings of costs and benefits are subjective assessments of the relative scale of costs and benefits within case studies, and are not comparable across case studies

applicants and is thus generally (but not universally) judged by applicants to be proportionate to the payments on offer. Accountability and consistency are also viewed as largely acceptable.

However, this generally positive view is accompanied by a couple of serious concerns related to targeting. First, despite the apparent ease and certainty of gaining funding, a significant proportion of potential applicants chose not to apply for the LMCMS and of those that did apply, many did not use their full allowance. Stakeholder feedback suggests that this is partly due to some on-going confusion about the relationship with Tier III measures and a perception of bureaucratic requirements but more generally is attributable to perceived low payment rates and a poor range of options for different circumstances as found on different sizes and types of farms in different parts of Scotland (LUC/STAR, 2006; pers. comms. NFUS, SCF, SRPBA).

That is, the maximum allowance and funding available per option was insufficient to attract the attention of many potential applicants, plus the number of options actually of practical relevance to many applicants was often far fewer than implied by the full menu. This not only results in dissatisfaction amongst stakeholder groups but also in reduced delivery of public benefits.

Suggested ways to overcome this perceived problem include increasing the individual allowance and increasing payment rates. The former raises budgetary issues – including modulation rates - whilst the second is constrained by what is permissible under the RDR in terms of payment calculations. However, echoing moves under RDC Tier III, some local concerns could possibly be addressed by introducing additional measures for different types or sizes of farm under regional menus rather than the single national menu – although such regional variation can cause tensions with respect to accountability and consistency criteria (Moxey, 2007).

Second, due to a lack of information, it is currently difficult to judge the relative costs and benefits of individual menu options or of the use of non-competitive rather than competitive funding. Whilst market failure justifications can be articulated and prior experience suggests that public benefits can be secured through the types of measure offered by the LMCMS, overall effectiveness of targeting benefits –either through current or future uptake – has yet to be measured. It is hoped that the forthcoming formal evaluation will attempt to do so, and to compare the LMCMS with alternatives such as greater use of competitive Tier III measures or recourse to enhanced cross-compliance under the non-competitive Tier I, Single Farm Payment as well as further evolution of Tier II itself.

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3. SSI 2005 No. 348 Water Environment (Controlled Activities) (Scotland) Regulations 2005

Abstract
This case study focuses on the Water Environment (Controlled Activities) (Scotland) Regulations as they apply to agriculture. These regulations were introduced in 2005 as part of the process of implementing the Water Framework Directive in Scotland. The regulations establish a framework for the control of the activities impacting on the water environment, notably: abstraction; impoundment; and activities liable to cause pollution. The regulations seek to achieve their aims through three tiers of control: general binding rules; registration; licensing.

The appraisal of the regulations illustrates the difficulty of weighing up the costs and benefits of individual policies. The impact assessment approach treats each regulation as if it were a stand-alone measure, however, the CARs are part of a wider strategy designed to improve the water environment through integrated river basin management. It is therefore necessary to look at the overall performance of the strategy that the CARs are a part of. This will be done with the RBMP which is being subject to an RIA presently and will be published in draft form for consultation, alongside the RIA, at the end of 2008. Early evidence suggests that the regulations are performing well, however they should be kept under review to ensure that any lessons arising can be incorporated.

Introduction
SSI 2005 No. 348 Water Environment (Controlled Activities) (Scotland) Regulations 2005 (hereafter referred to as the CARs) is one of the legislative tools being employed to meet the requirements of the Water Framework Directive (WFD) (see table 1).

Table 1 WFD-related legislation

Legislation	*Purpose*
Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy (The Water Framework Directive - WFD)	Article 11: • prevent deterioration of water body status • protect, enhance and restore water bodies with the aim of achieving good status by 2015 • progressively reduce pollution of water bodies from priority substances and to cease or phase out emissions, discharges and losses of priority hazardous substances.
Water Environment and Water Services (Scotland) Act 2003 (WEWS)	Transposed the WFD into Scots Law and began the process of implementing the WFD in Scotland. Section 20 gives Scottish Ministers powers to control activities for the purpose of protecting the water environment.
SSI 2005 No. 348 Water Environment (Controlled Activities) (Scotland) Regulations 2005 (CAR)	The CARs bring into effect section 20 of the WEWS to control certain activities adverse impacts on the water environment: water pollution; abstraction; impoundment; building/engineering works; artificial recharge or augmentation of groundwater
2007 No. 219 The Water Environment (Controlled Activities) (Scotland) Amendment	Amend Schedule 3 of CARs, adding new GBRs relating to: (i) the removal of sediment from the beds of rivers, burns or ditches and its return; (ii) the placement of boulders in a river or

Regulations 2007	burn; (iii) the temporary abstraction of ground water; from construction sites, maintenance works, or for the extraction of geothermal energy.
2008 No. 54 The Water Environment (Diffuse Pollution) (Scotland) Regulations 2008	Add GBRs to the CARs relating to the control of diffuse pollution, and amend Regulation 3 of SSAFO to provide for alternative means of disposal of certain types of slurry and silage effluent.

According to (Scottish Executive Environment Group (2005)), the WFD and CAR in particular affect some 240 existing policy and legislative requirements. In particular, the CARs affect the following:

- Control of Pollution Act 1974
- Groundwater Regulations 1998
- Pollution Prevention and Control 2000
- The Water (Scotland) Act 1980

The CARs supersede and replace several existing regimes, thereby simplifying the legislative framework for the management of activities in the water environment. While the CARs provide a framework for addressing diffuse pollution, separate regulations for dealing with diffuse pollution were introduced in 2008 (see table 1). Similarly, specific regulations governing private water supplies were introduced in 2006.

The primary aim of the CARs "is the establishment of a holistic framework to provide for controls over all activities having an impact on Scotland's water environment." (Scottish Executive Environment Group (2005, p3)). Specifically, the CARs bring into effect section 20 of the WEWS in order to control:

• activities liable to cause pollution of the water environment
• abstraction of water from the water environment
• the construction, alteration or operation of impounding works in surface waters or wetlands
• carrying out building, engineering, or other works in inland water other than groundwater, or wetlands, or in the vicinity of inland water or wetlands, and likely to have a significant adverse effect on the water environment
• artificial recharge or augmentation of groundwater
Scottish Executive Environment Group (2005, p3)

Authorisation
The CARs seek to achieve their aims by making provisions for 3 tiers of control: general binding rules, registration and licences. The three tiers of authorisation were developed by SEPA in consultation with stakeholders, in an attempt to create a more proportionate and risk-based approach to regulation. The three tiers are summarised below and in table 2:

"General Binding Rules cover the majority of activities, and are the least burdensome in that they have no associated charges or inspections and essentially rely on meeting good practice. Registrations allow SEPA to collate information on cumulative pressures and impacts on the water environment, and have associated application fees.

There are no subsistence charges or inspections. Licences are required for activities of greatest risk to the water environment and have associated application fees and subsistence charges." (MacDonald 2007)

Table 2 CAR tiers of control (Adapted from: Scottish Executive Environment Group (2005); SEPA (2006))

Tier of authorisation	*Description*	*Farm activities covered*
General Binding Rules	Intended for low risk activities, unlikely to represent a cumulative impact, no requirement to contact SEPA No charge	Abstractions of <10m^3 a day for activities such as pesticide spraying and livestock watering e.g. for <110 dairy cows in milk
Registration	Intended for relatively simple activities where cumulative impacts are likely, operators supply SEPA with a description of the controlled activity, SEPA may impose limited constraints One-off application charge but no subsistence charge	Abstractions >10 & <50m^3 a day for activities such as livestock watering, e.g. >110 dairy cows in milk
Licenses	Intended for activities posing the greatest risk. A licence authorises a responsible person to undertake the controlled activity. They can be simple (i.e. standard) or complex (site specific). One-off application charge and ongoing subsistence charge	Waste Sheep dip disposal to land Abstractions >50m^3, e.g. irrigation: the typical pump abstracts 1200m^3 in 24 hours and will require a licence

Analysis

The CARs RIA's main focus is on the costs and benefits of the CARs, rather than on the longer term compliance costs of the WFD river basin management process (these will be assessed in the forthcoming RIA of the river basin management plan which is due to be published in draft form for consultation at the end of 2008). Four options were considered in the CAR RIA (see table 3).

Table 3 SEPA forecasts for the total number of activities authorised by the different mechanisms provided for in the options considered in the RIA (adapted from Scottish Executive Environment Group (2005)

Option A: Point source pollution (~100,000 discharges) would continue to be controlled by SEPA under CoPA. Controls on other activities(~45,000, mainly abstractions) would not be introduced until 2009				
Authorisation mechanism	*Directly by a General Binding Rule in the Regulations*	*Registration with SEPA*	*Registration with SEPA under a General Binding Rule*	*Licensed by SEPA*
Option B: The proposed Regulations, as produced following SEPA's consultations in April 2004 and March 2005	50,000	80,000	n/a	15,000
Option C: All controlled activities would as a minimum have to be registered with SEPA. Medium risk activities would have to be registered and comply with general binding rules. Large scale and high risk activities would require authorisation under the conditions of a licence issued by SEPA	n/a	100,000	30,000	15,000
Option D: All activities falling under the scope of the Regulations would need to be licensed by SEPA.	n/a	n/a	n/a	145,000

Option B was recommended because it was thought to "offer the appropriate balance between the administrative costs incurred by water users and the provision of effective controls for the protection of the water environment" (Scottish Executive Environment Group (2005, p35)). The predicted costs and benefits of option B are set out in Appendix A, and summarised in table 4.

Table 4. Summary of the costs and benefits of option B (as per the proposed regulations) given in the RIA (Scottish Executive Environment Group 2005).

Benefits	*Value*
Prevents deterioration of the status of the water environment from 2006 onwards.	Not quantified
Improvement measures needed by 2012 phased in from 2006.	Not quantified
Reduction in uncertainty for business compared to option A.	Not quantified
Provision of the information on abstraction and impoundment pressures necessary target the monitoring programmes and establish a programme of measures and set objectives in time for inclusion in the river basin management plan in 2009.	Not quantified
Environmental monitoring and river basin planning costs attributable to abstraction, impoundment or engineering pressures would be recovered from water users from 2006 onwards reducing the burden on the public purse.	Not quantified
A large number of small scale and low risk activities, such as all abstractions of less than 10 m^3 a day, would be authorised directly by the Regulations, in contrast to options C and D.	£0.5-1.0m
There would be no administrative costs for operators of significant numbers	Not quantified

of small scale and low risk activities, since applications for authorisation from SEPA would not be required.	
Costs	*Value*
Direct costs incurred by SEPA implementing CARs in the period 05/06 - 09/10.	£3.5m pa
Regulatory costs would be incurred, and recovered by charging water users, from 2006 rather than from 2009 as in Option A.	~£3.5m pa for 3 years
Business administrative costs: low in respect of 80,000 activities, and medium-high costs in respect of 15,000 activities.	Not quantified
Business compliance costs: "conditions requiring any significant changes to existing operational practice would not come into effect until 2012" Scottish Executive Environment Group (p33, 2005) the only condition likely to come in before then is the requirement to provide info on the abstraction size ; GBR and registration - low/no cost; for licensed abstraction, costs could be up to £300 (100m^3/day) or £5000 (100,000m3/day) - this larger volume won't apply to any farms.	Not quantified, apart from cost of providing abstraction size
This Option would not require registration for a range of small scale and low risk activities, such as abstractions of less than 10 m^3 a day. To identify those situations where there may be a risk of cumulative impacts from such activities and to take account of the needs of these activities in making its regulatory decisions, SEPA would have to use other means to obtain information on the location of these activities.	Not quantified, but likely very low

Comment on the RIA

The RIA was widely consulted on publicly before being debated and agreed by the Scottish Parliament. Valuation in the RIA is partial, with some of the costs and benefits quantified and valued. Some costs and benefits are discussed relative to different baselines. In theory, each option should be appraised relative to a consistent counterfactual scenario, however it is recognised that this is difficult; IVM (2005, p37) concluded that "The construction of counterfactual scenarios is probably one of the main challenges in estimating the cost of environmental legislation." A clear counterfactual scenario is nevertheless important for a robust assessment of costs (or benefits). The "do nothing" scenario was not presented as an option, as doing nothing would have led to infraction proceedings, however Impact Assessment guidance allows for options to be appraised relative to a "do minimum" scenario, in this case Option A. The lack of valuation and lack of appraisal of the costs and benefits relative to a consistent counterfactual makes it difficult to assess the overall efficiency of the CARs. However, it should be noted that RIA was part of an ongoing process and a draft River Basin Management Plan (RBMP) will be published in December 2008. The RBMP will be accompanied by a full Impact Assessment which will assess the costs and benefits associated with the Plan.

Conclusions

The perceived costs and benefits of a regulation are often different from the actual costs and benefits, and it can be problematic when the costs are more immediately apparent than the benefits. This case study illustrates the difficulty of weighing up the costs and benefits of individual policies. The impact assessment approach treats each regulation as if it were a stand-alone measure, however, individual regulations are

often part of a wider suite of interdependent policy measures, which are designed to achieve a collective goal. As IVM (2005, p37) note "environmental policy measures are always one element in a complex system and it will always be difficult to isolate the impact of that particular element from the rest of the system". This is the case with the WFD, in which the CARs are part of a strategy designed to improve the water environment through integrated river basin management. So, while the short-term, direct costs/benefits arising from the application of the CARs to agriculture are important, such measures should ultimately be appraised in the context of the costs/benefits of the higher order policy objectives they enable (i.e. provision of environmental benefits in the medium to long term and the avoidance of expensive infraction proceedings). This can make it difficult (and misleading) to attribute benefits to individual policy measures. Instead, we need to look at the overall performance of the strategy that the CARs are a part of. This will be done with the RBMP which is being subject to an RIA presently and will be published in draft form for consultation, alongside the RIA, at the end of 2008. Early evidence suggests that the regulations are performing well, however they should be kept under review to ensure that any lessons arising can be incorporated.

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Appendix A. Costs and benefits of option B (as per the proposed regulations) (Scottish Executive Environment Group (2005, p37)).

Benefits	Costs
• SEPA would be able to prevent deterioration of the status of the water environment from 2006 onwards; • Water users would be able to phase in any improvement measures needed by 2012 from as early as 2006, depending on the date their authorisation under the Regulations was reviewed by SEPA; • The compliance conditions required of water users would be identified from as early as 2006. This would reduce the period of uncertainty for businesses compared to Option A and provide time for businesses to plan, and raise finance for, the necessary improvements; • Applications for authorisation would provide SEPA with the information on abstraction and impoundment pressures necessary to most effectively target the monitoring programmes for the first river basin planning cycle; • Applications for authorisation would provide SEPA with both the information on abstraction and impoundment pressures and the regulatory process necessary to establish a programme of measures and set objectives in time for inclusion in the river basin management plan in 2009; • Environmental monitoring and river basin planning costs attributable to abstraction, impoundment or engineering pressures would be recovered from water users from 2006 onwards reducing the burden on the public purse; • A large number of small scale and low risk activities, such as all abstractions of less than 10 m3 a day, would be authorised directly by the Regulations. In contrast to Options C and D, SEPA would not incur any costs associated with processing applications for authorisation for such activities. SEPA would be able to focus its regulatory resources on larger scale and high environmental risk activities; • There would be no administrative costs for operators of significant numbers of small scale and low risk activities, since applications for authorisation from SEPA would not be required	• Total financial cost of regulations: £18 million for regulation by SEPA in the period 05/06 - 09/10; plus negligible administrative costs in respect of 80,000 activities, and medium-high costs in respect of 15,000 activities; • Regulatory costs would be incurred, and recovered by charging water users, from 2006 rather than from 2009 as in Option A; • This Option would not require registration for a range of small scale and low risk activities, such as abstractions of less than 10 m3 a day. To identify those situations where there may be a risk of cumulative impacts from such activities and to take account of the needs of these activities in making its regulatory decisions, SEPA would have to use other means to obtain information on the location of these activities.

4. Scottish Statutory Instrument 2003 No. 51 The Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2003

Abstract

The 1991 Nitrates Directive aims to reduce the level of nitrates in water that originates from agriculture. The directive has been transposed into Scots law through a number of regulations of which the Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2003 is the latest. These regulations cover the actions farmers should take to prevent, or at least minimise, the loss of nitrate from the farm to the water environment. Two Scottish RIAs have been undertaken. While both RIAs try to assess the economic costs, they do not quantify the economic benefits. As a result, the level of confidence in the usefulness of the Scottish RIAs is only moderate. The partial RIA completed in 2007 by Defra for England also fails to properly quantify the benefits of lower nitrate levels. The recently published House of Commons review of the Nitrates Directive in England also raises concerns about the analysis underpinning the regulation, though accepts that action must be taken to make England compliant with the directive. Stakeholders differ in their viewpoints on the regulation, with the NFUS mainly concerned with the financial burden on livestock farmers. However, farmers in Scottish NVZ's will be eligible for capital grant support through the SRDP. All stakeholders agreed that given the recent large rise in fertiliser prices, promoting the financial benefits of nutrient management plans should be a priority.

4.1 Introduction

Farmers use organic and inorganic (bagged) nitrogen because of its positive impact on yields and profitability. However, much of the nitrogen that is not taken up by plants is either lost to atmosphere via volatilisation or runs off or leaches into water courses and aquifers which adversely impacts on drinking water, the aquatic environment and recreational activities.

To correct the market failure caused by the external costs of nitrate pollution the EU Nitrates Directive 91/676/EEC was introduced in 1991. This directive aims to reduce the level of nitrates in water that originates from agriculture. The detail of the directive requires Scotland to:

- Identify and designate as Nitrate Vulnerable Zones (NVZs) the catchment areas of polluted waters (four NVZs[6] currently exist in Scotland);

- Establish a voluntary code of good practice for all farmers throughout Scotland;

- Introduce action programmes in the NVZs that are required in addition to the code of good practice, to reduce nitrate pollution;

- Review every four years the extent of the NVZs and how successful the action programmes are in reducing nitrate levels.

[6] Moray, Aberdeenshire, Banff & Buchan; Strathmore & Fife; Lothian & Borders; Lower Nithsdale.

The directive has been transposed into Scots law through a number of regulations of which the Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2003 is the latest. These regulations cover the actions farmers should take to prevent, or at least minimise, the loss of nitrate from the farm to the water environment. There are three main requirements for farmers:

- Prepare and use a fertiliser and manure plan each year;

- Apply nitrogen fertilisers strictly in accordance with defined periods, quantities and conditions;

- Provide and maintain adequate storage capacity for manures.

Scottish farmers and stakeholders were most recently consulted about action programme measures in 2006. This consultation formed part of the normal four yearly cycle of legislation review, though the UK was in breach of the directive because the allowed level of N applied to grassland was too high and the (winter) closed period too short. The expectation is that changes agreed following the current consultation process, will be introduced in 2009.

4.2 Analysis

This section reviews a number of studies completed to assess the impact of agriculture on nitrate levels in water.

First Scottish Regulatory Impact Assessment – 2002

Oglethorpe et al (2002) completed this, the key impact assessment for this regulation, in December 2002. For the four Scottish NVZs, this RIA assessed the impact of three "action programme" options for reducing nitrates on the farm types most affected by this regulation.

- Option 1 covered the minimum requirements (see box) that farmers had to follow to meet the regulation;

Record keeping	Kept for at least five years An annual fertiliser and manure plan
N application limits	Grassland = 250kg organic N/ha Non-grassland = 170kg organic N/ha
Closed periods	Moray et al NVZ • grassland 15 Sept – 20 Feb • other land 1 Sept – 20 Feb All other NVZs • grassland 15 Sept – 15 Feb • other land 15 Sept – 15 Feb •
Other restrictions on N application	Must not be applied • when soil is waterlogged, flooded, frozen hard or snow covered • to steeply sloping fields • to uncropped areas, hedges and water courses • unevenly and inaccurately
Storage of slurry/manure	Storage capacity must be sufficient to hold all slurry/manure that cannot be applied because of closed periods

- Option 2A was based on Option 1 plus a range of further measures including sowing winter cereals early and direct drilling of crops;

- The previous option was further extended in Option 2B by assessing the impact of substituting autumn sown cereals with winter stubbles and spring sown barley.

Option 1 was estimated to result in lowest level of costs according to the Oglethorpe RIA. For all options the bulk of the capital cost was significant (£13.95 – 19.93m) mainly because of the big investment in slurry storage needed to meet the extended closed period on farms with intensive livestock enterprises.

By comparison, Option 1 had a significantly lower annual cost (£5.20 – 7.16m) than the other two options (2A = £17.58 – 42.63m; 2B = £30.55 – 33.15m), mainly because of the consequences of changing to lower margin crops. For all options, the above costs include the cost to government (£0.608m) for policing the regulation.

Regarding the costing of the options, two notes of concern arise. First, the actual method of costing extra storage is muddled. Both this and the subsequent 2006 RIA include both a one-off capital cost for building storage plus an annual cost for repaying this cost over 10 years (a Farm Waste Management Plan costing £1,000 was also added as an up front cost). In short, amortising (repaying) the loan over the life of the investment was sufficient.

The second concern is the rather narrow assumption about the (high) level of new storage required. Even the best case scenario assumes that at least 70% of (livestock) farms require storage at an overall capital cost of £13.95m. Even at the time this RIA was completed many dairy farms in the Nithsdale NVZ would already have significant storage capacity. While the report's authors note that their remit did not allow for "a detailed assessment of the number or state of middens in NVZs", the sensitivity analysis should have been wider. Moreover, no attempt was made (though the possibility was noted) to estimate how relatively inexpensive modifications might improve the efficiency of existing storage capacity. For example, enclosing downpipes to divert clean roof water safely into watercourses.

The benefits were simply expressed in terms of annual reductions in tonnes of N leached. Implementation of Option 2B was estimated to reduce annual N leaching by 4,258 – 8,358t compared to a saving of 2,135 – 4,270t for Option 1. While Option 2A could result in N savings of up to 5,886t, the savings might be much lower (1,499t) if poor autumn establishment means re-drilling the crop in the spring.

As a result of the RIA, the decision was taken to apply the regulation based on Option 1. Given the higher cost tags estimated for Options 2A and 2B, the impact on the agricultural industry was minimised, especially given the availability of financial support and training to help farmers in the NVZ's meet the restrictions. Although the RIA did not place an economic value on the benefits of reduced nitrates in water, there is a clear benefit,

Second Scottish Regulatory Impact Assessment – 2006

Barnes et al (2006) completed a further RIA as part of the required four year review of the Action Programme. Further research in Great Britain since the previous RIA found that the risk of run-off or leaching on N from agricultural soils was higher than previously judged. So this RIA appraised the impact of extending the Action Programme in four ways:

i. Reducing the organic manure deposition limit on grassland;

ii. Extension of closed periods for some types of organic manures;

iii. Requirement for farmers to complete a manure management plan;

iv. Stricter limitation on application of fertilisers.

The first change impacts mainly on cattle and, especially, dairy farms. The number of dairy and cattle farms that will exceed the new, lower limits, will rise significantly. The impact on the small number of pig and poultry farms is limited. The RIA estimated the cost of extra slurry storage to meet the tighter limit at £0.95 – 1.435m, with the lower estimate based on 70% of farms covered for five months and the upper estimate for all farms for six months.

On the same basis, the annual maintenance cost ranged from £0.13 – 0.192m, plus £0.338m for transportation. In addition, assuming that the investment is funded by

debt, the cost of servicing and repaying the capital over three years was estimated at £0.116 – 0.176m. As with Oglethorpe's RIA, the calculation of the extra storage costs was open to question and no account was taken of lower cost measures that could improve existing storage capacity.

By comparison, the impact of extending the closed periods was substantially more with capital cost for extra slurry storage of £12.694 – 21.162m using the same periods and coverage of farms noted above. Similarly, the annual maintenance charge ranged from £1.264 – 2.081m, while the cost of debt ranged from £1.552 – 2.59m a year based on a three term.

Regarding the third proposed update of the Action Programme – completion of a Manure Management Plan – the expected costs were in £5.34 – 5.94m range. While the last change, limiting the application of fertilisers through better targeting to crop requirements, incurred no extra cost, simply better optimising of fertiliser applications to local conditions. This latter point is very important especially given the recent large rise in fertiliser costs.

Again, the assessment of benefits was limited, in the 2006 RIA. Only in the case of the second change – extension of closed periods resulting in lower purchases of bagged N – was an actual economic value (£0.07 – 0.25m) calculated. Given current fertiliser prices this benefit would be significantly higher. The difficulties of placing an accurate economic value on the health and environmental benefits of lower nitrate levels are appreciated. However, an absence of such estimates means that the RIA is not a complete cost-benefit assessment.

One further point is worth highlighting. The coefficients used to calculate the N content of manures will be updated to the advantage of farmers (to take account of gaseous losses of N before spreading), with the change reducing the overall level of N produced from a given number of livestock. It is understood that following an extended consultation process, the above changes will be implemented at the start of 2009.

Partial Regulatory Impact Assessment for England NVZs – 2007

This partial RIA was completed to assess the impact of revising the NVZ Action Programme and extend NVZ coverage in England. This English RIA is effectively the equivalent of the second Scottish RIA completed by Barnes et al. But with the significant added requirement of assessing the impact of extending NVZ coverage in England from the prevailing 55%, to 70% and 100%. In short, a decision was required on whether to extend NVZ coverage to 70% or all of England. In addition, this RIA considered the impact of adding a requirement to grow a cover crop as part of the revised Action programme. Importantly, the old RIA template was used rather than the new one introduced on 14 May 2007.

The English RIA presented more precise cost-benefits for each of the options under consideration. This was possible because economic values were estimated for the reductions in nitrates expected from the options. The Environment Agency (2007) estimates that water pollution caused by agriculture in England & Wales causes £445-872m of damage. These costs are based on both direct measures (eg, the cost of water

companies treating drinking water treatment) and indirect measures (eg, willingness to pay for cleaner rivers for informal recreation). That said, the RIA summarised the benefits simply in terms of the percentage reduction in nitrate (phosphorous and ammonia) levels.

Unsurprisingly, the cost to the agricultural industry of reducing nitrate pollution was lowest if the revised Action Programme was applied to 70%, not all of England. The cheapest way of reducing nitrate losses was achieved by the most targeted Action Programme. That is, using the flexibility provided by Article 5 of the Directive, the Action Programme is adapted to take account of conditions specific to the individual member state. For this RIA, the English used this flexibility to adjust the length of closed period based on soil type and rainfall. Taking advantage of this flexibility produced the pollution reductions similar to the other options but at a lower cost to the industry. Consequently, it was the option recommended for implementation in England.

A particularly useful part the English RIA was the section on mitigation measures. Full details of these measures (and their economic impact) are found in the report completed by Entec (2007). Amongst a range of mitigation measures, this study did examine the benefits of measures taken to reduce the volume of stored slurry. Collecting roof rainwater, separating dirty water from slurry and installing floating covers on tanks and lagoons, were deemed the most cost-effective.

House of Commons report on implementation of the Nitrates Directive in England (2008)

The Environment, Food and Rural Affairs committee of the UK Parliament has recently published a report on the proposals for reducing English agriculture's impact on water pollution. Taking evidence from a wide range of stakeholders in addition to all available analysis, including the partial RIA covered above, they produced a long list of conclusions and recommendations. The most pertinent ones are summarised below.

- The committee is concerned about both the scientific basis of the directive (i.e. the 50mg/litre limit) and the approach taken to implement the directive[78].

- There is insufficient evidence from testing water to assess how effective the current Action Programme has been in reducing nitrate pollution. But because of legal action by the European Commission, changes must be made to make England compliant with the directive.

[7] Lomberg (2001) explains that the 50mg/litre limit was actually set with regard to reducing bacteria pollution. Most of the nitrates humans consume come from vegetables. However, through his review of scientific evidence, Lomberg did confirm the strong link between nitrogen (fertiliser) and oxygen depletion and eutrophication. His review of the exhaustive American research on the impact of the fertiliser affected Mississippi river on the health of the Gulf of Mexico was particularly revealing. Yet the accompanying cost-benefit study completed by Doering (1999) concluded that the cost of cleaning up the river exceeded the benefits.

[8] Maberly et al (2004) also discuss the scientific link between nitrogen and eutrophication.

- Specifically, this means implementing the 170kg N/ha limit for grassland. But a derogation application should be made as quickly as possible to return to the current higher limit.

- The preference of Defra to introduce a measure – cover crops – not required under the directive, for universal use, should be dropped. Instead, farmers should be encouraged to use cover crops voluntarily as part of best practice.

- Defra should not adopt a whole territory approach, but continue to designate specific NVZs. Whether the upland parts of river catchment areas should be included, is a matter that Defra should re-examine. The committee also recommends that the option to de-designate land from a NVZ be made available.

- Given the high cost of the proposed new Action Programme on the farming industry, particularly livestock and dairy farmers, and the lack of grant aid available to help with these costs[9], the industry should press the UK government for more favourable tax allowances for building slurry storage. Furthermore, Defra should review how it can better inform and help farmers meet the demands of the updated programme.

Stakeholder Feedback

The Scottish Government (2007) has collected and analysed the formal positions of stakeholders to proposed changes to the NVZ Action Programme in Scotland. In addition, representatives of NFUS, SRPBA, SNH, SEPA and DairyCo were interviewed (mainly by telephone). The below comments synthesise the responses from both feedback mechanisms.

The NFUS and SRPBA were most concerned about this regulation given its economic impact on farmers and land managers in the four Scottish NVZs. However, both organisations fully appreciated the objective of the regulation, with the SRPBA noting that many of its members are also dependent on rivers as a source of income. The high cost of extra slurry storage (and the need for grant aid) was a major concern for the farming sector. The robustness of the science underpinning the regulation was also questioned by the NFUS, along with the monitoring and testing system.

The broad feeling of the land using sector is that further tightening of legislation is not warranted, and that greater emphasis should be placed on encouraging farmers and landowners on how they can manage their businesses better to reduce diffuse pollution.

Understandably, other stakeholders representing the environmental side of the debate felt that the current legislation required further tightening to comply with Water Framework Directive requirements. The point was made that water pollution is still a problem in Scotland with a high incidence of e-coli outbreaks, and that farm manures

[9] Grant aid will be available in Scotland.

and slurries are an important contributory factor. Until proven otherwise, the precautionary nature of this regulation is warranted in their view.

Several stakeholders also questioned the robustness of the RIAs. The environmental sector felt that too much emphasise was placed on the consequences for farming, and that no assessment was made of the costs and benefits to society regarding environmental improvements and tourism. SEPA also felt that the benefits (to farmers) from manure management plans, through efficiency gains, were not well measured. In effect, this analysis was important given the NFUS' judgement that the cost of extra storage greatly exceeds the fertiliser benefits from the extra slurry.

One important area where greater consensus is emerging is on the financial benefits to farmers of using manure better. This has occurred since the consultation process because of the big rise in fertiliser prices. Helping farmers get more out of their manure through more user friendly nutrient budgeting tools and training was generally supported by all sectors. It is understood that the Planning Land Application of Nutrients for Efficiency and the Environment (PLANET) budgeting tool is currently being reviewed to assess its value in Scotland. A quick comparison with information available in New Zealand, indicates that their dairy farmers have access to easier to use information and nutrient budgeting systems.

A subjective assessment of the costs and benefits of the regulations is given in tables 1 and 2.

Table 1. Subjective assessment of the costs of the regulations[10]

	Action	*Scale of cost*
Admin	Complete a manure management plan	Low
	Co-operation with inspections	Low
Policy	Upgrade current storage capacity and associated infrastructure.	Low – medium
	Use of options other than improving/building extra storage capacity (eg, transporting slurry, reducing stocking rate, changing enterprise balance).	Low-medium
	Construction of extra storage capacity	Medium - high

Table 2. Subjective assessment of the benefits of the regulations

	Action	*Scale of benefit*
Private	Lower purchased fertiliser costs.	Low – medium
	Reduced likelihood of point pollution incident.	Medium - high
Social	Reduced cost of treatment by water companies.	Uncertain
	Reductions in animal and human health incidents caused by associated water borne problems (eg, e-coli).	Uncertain
	Improved health of aquatic environment.	Uncertain
	Increased value of sporting use of rivers.	Uncertain
	Increased value of commercial estuarine fishing.	Uncertain

[10] The rankings of costs and benefits are subjective assessments of the relative scale of costs and benefits within case studies, and are not comparable across case studies

4.3 Conclusions

Has a RIA been done?

Two Scottish RIAs have been completed. The first, by Oglethorpe et al in 2002, assessed the impact of three Action Programme options on the most affected farm types in the four NVZs. Barnes et al completed the second RIA in 2006 as part of the four-year review of the Action Programme.

Do the RIAs quantify costs?

The first RIA quantifies both the non-recurring and recurring costs for farmers plus the cost to the government for enforcing the regulation. The main compliance cost was the one off cost of investment in installing or upgrading slurry storage infrastructure.

The cost of further investment in slurry storage was also the main cost quantified in the second Scottish RIA. Though the completion of the manure management plan was also estimated to be a significant cost.

Do the RIAs quantify benefits?

Neither of the Scottish RIAs adequately quantify the benefits of the nitrates regulation. In the first RIA, the benefits were simply expressed in terms of annual reductions of tonnes of N leached. While the second RIA took a similar approach in that no economic value was calculated to quantify the impact of lower nitrate levels on human and animal health, the environment or sport. The only benefits quantified were actually saved farmer costs that result from saved nitrogen fertiliser and deduction to direct support caused by non-compliance.

Do the RIAs demonstrate that benefits exceed costs?

The Scottish RIAs contain more focus on quantifying the costs rather than the benefits of the proposed changes. While this is understandable given the difficulties of placing an economic value on lower nitrate levels, it is a major weakness in judging whether costs actually exceed benefits. Therefore the level of confidence in the usefulness of the Scottish RIAs is only moderate.

The English partial RIA completed in 2007 makes a better attempt to value the benefits to society of cleaner water. Though ultimately even this RIA opts to present the benefits simply in terms of estimated reductions in nitrate levels.

Data required to improve assessment of costs and benefits

The fundamental concern with this regulation remains the uncertainty of the science underpinning it. Not only does the agriculture industry question the arbitrariness of the 50mg/litre limit, it also questions the basis for cutting the N limit for grassland to 170kg N/ha. Yet research completed by ADAS, on a Great Britain basis, shows that the closed periods in the original action programme were inadequate. The complex relationship between agriculture and nitrate levels does not help. The House of

Commons report concluded that the continued upward trend in some groundwaters (in England) may be the result of agricultural practices dating back decades. Given this level of uncertainty, the precautionary principle underpinning this regulation is justified.

Nevertheless, the economic benefits of cleaner water need better quantification so that the Action Programme can be adjusted appropriately over time. It is not comprehensive enough to simply estimate the lower levels of nitrate that may result from a change in farm practice, an economic value must be calculated for comparison with calculated costs. For instance, the English RIA estimated that the proposed change in closed periods would result in only a 0.5 to 1% change in nitrate level, but would cost pig farmers £40m to comply according to National Pig Association calculations. Nitrates from agriculture do impact upon the environment. But unless this impact is properly costed, it is not possible to reach a political decision about the best course of action.

Whether the majority of Scottish farm businesses would appreciate a more complete cost-benefit analysis is a moot point. Based, in part, on the 2002 and 2006 RIAs most Scottish farms lie outwith a NVZ, and are therefore subject to lower compliance costs. A more rigorous analysis may, or may not, extend the NVZ area.

For Scottish farmers lying within the NVZs, the extra costs of compliance are deemed unfair. However, the Scottish Government is providing funding via the SRDP to help farmers meet any extra costs incurred.

Recommendations for improvement

1. To inform future decision-making concerning Scottish NVZ's, more accurate figures on the economic costs and benefits of previous action are required. Previous analysis of the costs to farmers of compliance were imprecise, while the environmental, health and recreational benefits of reduced nitrates were not valued in economic terms. Gaining this information should be possible through developing the current monitoring system rather than commissioning a bespoke study.

2. Look at opportunities for persuading the EC to revisit the scientific basis of the nitrates directive. The recent UK House of Commons committee called for Defra to work with like-minded countries to push for a fundamental review of the directive.

3. Revisit the current approach used to change farmers' (mis)use of fertiliser and manures. Currently farmers within the NVZs feel that the actions they must take are simply a cost and hindrance to their businesses, and not an opportunity to reduce costs. The recent large jump in nitrogen (and other) fertiliser prices should be incentive enough for farmers everywhere in Scotland to reduce wastage of applied fertiliser and maximise the value of manures if the level of prices remain high or continue to grow. Nutrient management plans are a key tool for saving money and should be promoted as such. The current tools available should be reviewed as a priority.

Does it meet the Better Regulations guidelines?

Transparency: High. Farmers are well aware of the requirements of the original Action Programme, though will require guidance on the changes to be introduced.

Accountability: High. The origin of the regulation with the Nitrates Directive is clear, as to is the responsibility for its application and enforcement in Scotland by the Scottish Government.

Proportionality: Medium. Whether the benefits of the regulation exceed the costs is unclear because the benefits are not quantified. For some farm businesses the capital costs of complying may adversely affect viability.

Consistency: Medium. The original implementation of the regulation by Scotland was, along with the rest of the UK, deemed incorrect by the EC. The subsequent changes introduced including extension of NVZ coverage of Scotland are now well established. The changes to be introduced in 2009 are consistent with the current directive of 1991.

Targeting: High. The regulation applies to agricultural areas identified by water testing as high risk.

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5. SSI 2000 No. 323 The Pollution Prevention and Control (Scotland) Regulations 2000

Abstract
The Pollution Prevention and Control (Scotland) Regulations 2000 established a new pollution control regime based on the application of Best Available Technology. They apply to what are considered to be the industries posing the greatest risk of pollution, including intensive pig and poultry installations above a certain size threshold. Robust valuation of the costs and benefits of the regulations is beyond the scope of the case study, instead the possibility of using existing Standard Cost Model (SCM) derived data to assess the admin costs of the PPC regulation in Scotland is explored. The conclusion is that for a regulation such as PPC, which covers a diverse range of industries, the standard cost is likely to lead to significant under or overestimates for some industries. Specifically, it is likely that estimation of the admin costs of the PPC regulations based on unadjusted standard costs from the ABME will lead to significant overestimates for intensive agriculture in Scotland. In order to use the SCM approach, the way in which the standard costs may vary between sectors should be identified and the standard costs adjusted to account for:

- Differences between the agricultural sector being analysed and the overall mix of industries and businesses used to generate the standard cost
- Differences between the same agricultural sectors in Scotland and the rest of the UK

Introduction
SSI 2000 No. 323 The Pollution Prevention and Control (Scotland) Regulations 2000 (hereafter referred to as PPC) transpose EC Directive 96/61/EC on Integrated Pollution Prevention and Control (IPPC) into Scottish legislation. The regulations establish a new pollution prevention and control regime for the following sectors: fuel production and combustion; metal production and processing; mineral industries; the chemical industry; waste management installations; pulp and paper manufacturing; textile dyeing; tanning plants; slaughterhouses; food and drink processing plants; animal waste disposal/recycling plants; intensive pig and poultry installations. Only pig and poultry units above the following thresholds are covered by the regulations:

- >40,000 places for poultry
- >2000 places for production pigs (over 30kgs)
- >750 places for sows

Webb *et al* (2006) reported that approximately 40% of the UK pig herd and 70% of the UK poultry herd are covered by the PPC. There are currently (August 2008) 62 poultry units and 23 pig units above the threshold in Scotland.

PPC seeks to prevent and control pollution "by the application of BAT (Best Available Technology). (European) Guidance on what constitutes BAT is provided by a "BAT" Reference Document (known as a BREF)" Beaton et al (2007, p450). The application procedure for intensive agriculture is no different to any other PPC site as the procedure for processing an application is set down in the Regulations. However

SEPA did put together an agriculture specific application form with the intention of reducing (as far as possible within the law) the amount of information required as part of the application and reducing the administrative burden on the industry. The Standard Farming Installation Rules represent SEPA's view of BAT for the sector and have been arrived at after extensive consultation with the industry. If a business expresses an intention to comply with the standards in the rules filling in the application form becomes much easier.

No specific Regulatory Impact Assessment (RIA) was carried out for the Scottish regulations; however the fourth consultation paper on the IPPC Directive had a Regulatory and Environmental Impact Assessment in Annex 2 (DETR 1999). The assessment is brief and does not provide any specific analysis of the intensive agriculture sector. The costs and benefits across all industry, as outlined in the assessment, are given in table 1.

Table 1. Costs of and benefits of PPC for ALL industry (from DETR 1999)

Summary Table of Costs, Benefits and Effects on Charges			
Measure	**Benefit**	**Cost**	**Effect on Charges?**
Public consultation limited to changes which harm environment plus contentious cases	Decision time for other changes reduced from 4 months to 3	Nil	No
Scope for less frequent permit reviews	More stable planning horizon for industry	Cost savings	Scope for reduced subsistence charges
Standard application forms/permit conditions	Reduction in regulatee and regulator staff input needed to secure a permit	Cost savings	Scope for reduced application charges
Site condition report on application and surrender	Removes need to extend financial security to all installations	£1-200 to £several tens of thousands of pounds per installation	Need to consider site remediation at application stage will add to charges
Energy efficiency measures	3 million tonnes carbon savings. Annual cost savings £650m	£2 billion capital costs	Extra factor in environmental appraisal at application stage will add to charges
Inclusion of remaining 440 IPC installations in IPCC regime	Reduction in number of regulatory systems	Site report and energy efficiency costs as above	Scope for reduction in charges due to lower regulator costs

Identifying the main costs and benefits of PPC in intensive agriculture

Tables 2 and 3 outline the main costs and benefits arising from the implementation of the PPC regulations in intensive agriculture.

Table 2. The main costs of PPC in intensive agriculture (sources: DETR 1999; https://www.abcalculator.berr.gov.uk/)

	Action
Admin	Applying for a permit
	Keeping records and co-operating with inspections
	Various minor information obligations
Policy	Upgrading facilities to prevent or minimise polluting emissions

Table 3. The main benefits of PPC in intensive agriculture (sources: DETR 1999)

Private	Dependent on which baseline the benefits are measured relative to: small relative to the situation prior to the implementation of PPC as intensive units did not have to apply for a permit, however, relative to other industries, intensive agriculture has benefitted in terms of reduced labour as a result of standard application forms and conditions.
	Decision time reduced
	Less confusion
Social	Prevention of pollution incidents and reduced impact on water environment
	Reduced NH_3 emissions
	Reduced noise, odour and dust

Intensive agriculture units were required to apply for a permit by the end of January 2007. SEPA subsequently undertook inspections of these sites and:

"found pollution occurring at 25% of the sites. This pollution was associated with inadequate slurry storage, run-off from contaminated yards, the discharge of wash water from cleaning and disinfection operations, leaking oil storage facilities and feed spillages. Six sites had odour issues and between 20-25% have failed the initial screening for ammonia impact". (Virtue and Morris 2008)

The inspection results show that there is considerable potential for improvements in environmental performance through the PPC regime; prior to the PPC inspections these sites had not been visited by SEPA staff.

Quantifying the main costs and benefits

Robust valuation of the costs and benefits of the PPC regulations would require significant data gathering (e.g. a survey of the PPC-related admin and policy costs in Scottish pig and poultry units; estimation of the reductions in NH_3 emissions, noise and odour and water pollution incidents attributable to the regulations; construction of a counterfactual so that the additional costs and benefits of the regulations could be identified etc.). Analysis of this kind is beyond the scope of this short case study. Instead, the case study explores how existing Standard Cost Model data from UK central government sources could be used to estimate the admin costs of the PPC regulations in Scotland, and to highlight any limitations of this approach.

Defra (2006, p43) found PPC in England across all industries to be (in terms of its admin costs):

"the most costly regulation within the Environment reporting unit. Its total estimated cost is £45.9m and two IO/DRs (Information Obligations/Data Requirements) account for over 95% of the total estimated cost. For both obligations, the quantities are comparatively low (less than 2,000 permits) and the key cost drivers are significant internal and external costs. This is particularly the case for the IO/DR concerning applying for a permit, where the results indicate the more highly regulated industrial

sectors draw significantly on external consultancy services to provide the information required to support the application process."

Admin Costs

The admin costs of PPC across all industries were measured using the SCM during Defra's ABME (see table 4). Descriptions of these Data Requirement IDs (DRIDs) are given in Annex A.

Table 4. Admin costs of the PPC Regulations 2000 in England applied across all industries
(from: https://www.abcalculator.berr.gov.uk/) (£2006)

DRID	*Admin Burden*	*DRID*	*Admin Burden*
9230	£24,611,808	9680	£35,230
43906	£13,703,768	9452	£26,833
40151	£401,548	9514	£24,957
9318	£43,742	9347	£18,475
9681	£43,059	40183	£7,335
40181	£39,822	9773	£4,906

The admin costs are dominated by two data requirements, DRID 9230 and DRID 43906. The costs of the activities required for each of these data requirements have been analysed using the SCM, and are summarised in table 5. See Annex B and Annex C for full breakdown of the activities.

Table 5. Annual costs of the most expensive data requirements, applied across all industrial sectors

DRID	*Short description*	*Annual Unit Cost (£2006)*
9230	Applying to the regulator for a permit to operate an installation.	£16,564
43906	Keeping records, providing information on request, and co-operating with inspections.	£12,402

The standard costs used in the SCM approach are based on surveys of costs over small samples of businesses in each of the industries, and are therefore not statistically robust (see chapter 2 for further discussion of the SCM). Due to the data intensive nature of the SCM approach, it is often not possible to develop standard costs for individual industries. So, while it may be possible to use these standard costs to estimate the admin costs of PPC across all industries in Scotland, the standard cost should be adjusted to take into account differences in the industrial mix.

It should be stressed that the standard costs given in table 5 are based on the average cost for an activity across all industrial sectors, not just agriculture. This approach means that the validity of calculations based on the standard cost depends on how much the administrative actions required to fulfil the regulation in one industry are typical of the average costs over all industries. With a regulation like PPC, which covers a diverse range of industries, the standard cost is likely to lead to significant

under or overestimates for some industries. Specifically, it is likely that estimation of the admin costs of the PPC regulations based on unadjusted standard costs from the ABME will lead to significant overestimates for intensive agriculture in Scotland, for the following reasons:

- the PPC regulations include industries with large facilities (such as power stations or chemical plants) where the data requirements (and therefore admin costs) will be much greater than in intensive agriculture - this will lead to significant overestimates of the costs of admin activities such as keeping records;
- the cost of applying for a permit was significantly lower for intensive agriculture in Scotland, due to the development of a sector specific application form.
- No intensive agricultural unit was subject to all the data requirements set out in the SCM analysis of PPC;
- The annual admin charge would not include the cost of applying for a permit. This only needs to be done once.

Conclusions

Using unadjusted SCM data from the analysis of the PPC regulations in the UK ABME is likely to significantly overestimate the admin costs for intensive agriculture in Scotland. This raises a fundamental question: how appropriate is a standard cost when applied across different industries, or even sub-sectors within one industry? This is particularly relevant to regulations such as PPC, which apply to a diverse range of industries and businesses. In order to use the SCM approach, the way in which the standard costs may vary between sectors should identified and the standard costs adjusted to account for: (a) differences between the agricultural sector being analysed and the overall mix of industries and businesses used to generate the standard cost: and (b) differences between the same agricultural sectors in Scotland and the rest of the UK

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Annex A Description of the data requirements for PPC across all industries
(from: *https://www.abcalculator.berr.gov.uk/)*

DRID	Admin Burden	Obligation description
9230	£24,611,808	View | Calc applying to the regulator for a permit to operate an installation or mobile plant and accompanying the application with the prescribed fee and including - details of the applicant - the address of the site of the installation - the name of the local authority in whose area the applicant has his principal place of business - a site report containing a description of the site of the installation - a description of the installation or mobile plant - details of the raw and auxiliary materials and other substances and the energy to be used in or generated by the carrying out of the activities - details of the nature, quantities and sources of foreseeable emissions - the proposed technology and other techniques for preventing or, where that is not practicable, reducing emissions from the installation or mobile plant - the measures proposed to be taken to monitor emissions - an assessment of the effects on the environment - details of additional measures for prevention and recovery of waste - information on the applicants suitability - providing additional information for the regulator - an outline of the main alternatives, if any - providing a non-technical summary of the information provided - landfill permit related info - waste incineration installation info - SED installation info - burning of waste oil related info - dry-cleaning related info
43906	£13,703,768	View | Calc Keeping records, providing information on request, and co-operating with inspections to enable the Environment Agency to assess
40151	£401,548	View | Calc supplying the regulator regularly with the monitoring of emission results and informing them of any incident or accident which is causing or may cause significant pollution.
9318	£43,742	View | Calc notifying the regulator of proposals to make a change in the operation of an installation at least 14 days before making the change - in writing, including a description of the proposed change in the operation of the installation
9681	£43,059	View | Calc advertising the application for a permit to operate a Part A installation or Part A mobile plant, in the London Gazette
40181	£39,822	View | Calc providing any further information required to help the regulator determine the application.
9680	£35,230	View | Calc advertising an application in the case of an application for a permit to operate an installation or Part A mobile plant, in one or more newspapers circulating in the locality in which the installation or mobile plant covered by the application will be operated including - including within an advertisement the name of the applicant and other related activities - an explanation of the contents of the applications
9452	£26,833	View | Calc applying to surrender a permit as an operator of a Part A installation/plant - including with the application to surrender the operator's telephone number and address and, if different, any address to which correspondence relating to the application should be sent, a site report describing the condition of the site, or the identified

		part of the site, as the case may be (“the report site”), identifying, in particular, any changes in the condition of the site as described in the site report contained in the application for the permit; and a description of any steps that have been taken to avoid any pollution risk on the report site resulting from the operation of the installation or mobile plant or to return it to a satisfactory state
9514	£24,957	View | Calc requesting that where information is furnished to a regulator for the purpose of these regulations it is excluded from the register on the ground that it is commercially confidential - applying for exemption and requesting that information is excluded from the register on the ground that it is commercially confidential
9347	£18,475	View | Calc applying to the regulator for a variation to the conditions of the permit to operate an installation or mobile plant including - details of the operator - the address of the site of the installation - description of the proposed change in the operation of the installation or mobile plant - details of the effect on the environment - including within an application for a variation in respect of a waste incineration installation any changes in information previously supplied which would result if the proposed change in the operation of the installation or mobile plant requiring the variation were made - an indication of the variations to the conditions of the permit which the operator wishes the regulator to make - any additional information which the operator wishes the regulator to take into account in considering his application - providing further information as required by the regulator to determine the application
40183	£7,335	View | Calc Appearing before and being heard by a person appointed by the Secretary of State where the application for a permit is referred to a regulator because it belongs to a particular application or class of applications for a permit which require determination by the regulator pending further direction.
9773	£4,906	View | Calc advertising the application when you are notified by the regulator of a variation to it in one or more local newspapers or in the London Gazette as appropriate including: - stating in the advertisement the name of the operator, the address of the site (in the case of a variation affecting the operation of an installation or Part A mobile plant) and a brief description of the activities carried out in the installation - including within an advertisement various information including an explanation that people may make representations in writing to the regulator
9395	£0	View | Calc applying to transfer a permit for an installation or mobile plant to another person including - the operators and transferees details - any information which you wish the regulator to take into account - providing the identity of the installation or mobile plant to which the transfer applies in the case of transfer where the operator wishes to retain part of his permit - providing a map or plan identifying the part of the site used for the operation of an installation - providing such further information as the regulator specifies
9455	£0	View | Calc applying to surrender part of a permit for a Part A installation/plant - including within the application the operator’s telephone number and address and, if different, any address to which correspondence relating to the application should be sent a description of the surrender unit

		and a map or plan identifying the part of the site used for the operation of the surrender unit (the “identified part of the site”), a site report describing the condition of the site, or the identified part of the site, as the case may be (“the report site”), identifying, in particular, any changes in the condition of the site as described in the site report contained in the application for the permit; and a description of any steps that have been taken to avoid any pollution risk on the report site resulting from the operation of the installation or mobile plant or to return it to a satisfactory state
9503	£0	View | Calc notification of the surrender of a permit for a Part B installation or a Part B mobile plant if you have ceased or intended to cease operating all of the installations and mobile plant covered by the permit, notify the regulator of the surrender of the whole permit - including within the notification the operator’s telephone number and address and, if different, any address to which correspondence relating to the notification should be sent; in the case of a partial surrender of a permit applying to Part B mobile plant, a list of the mobile plant to which it applies; the date on which the surrender is to take effect, which shall be at least 28 days after the date on which the notice is served on the regulator
9506	£0	View | Calc notifying the regulator of the surrender of the permit in so far as it authorises the operation of the installation or mobile plant which he has ceased or intends to cease operating - including within the notification detail identifying the part of the site used for the operation of the surrender unit (the “identified part of the site”); in the case of a partial surrender of a permit applying to Part B mobile plant, a list of the mobile plant to which it applies; the date on which the surrender is to take effect, which shall be at least 28 days after the date on which the notice is served on the regulator
9544	£0	View | Calc making an application in writing to the regulator to determine a relevant period for the installation of plant identifying the installation concerned, listing the activities carried out by the installation and identifying the primary activities of the installation
9697	£0	View | Calc making an application for compensation from the operator of a SED (Solvent Emissions Directive) installation; - providing a copy of the grant of rights in respect of which the grantor’s entitlement arises, and of any plans attached to that grant, a description of the exact nature of any interest in land in respect of which compensation is applied for, a statement of the amount of compensation applied for, distinguishing the amounts applied for under each of sub-paragraphs (a) to (e) of paragraph 3, and showing how the amount applied for under each subparagraph has been calculated, and where the date on which the entitlement to compensation arises is ascertained in accordance with paragraph 4(2), a copy of the notice of the final determination of the appeal.
40173	£0	View | Calc applying for a permit to operate a Part B installation or Part B mobile plant

Annex B SCM activity breakdown for DRID 9230 **(**Applying to the regulator for a permit to operate an installation.) Across all industries: *(from: https://www.abcalculator.berr.gov.uk/)*

Activities calculator screen

Unit Cost				
Activities	Time		Wage Rate (£)	Total (£)
	Hours	Minutes		
Calculation / Correction / Reporting	54	43.26	12.59	688.94
Familiarisation	22	22.37	14.08	315.01
Gathering / Preparing	36	2.25	13.45	484.7
Inspections	0	0.68	15.88	0.18
Meetings	0	25.5	17.2	7.31
Preparing / Submitting	8	12.38	16.25	133.35
Settlements	0	16.04	22.52	6.02

Population	
Micro	1610
Small	

Total Costs and Overheads (30% of Internal costs) (£)	490.65

Frequency (per year)	1

External Costs (£)	Goods	Services	Total (£)
	44.81	14393.59	14438.4

Quantity Total	1749

Admin Cost	£28,971,415.44
BAU Factor (%)	15
Admin Burden	£24,625,703.12

Total Unit Cost (£)	16564.56

Annex C SCM activity breakdown for DRID 43906 (Keeping records, providing information on request, and co-operating with inspections.) For all industries: *(from: https://www.abcalculator.berr.gov.uk/)*

Activities calculator screen

Unit Cost				
Activities	Time		Wage Rate (£)	Total (£)
	Hours	Minutes		
Calculation / Correction / Reporting	58	0	16.2	939.6
Familiarisation	2	0	16.2	32.4
Gathering / Preparing	200	0	16.2	3240
Inspections				0
Meetings				0
Preparing / Submitting	100	0	16.2	1620
Settlements				0

Population	
Micro	1197
Small	90
Medium	12
Large	3

Total Costs and Overheads (30% of Internal costs) (£)	1749.6

Frequency (per year)	1

External Costs (£)	Goods	Services	Total (£)
	0	4820	4820

Quantity Total	1302

Total Unit Cost (£)	12401.6

Admin Cost	£16,146,883.2
BAU Factor (%)	15
Admin Burden	£13,724,850.72

6. The Control of Pollution (Silage, Slurry & Agricultural Fuel Oil) (Scotland) Regulations 2001, 2003

Abstract
This case study examines the costs and benefits of regulations designed primarily to reduce the number of pollution incidents arising from the inappropriate storage of silage and slurry. Likely costs and benefits have been identified through discussion with the Scottish Environment Protection Agency, and by study of the background and development of the regulations. Consideration is given to on-farm compliance, to the distribution of costs and benefits, and to compliance with the principles of good regulation. The main costs are associated with the construction of improved storage facilities. Benefits include improved working conditions and significantly reduced pollution incidents due to structural failures. The balance of costs/benefits is difficult to assess, due to the lack of relevant data on the values of costs and benefits.

Introduction

Summary of the Regulations
The Control of Pollution (Silage, Slurry and Agricultural Fuel Oils) (Scotland) Regulations 2001 "re-enact, with changes the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) (Scotland) Regulations 1991 ("the 1991 Regulations"), which require persons with custody or control of a crop being made into silage, of livestock slurry or of certain fuel oil[11] to carry out works and take precautions and other steps for preventing pollution of inland or coastal waters." (Scottish Parliament 2001, p10). They were re-enacted in the 2003 Regulations of the same name[12], and further amended by the Water Environment (Diffuse Pollution) (Scotland) Regulations 2008[13]. The principal change from the 2001 to the 2003 SSAFO Regulations is to "allow equivalent European standards to be applied where conformity to a British Standard or Code of Practice published by the British Standards Institute is required by these Regulations[14]". This is essentially an administrative change designed to allow for the proper application of British Standards under EU legislation. The most recent amendment (by the Water Environment (Diffuse Pollution) (Scotland) Regulations 2008) "allows lightly contaminated water from some areas of the farm steading, which is currently required to be stored and spread to land, to be treated through a Constructed Farm Wetland before discharge to the water environment" (Scottish Government 2008, p1). This is a more substantial amendment.

The purpose of the SSAFO Regulations is to reduce the number of silage and slurry related water pollution incidents[15], and the 2001 amendments to the original 1991 Regulations were designed to specifically target problems with silage and slurry storage, and set minimum standards for the design and construction of storage

[11] Fuel oil is now covered by the Controlled Activities Regulations, see case study 3
[12] Known as the SSAFO Regulations
[13] For the purpose of this study the term "Regulations" may be taken to mean this most recent amendment, unless otherwise stated.
[14] Explanatory note appended to the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) (Scotland) Regulations 2003.
[15] At the time (2000) accounting for some 60% of all agricultural water pollution incidents.

facilities. These regulations and their amendments did not arise from an EU directive but originated from national concern over the high proportion of agricultural pollution events caused by leakage from inadequate structures of silage effluent and to a lesser extent livestock slurry [16]. In addition, the "apparent inability of manure collection and storage systems to cope with the volumes of waste produced" has been one of the main causes of water pollution (Aitken 2003, p218).

The SSAFO Regulations set out various entirely practical standards of storage for slurry, silage and fuel oil, dealing with such matters as the safe drainage of silage effluent into a tank, the strength of silo and slurry store walls, the amount of storage required, the type of material to be used to wrap big-bale silage and the positioning of all such things at a safe distance from water.

The Scottish Environment Protection Agency (SEPA) is the regulatory body and is empowered to serve notice that works are required to bring storage systems up to the required standard. SEPA enforcement procedure is to serve a pre-notice notice before prosecutions under these regulations. At least 28 days is allowed for compliance, and there is an appeals procedure. Failing compliance, the maximum penalty on summary conviction is £20,000 or a maximum of three months in jail. Four notices had been served under the SSAFO Regulations prior to 2006, one in 1994/95 and three in 2005. Only four have been served because notices are preceded by pre-notice warning letters, and compliance with the many pre-notice letters issued has resulted in few notices being required.

Issues identified during consultation [17]

During the consultation process for the 2001 version of the SSAFO Regulations thirteen responses were received. Twelve responses were in overall favour of the new Regulations with one declining to comment. The then Scottish Landowners Federation did seek clarification of the criteria to be employed to determine where the risk becomes significant in relation to the storage and handling of silage and slurry and the consequent need for the preparation of a Farm Waste Management Plan, issues which were addressed in operational guidance for SEPA staff. On balance the NFUS viewed the proposed changes as sound but expressed reservations about certain details including constructing storage facilities to British Standards (BS).

Others supportive of the proposed changes included the Association of Scottish Shellfish Growers, the Centre for Ecology and Hydrology, the Association for the Protection of Rural Scotland, East of Scotland Water, The Crown Estate, the Atlantic Salmon Trust, the Scottish Environment Protection Agency, North of Scotland Water, CIWEM Scottish Branch and the Faculty of Advocates.

The introduction of the 2001 Regulations was particularly welcomed by the Scottish Agricultural Pollution Group (2001) , who considered that the new regulations would address the (then increasing) number of pollution incidents by "facilitating a more flexible, yet environmentally-justified, approach towards maintaining and upgrading on-farm storage structures than was the case under the 1991 regulations".

[16] Of the 379 such pollution events in 2000 40% were caused by livestock slurry or manure.
[17] Taken from the Draft Regulatory Impact Assessment for the 2001 SSAFO Regulations

Identification and assessment of costs and benefits

Regulatory Impact Assessments

The Regulatory Impact Assessment (RIA) done for the 2001 regulations has not been repeated for the 2003 version, which is substantially unchanged. The RIA is summarised below:

Does the Regulation originate from an EU Directive? NO

Has a Scottish RIA been completed? YES

a) Are the benefits adequately quantified? Benefits are described, but not quantified.

b) Are the administrative costs adequately quantified? NO

c) Are the policy costs adequately quantified? The costs are not thought to fall inequitably on any particular group, but they are not quantified. However, it is very hard to quantify administrative and policy costs of something that has not happened and for which the pre-existing compliance/non-compliance figures are unknown. The RIA is informative given these constraints.

The findings of the 2001 RIA, in brief, is that the Regulations:

- Are not envisaged as imposing inequitable costs on any particular group
- Will remove the disadvantage that Scottish farmers faced in comparison with farmers south of the border regarding regulation relating to new or substantially changed storage structures
- Will allow SEPA to address problems associated with silage and slurry storage.

A Regulatory Impact Assessment has also been carried out on the Water Environment (Diffuse Pollution) (Scotland) Regulations 2008. This assessment deals mainly with the potential impact of various options for the implementation of General Binding Rules, compliance with which is considered sufficient authorisation in itself to undertake specific low-risk activities such as land cultivations, fertiliser storage, road construction, pesticide application and sheep dip application.

Pertinent to this study, this RIA considers the specific effect of the amendment of the SSAFO Regulations to allow for lightly contaminated water to be discharged through a Constructed Farm Wetland (CFW), an option that may allow for considerable savings in storage space within existing slurry stores. This is considered [18] to be an important amendment with potential for significant benefit to farmers. SEPA have published a design manual (see Carty *et al* 2008), which sets out the standards for CFW construction, and the benefits of this amendment will depend largely on how many farms find CFW's to be a practical option. Much depends on there being sufficient land available of a suitable soil type and it is outwith the scope of this study

[18] Mark Aitken, Principal Policy Officer, SEPA Land Policy Unit. Personal communication 2 May 2008

to attempt to determine likely uptake. It is fair to say however that where CFWs have been utilised there has been a noticeable benefit to water quality and there are also additional biodiversity benefits associated with the wetland. The amendment was supported by the National Farmers' Union of Scotland in their consultation response (NFUS 2007). Analysis by Carty *et al* (2008) suggests that CFWs will be a more cost-effective option than land spreading for some farmers, so the amendment should have significant financial benefits. The 2008 amendment reflects the principles of better regulation by making the regulations more flexible, and thereby more proportionate and better targeted.

Major benefits

Scottish Agricultural Pollution Group data indicates that the 1991 regulations led to a significant reduction in pollution events. Furthermore, the Scottish Agricultural Pollution Group (2003) provides a graph of trends in causes of agricultural pollution in Scotland, which shows a sharp downturn in pollution incidents arising from structural failures (e.g. structural failures in silos and slurry pits) immediately after the introduction of the regulations in 2001 (see figure 1). This change is part of a longer term trend that has seen a marked reduction in the proportion of water pollution events caused by structural failures since 1983.

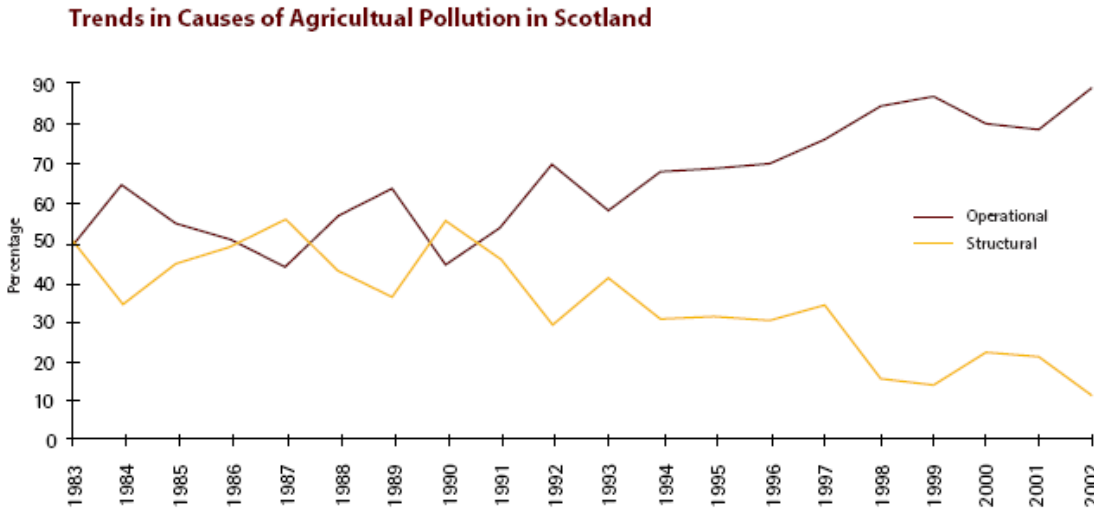

Figure 1. Trends in causes of agricultural pollution in Scotland (source : Scottish Agricultural Pollution Group (2003)

It is difficult value with precision the costs and benefits arising from this legislation, instead estimation of the orders of magnitude are given in Tables 1 and 2. Given the many variables associated with individual farms, and the relative paucity of data on the subject this tabular summary is intended primarily as a starting point for discussion and as a reminder of the need for the effective monitoring of the impact of legislation.

Table 1. Estimation of the magnitude of benefits arising from the amended SSAFO Regulations

	Action	Scale of benefit
Private	Safer working conditions	Medium?
	Improved public perception of farmers	Medium
Social	Reduction in aquatic pollution incidents	High

Table 2. Estimation of the magnitude of costs arising from the amended SSAFO Regulations[19]

	Action	Scale of cost
Admin	Co-operation with inspections	Low
Policy	Construction of larger storage facilities	High
	Building to a higher standard	High

Major costs

There is no formal collection of data on the range of compliance costs for the individual farmer. The cost of storage is dependent on the type and volume of storage required. Sharp (2005, p57) estimated the construction costs of a 1000t silage clamp to be £39k (£2008). The costs of constructing a glass-lined steel slurry tower can be estimated using the following formula, which is derived from the cost data reported in Beaton (2008, p351) and Sharp (2005, p22):

Cost (£2008) = volume (m^3)*30 + 8380

Using this formula, we can calculate that a typical 1000m^3 tower would cost approximately £38k to build. Unfortunately, data on how much it costs to build a certain size of slurry store does not translate easily into an evaluation of the overall cost of the regulation. To calculate the overall costs, information is required on: (a) what individual farmers have done to comply (e.g. how many new towers and lagoons have been built, what sizes are they, how many towers have been significantly upgraded/altered and are subsequently no longer exempt?); and (b) what would farmers have done in the absence of the SSAFO regulations – e.g. how much of the cost of new/upgraded slurry storage should be attributed to SSAFO, rather than other regulations (e.g., PPC or NVZ's) or non-regulatory drivers? It is therefore only possible to draw the broadest of conclusions about the magnitude of costs arising from these regulations. As with attempting to assess the magnitude of benefits, one is hampered by the lack of collated data on the situation. Table 2 indicates the possible relative magnitude of such costs.

Discussion

Compliance

Starting in 2002, SEPA audited over 2000 farms, mainly in south-west Scotland, and found that 68% were not complying with the SSAFO Regulations, and that three-quarters of these farms were sources of pollution. This sorry state of affairs is not a

[19] The rankings of costs and benefits are subjective assessments of the relative scale of costs and benefits within case studies, and are not comparable across case studies

hopeless situation however, as there is compelling evidence that compliance levels can be strongly influenced given the right approach and advice. By the end of March 2005 pro-active engagement by SEPA with the farming community had increased the number of compliant farms in the same sample to 80%.

Publicity and training for farmers regarding relevant legislation is the responsibility of SAC contracted to the Scottish Government (SG). The level of awareness of the SSAFO Regulation among the farming community is currently unknown, but could be patchy. Compliance levels will partly depend upon awareness of the existence of the Regulations and on common sense, approach to authority, risk behaviour and finances.

Distribution of costs and benefits
The 2001 Regulatory Impact Assessment concluded that the amendments to the 1991 Regulations would not impose inequitable costs on any particular group. The amendments would indeed remove factors that were putting Scottish farmers at a disadvantage in comparison with those in England and Wales. The changes to the Regulations were considered potentially beneficial to those running small farms, although impact on small farms would need to be determined on a case-by-case basis. Where livestock numbers are low, such as on crofts and other smallholdings, the quantity of slurry produced is not great, and black bags are usually the preferred option for storing silage.

Compliance with the principles of good regulation - Does it meet the Better Regulations guidelines?

Transparency: High. Certainly the regulations are transparent in that they are perfectly clear, even if, as with most legal documents, they do need careful reading.

Accountability: High. Accountability is presumably through the SG, who passed the regulations, and SEPA, who administer them. Both are public bodies, and as such are fully accountable. Consultation was thorough.

Proportionality: Medium. The legislation does appear proportionate in that there has been no obvious outcry about it one way or the other and have had a positive effect on the problem it was designed to address.

Consistency: High. The Regulations apply to anyone with responsibility for storing silage, slurry, which is a clear enough definition to be perfectly consistent.

Targeting: High. It is manifestly targeted at cases where action is needed, as compliance is a defence against prosecution.

Differential Implementation
These SSAFO regulations are not a response to an EU directive but originated from national professional concern regarding the high percentage of agricultural pollution incidents arising from silage and slurry storage. Therefore any over-implementation, failure to streamline legislation or regulatory creep would be purely an internal issue. The Scottish government has total discretion in how it implements its own legislation, and the only link with UK legislation in this case is the concern that Scottish farmers

should be operating on a level playing field with their English and Welsh counterparts. However, SEPA have sought to influence changes for the benefit of and in partnership with farmers.

Conclusions

A lack of monitoring, or at least of collating the relevant data, makes it difficult to assess the costs and benefits arising from these Regulations. They have served a useful purpose in upgrading the general standard of slurry and silage storage, and consequently the point source pollution issues they were initially designed to address are now less of an issue than are diffuse pollution risks. Even so, the necessary standards are clearly outlined and the regulatory authority has sufficient experience to enforce the regulations effectively while avoiding the expense and negative impact of necessary prosecutions. According to the records of the SEPA legal department, there have been no prosecutions directly involving the 2001 SSAFO Regulations, or their subsequent amendments. Application of the regulations has resulted in compliance before a prosecution has become necessary.

Benefits may well result from the 2008 amendment allowing the drainage of lightly contaminated water into constructed farm wetlands, particularly in terms of a possible reduction in required storage capacity. Scottish Rural Development Plan funding is available for the construction of farms wetlands that are built to the standards set out in SEPA's design and construction manual.

The most obvious lesson is perhaps the need to decide, when regulations are brought into effect, what information needs to be collated in order to assess their effectiveness. This may well be a very cost-effective exercise if carried out continuously; as a historical exercise it presents more of a problem.

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7. Statutory Instrument 1989 No. 1263 The Sludge (Use in Agriculture) Regulations 1989

Abstract

The Sludge (Use in Agriculture) Regulations 1989 and The Sludge (Use in Agriculture) (Amendment) Regulations 1990 establish maximum annual applications for metals contained in sludge and set maximum permitted metal concentrations in agricultural soil treated with sludge. They implement the EU Sludge Directive (86/278/EEC) (OJ No. L181/6). The European Union regulates use of sewage sludge in agriculture to prevent harmful effects on soil, vegetation, animals and humans.

At present there are statutory regulations, non-statutory codes of practice and a voluntary agreement (i.e. the safe sludge matrix) governing the application of sewage sludge to agricultural land. The water industry, food industry and other major stakeholders are pressing for the standards to be made statutory in order to increase confidence and to allow them to be brought within the enforcement regime operated by SEPA. Making the standards statutory would also reduce the risk of having to use other, more expensive, and potentially less environmentally sustainable disposal systems (e.g. incineration and landfill). Importantly for farmers in the current environment of rising fertiliser prices, sewage sludge represents a cheap alternative source of phosphorus, potash and nitrogen. Sewage sludge also improves soil structure.

Background

In 2006 nearly one billion litres of wastewater was treated daily, this would produce approximately 150,000 tonnes of sewage sludge annually. It is estimated that there will be a 17 per cent increase in the amount of sewage sludge produced in Scotland over the next 20 years due to tightening waste water treatment standards. Currently, significant outlets for sludge include recycling to agricultural and non-agricultural land, and the co-firing of sludge pellets with coal for electricity. 23 per cent (33,773t dry solids) of recycled treated sludge was used on agricultural land in 2005. Less than 1 percent (2002) of Scotland's land has sludge applied

Agricultural benefits

Sewage sludge can provide a significant proportion of the fertiliser requirements for industrial crops such as oilseed rape, the preferred crop source for biodiesel. The high nutrient and organic matter content of sludge, when applied to agricultural land in suitable concentrations, is known to improve soil structure, drainage and available water capacity.

However, application under unsuitable conditions or at inappropriate rates can give rise to pollution and contamination of soil, water or air. Although there are a number of science-based procedures and controls in place, concern remains around this practice. The main public concerns are odour, and the perceived risks to human health of raw sludge

All applications of imported wastes spread on farmland should be included in the calculations within the Manure Management Plan (Farm Waste Management Plan). This is mandatory for Fertiliser and Manure Plans in Nitrate Vulnerable Zones.

Regulation of sewage sludge

Use of sewage sludge on farmland is controlled by the Sludge (Use in Agriculture) Regulations 1989 (as amended), which control the build-up of potentially toxic elements in soil and restrict the planting, grazing and harvesting of certain crops following the application of sludge.

Sludge producers (in Scotland this generally means Scottish Water or their contractors) are required to analyse field soils and sludge prior to application, and to maintain detailed records of applications of all sludge to farmland. However, it is the farmer, rather than the sludge producer who is ultimately responsible for complying with the regulations in terms of crop planting and harvesting following sludge application.

Further guidance and requirements are given in the UK-wide Code of Practice for Agricultural Use of Sewage Sludge, the code of good practice for the prevention of environmental pollution from agricultural activity (PEPFFA code), and also in the safe sludge matrix (an agreement between the UK water industry and the British Retail Consortium on sludge use).

Proposal to revise the regulations

In 1998 the UK Government announced its intention to revise the regulations to provide further safeguards against the transfer of pathogens from sewage sludge to the food chain. The Scottish Executive and DEFRA consulted on changes to the regulation of the use of sludge in agriculture in 2002.

The Scottish Government is considering revising the 1989 regulations, so that the higher standards currently set out by the safe sludge matrix are given statutory force. Amongst other things, the matrix does not allow raw or untreated sewage sludge to be used on agricultural land for food production.

The revised regulations are designed to address concerns about the potential risks from pathogens to human and animal health when recycling sewage sludge on agricultural land. This would be achieved by strengthening the treatment requirements for sewage sludge processes to ensure that potential pathogens cannot be transmitted into the food chain by using sewage sludge to fertilise land used for food crops. A qualitative assessment of the risks associated with land application of wastes, including sewage sludge was carried out in 1998 and the recommendations for revising the regulations were based on this assessment.

The revised regulations go beyond the requirements of the EU directive in that they define sludge treatment standards. These standards were agreed by major stakeholders and the extra costs were accounted for in Scottish Water's quality and standards strategic review 2002 – 2006.

Regulations have not been made as yet, partly because the consultation showed that the voluntary agreement was being respected. In the meantime, the matrix is being observed voluntarily. Scottish Water is in favour of strengthening the statutory requirements, however SEPA would accrue enforcement costs and Scottish Water is unable to pay under the current regulatory funding mechanism.

Members of the food industry and other major stakeholders are also pressing for the standards to be made statutory in order to increase confidence and to allow them to be brought within the enforcement regime operated by SEPA.

Other legislation
There are a number of other significant pieces of Scottish and European legislation with relevance to sludge management. Legislation often addresses organic wastes as a whole, in such a way as to include sewage sludge. The Waste Management Licensing Amendment (Scotland) Regulations 2003 tightened up the use of sludge on agricultural land and in land restoration. The Waste Management Licensing Amendment (Scotland) Regulations 2004 relate to the use of organic wastes, including sewage sludge, on non-agricultural crops such as forestry.

SEPA has used its powers under the 2003 and 2004 regulations to restrict the tonnage of sewage sludge allowed to be spread on non-agricultural crops (primarily forestry), or for land restoration to an ordinary maximum application rate of about 400 tonnes per hectare. This figure represents a considerable reduction on volumes which, in the past, may have been thousands of tonnes per hectare.

Analysis

Effectiveness of the regulation
The regulation appears to be working effectively, however by making current industry standards statutory enforcement could be improved if necessary. It may also help improve the confidence of stakeholders that the sewage sludge, when used according to the regulations and standards, is safe for humans, plants, animals and the environment.

As there are a number of other significant pieces of Scottish and European legislation with relevance to sludge management, the effectiveness of this regulation can be complemented by changes in other pieces of legislation.

Financial Implications
The Scottish RIA completed in 2002 set out the costs and benefits of maintaining the current system, revising the code of practise, or revising the regulations.

Costs

The suggested revisions to the regulations would impose more stringent requirements on Scottish Water. However, Scottish Water is committed to the matrix and the additional costs have already been allowed for in the quality and standards period 2002-2006. The agreed recurring costs associated with revised regulations are estimated to be £2m per year. This is a least cost option when compared with the costs

of alternative disposal methods. The initial capital investment in improved treatment for Scottish Water is estimated at £14m.

There would be an additional cost to owners of a septic tank, mostly in rural areas, as the spreading of untreated sludge would be banned. The cost of treatment is estimated to be fairly low at £10 on average. The total extra cost of disposal of septic tank sludge in Scotland was estimated in the RIA (2002) to be £0.2m per year.

Farmers would also have to comply with any changes to the regulation including grazing and cropping restrictions. As less than 1 percent (2002) of Scotland's land has sludge recycled in this way applied, the effects of any change are targeted.

The cost to enforce existing regulations was estimated at £14,000 per year. A tighter regulatory system will lead to increased enforcement costs. However, the suggested changes allow SEPA to recover these costs and they may be passed on to sludge producers.

Total costs for maintaining and revising the regulations (2002)

Option		Estimated recurring costs (yearly)	Estimated non-recurring costs
Current regulations maintained as is	Public confidence holds	£0	£0
	Sludge to agriculture unacceptable	Incineration £16m Landfill £7m £0.6m per (for inorganic fertilisers)	Landfill £0 Incineration £46m
Revise the regulations (most likely to maintain public confidence)		£2m Scottish water £10 per farmer £10 per septic tank de-sludging	Scottish water £14m

Figures are approximate
The recurring cost to Scottish water is approximately 0.2 per cent of 2002 income
Source: Revision of the sludge (use in agriculture) regulations 1989, Scotland, RIA

Benefits

The RIA does not quantify the benefits of the current regulation. The benefits of revising the regulations however include increased security that costs of finding alternative disposal methods would be avoided. The benefit of avoiding incinerating sewage sludge in Scotland is was valued at £1.33m per year at 2006 prices in the Environmental Accounts for Agriculture report of April 2008.

Use of sewage sludge on agricultural land is preferred according to the criteria in the national waste strategy. Although difficult to quantify, there are economic and environmental benefits from recycling sewage sludge to agricultural land. The resulting improvement in fertility, structure, workability, water holding capacity and yield have been established. In the current climate of increasing input costs,

alternatives to bagged fertiliser are becoming increasingly attractive. Recent reporting from England suggests that growers benefited from about £450/ha worth of nutrients in years one and two. Typical figures for nutrients required were given as 35kg nitrogen, 100kg phosphate, 7kg potash, 30kg SO_3 and 12kg magnesium a hectare in year one[20].

The Environmental Accounts for Agriculture report (2008) introduced a valuation of agricultures waste sink services for sewage sludge as a positive flow estimated to be worth around £35m.

The proposals for revision would not result in significant change in farm working practices. While they would allow enforcement measures to be taken if necessary, the key benefit is intended to be the confidence of farmers, the food industry and the public in the recycling of sewage sludge to agricultural land.

Should this outlet become unsustainable, water treatment companies would face significantly increased costs in establishing alternative disposal systems (landfill, incineration) for the major proportion of their sludge.

The main costs of the Sludge (Use in Agriculture) Regulations 1989[21]

	Action	*Scale of cost*
Admin	On farm records	Low
	Treatment	Medium
Policy	Reduced waste disposal to agricultural land	Low

The main benefits of the Sludge (Use in Agriculture) Regulations 1989

	Action	*Scale of benefit*
Private	Low cost alternative nutrient source	High
Social	Avoiding alternative disposal - cost	High
	Avoiding alternative disposal - environmental impact	High

Industry views

The changes suggested in the 2002 RIA were discussed extensively with both the water and food industries, who were generally content with the proposals. Public consultation on the proposal to make the matrix compulsory was also carried out. As

[20] Farmers Weekly June 2008

[21] The rankings of costs and benefits are subjective assessments of the relative scale of costs and benefits within case studies, and are not comparable across case studies

this work was undertaken around the time for the Foot and Mouth outbreak, farmers were not consulted directly.

As part of the consultation, NFU Scotland noted that it was conscious of the importance of commercial interests in determining the future of sludge spreading and did not take a definite view on the proposals.

There are reportedly ongoing problems with some grain merchants specifying that sewage sludge not be applied on malting crop paddocks. From a marketing perspective, the whiskey industry are concerned about problems with consumer perception if sludge is applied. NFUS are continuing to meet with members of the whiskey industry to talk through the issues and note that more research has been done since the whiskey industry's initial views were expressed. While some claim that the malting industry might reconsider its stance on using the product within the rotation, the NFU and NFUS is less convinced, believing that there is still a long way to go to settle the issue with certain supply chains. While legislating the matrix might allay some concerns and lead to a change in approach, a bigger driver might prove to be the changing economics of grain production. If distillers wish to source more grain in order to increase production, they may need to relax their current specifications to allow farmers to use sludge as a cheap alternative to bagged fertilisers.

The Scottish Landowners' Federation and Highland Council were pleased about the relatively small impact there would be on farmers.

The Tenant Farmers Association of Scotland (STFA) noted that the regulation applies to the contractors used to spread such materials, who appear well-versed in the regulations.

Spreading sewage sludge on agricultural land is supported by the Scottish Executive, SEPA, European Commission, Royal Society for the Protection of Birds (RSPB), the Soil Association, and Surfers Against Sewage. SEPA noted that most studies on this matter have concluded that gold-plating is not a feature of regulation in this area.

Ability of the Scottish Government to influence

The current regulations implement the EC directive, and go further in terms of industry best practice guidelines and standards. The European Commission had proposed to revise the Directive in 2007 with a view to tightening the quality standards under which sludge is allowed to be used in agriculture. Any changes that are proposed would need to be reflected in Scottish legislation as appropriate. Currently however, some members of the industry are pushing for greater regulation in terms of making current standards statutory.

Conclusions

1. Does the regulation originate from an EU Directive?

Yes - EU Sludge Directive (86/278/EEC)

2. Has a Scottish RIA been completed?

Yes – an RIA was completed in 2002 looking at revising the amended 1989 regulations.

a. Are the benefits adequately quantified?

The benefits have not been quantified. Further work may be possible in this area if necessary. The benefits include economic, social and environmental aspects. For farmers, cost savings in using sewage sludge is the key benefit.

b. Are the administrative costs adequately quantified?

Yes, however, during consultation, some commented that the regulatory costs to SEPA would be higher than the £14,000 stated in the draft.

c. Are the policy costs adequately quantified?

Yes. There is a relatively small impact on farmers, and it was generally felt that Scottish Water should bear most of the costs.

3. What are the problems with the regulation?

Currently industry is operating under best practice guidelines that, if made statutory, could improve the confidence of those along the supply chain that the practice of applying sewage sludge to agricultural land is safe, economical, environmentally sustainable and effectively enforced.

4. What is the overall balance – cost or benefit?

Benefits of the regulation are significant in terms of allowing confidence that the application of sewage sludge is safe and environmentally sustainable. Giving more weight to current industry codes would enhance the level of confidence associated with this regulation and its enforcement. Although there would be significant costs for Scottish Water, costs associated with a shift to alternative disposal methods are much higher. The regulations also allow farmers to utilise a cheap alternative form of nutrients.

5. Suggestions for improvements

As set out above, an RIA looking at revising the 1989 regulation was completed in 2002. However, at this point in time there are no urgent problems to be remedied and thus it is more a question of priority in the legislative timetable.

The European Commission (2005b) had proposed to revise the Directive in 2007 with a view to tightening the quality standards under which sludge is allowed to be used in agriculture. Developments will need to be followed to ensure consistency with the Scottish regulations and current industry practice where possible.

6. Does it meet the Better Regulation guidelines?

Transparency: High. The information provided as to what is and isn't allowed is clear and easy to follow (eg, the concise version of the PEPFAA code – the dos and don'ts guide – set out easy to understand practical guidance). Should the regulations be revised, SEPA would need to issue guidelines to officers and arrange suitable training.

Accountability: High. The regulations, which implement the EU Sludge Directive (86/278/EEC), are enforced by the Scottish SEPA. It is the farmer, rather than the sludge producer who is ultimately responsible for complying with the regulations in terms of crop planting and harvesting following sludge application. However responsibility rests with the producer for compliance with the sludge regulations in regard to the analytical testing of the sludge and soil. Farmers should not allow spreading without this having been done.

Proportionality: High. The measures adequately reflect the importance of ensuring that the practice is carried out in a way that is not detrimental to the environment or human, plant or animal health. The regulations and other relevant guidance appear to be well accepted by the farming community and the majority of other stakeholders. Industry is pushing for revised regulations even though they go beyond the requirements of the EU directive in that they, amongst other things, define sludge treatment standards.

Consistency: High. The regulation provides clear guidelines for the use of sewage sludge that are consistent for all users.

Targeted: High. As less than 1 percent (2002) of Scotland's land has sludge recycled in this way applied, the effects of any change are targeted towards those directly affected.

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8. Disposal of fallen livestock under The Animal By-Products (Scotland) Regulations 2003 (SSI 2003/411)

Abstract
The EU Animal By-Products Regulation based on a wide-ranging review by the European Commission of the Animal Waste Directive (90/667/EEC), lays down the health rules governing the disposal and processing of animal by-products not intended for human consumption. In Scotland the EU regulation is enforced along with some national requirements reflected in The Animal By-Products (Scotland) Regulations 2003. These regulations make it illegal to bury or burn fallen stock on-farm.

The impact (cost) of fallen stock scheme on farmers in England has been estimated by Defra to be at £14m, £15m and £15m for 2006, 2011 and 2015 respectively. Given the lower animal population in Scotland the estimated impact of the Regulation, in this case study, £11.6m on Scottish farmers seems reasonable.

Introduction
The EU Animal By-Products Regulation based on a wide-ranging review by the European Commission of the Animal Waste Directive (90/667/EEC), lays down the health rules governing the disposal and processing of animal by-products not intended for human consumption. This EU Regulation has been adopted and implemented in member States. In Scotland the EU regulation is enforced along with some national requirements reflected in The Animal By-Products (Scotland) Regulations 2003. These regulations make it illegal to bury or burn fallen stock on-farm (Scottish Government, 2003a). Under these Regulations fallen stocks or animal by-products originated in the remote areas of Scotland (which covers most of the Highlands and Islands and Argyll), specified in Schedule 3, can be disposed of as waste by burning or burial on-site. Also in the case of an outbreak of a disease mentioned in List A of the International Office of Epizootic Diseases (OIE), fallen stocks or animal-by products can be disposed of as waste by burning or burial on-farm only if the fallen stocks or animal-by products are transported, and buried or burnt, in accordance with a notice given by the Scottish Ministers (Scottish Government, 2003a).

Furthermore, burying or burning an adult bovine or goat on-farm without official approval is forbidden. Under the TSE (Scotland) Regulations 2002 all livestock keepers, including those within the "remote area", have a legal responsibility to report the death or slaughter on-farm of all bovine animals aged over 24 months and all goats aged over 18 months to the TSE Surveillance Helpline number. After registration, the Helpline will arrange for the carcass to be collected**,** tested for BSE and destroyed free of charge. The aim of this case study is to evaluate the regulations concerning disposal of fallen livestock in Scotland in terms of costs and benefits of the regulation.

Scientific justification
The risk resulting from fallen livestock and condemned materials depends on *(i)* the origin (source) of the material, *(ii)* the reason why the animal died or was killed or the reason for condemnation, *(iii)* whether or not this cause or reason can reliably be acceptable (EU, 1999). However, humans should never be exposed to the risks of

fallen stock and condemned materials, via products that could be recycled from them. If the reason why an animal died or was killed or the cause of a material to be condemned is unknown or suspect, such material should be disposed of. Ways of disposal depend upon the risk and vary from incineration to recycling into products for exclusive technical use. If the cause of death of an animal or the reason for material to be condemned can be determined positively, and the potential resulting risk for humans, animals and the environment can be eliminated/neutralised by appropriate processing (which implies the exclusion of any TSE risk), the material can be recycled into animal feed or for technical uses. Materials that present an actual or potential TSE risk should be disposed of. Ways of disposal vary according to the level of risk, from incineration (if there is an actual TSE risk) to recycling in products for exclusive technical use (e.g., specified risk materials from healthy animals otherwise found fit for slaughter and consumption) (EU, 1999). Scientific evidences show that the degradation process essential to ensure reduction of BSE/TSE infectivity cannot be guaranteed by burial. Even after burial Scrapie infected material can persist in the soil for years and present a source of infection. Improper burial can also cause pollution problems and act as a vector for the transmission of disease to man, animals, birds, & insects. Therefore, from May the 1st 2003 the only legal methods of disposal has been rendering or incineration and any on-farm burial and burning of animal carcases is forbidden.

Implementation
Three different options have been offered by the Scottish Government to farm-animal owners to collect and depose their fallen livestock (Scottish Government, 2003b): *(i)* farmers can make their own commercial arrangements with an approved disposal operator (such as the local knackery or hunt kennel), *(ii)* an approved incineration unit can be purchased by one or a group of farmers and installed on-farm, and *(iii)* farmers can join the National Fallen Stock Scheme[22] which provides a subsidised (currently 20% of the commercial cost), bio-secure, uniform collection and disposal service throughout most parts of the UK including the "remote areas" on the Scottish mainland (NFSCo, 2008).

Analysis

The main costs and benefits of the regulations are outlined table 1 and 2 below:

Table 1 Main costs of the regulations[23]

	Action	*Scale of cost*
Admin	Compensation paid by the government to farmers (20% of the costs)	Low
Policy	Pressure cook animal by-products (non-recurrent cost)	Medium
	Disposal arrangement costs to the farmers	Medium

[22] The Scheme is implemented by The National Fallen Stock Company (NFSCo) which is voluntary and is designed to assist farmers and horse owners to comply with the Animal-By Products Regulation.

[23] The rankings of costs and benefits are subjective assessments of the relative scale of costs and benefits within case studies, and are not comparable across case studies

Table 2 Main benefits of the regulations

	Action	*Scale of benefit*
Private	Higher farm bio-security level	Medium
Social	Avoiding and preventing highly costly animal disease outbreaks	High
	Reducing TSEs spreading risk	High
	Improving public health with respect to incidence of human vCJD cases	High

In general the Animal By-Products Regulation imposes costs on livestock keepers and producers of animal by-products such as abattoirs and producers of products derived from by-products. The majority of the businesses affected are small businesses. Specifically, the ban of on-farm burial of fallen stocks increases the costs of collecting and disposing of fallen stocks for the farmers who were not using the local knackery services. Two categories bear the costs: farmers and by-products processors. According to the regulatory impact assessment, the total cost of implementing the regulation was estimated to be greater than £100 million (including investment costs or non-recurrent costs and recurrent costs) (Scottish Government, 2002). In this case study only the direct recurrent costs of the dead animal disposal for the farmers are estimated. However, to give the readers an insight into the non-recurrent and recurrent costs for the animal by-products processor the available figures are summarised in the next section.

Cost items for animal by-product processors

The regulatory impact assessment (Scottish Government, 2002) has provided the anticipated non-recurrent costs for the processors. To pressure cook animal by-products, renderers may need to invest around £0.75 million per cooker for up to 75 cookers, or up to £50-60 million in total. (Scottish Government, 2002). If most of the hunt kennels and other premises handling animal by-products for feeding to hounds, maggots, fur animals, etc. had to upgrade their premises, the cost could be as much as £1.5 million. It has also been estimated that the price that slaughterhouses pay for the disposal of blood could rise from the current £16/tonne to £60-80/tonne. To meet the requirements of the Waste Incineration Directive, the capital compliance cost for an individual incinerator was estimated at £230,000, with annual operating costs of approximately £12,000. A two year transition period has been obtained to enable the requirements of the Regulation to be phased in for those low capacity incinerators which do not burn SRM. Around 80,000 tonnes of used cooking oils are produced in the UK each year and the Feed Fat Association (representing the blenders) has estimated that additional feed costs of between £29 and 45 million p.a. will result from the need to use alternative sources (these costs was predicted to be passed on to the feed industry and farmers).

Costs to the farmers and beneficiaries of the regulations

The costs to individual farmers of disposing of sheep and cows via existing disposal routes are in the region of around £15 per sheep and £90 per cow (Scottish Government 2002). The additional disposal costs for cattle should be small as the collection of all fallen stock over 24 months is currently met by central funds for TSE

surveillance purposes. However, there will be additional disposal costs for sheep producers, many of whom currently bury fallen stock on-farm, and there may also be costs for the small number of pig and poultry producers who do not already use a legitimate outlet (most intensive producers routinely use legitimate outlets to maintain biosecurity levels). The continued burial of fallen stock will however be permitted in remote areas, and a significant number of crofters and farmers in Scotland are likely to benefit from this derogation.

Various groups receive the benefits of implementing the fallen stock Regulations. The livestock industry and associated industries receive the benefits by the following mechanisms: *(i)* reducing the risk of the transmission of animal and human diseases; *(ii)* providing a framework for a potential relaxation of the restrictions on the use of animal protein in feed; and *(iii)* increasing domestic and foreign consumer confidence. Consumers also receive the benefits via enhancing the public health and providing better environment (e.g. less pollution) by developing new operations such as composting and biogas plants.

Cost and benefit assessment

Table 3 Estimated total costs of fallen stock disposal in 2007 in Scotland.

	Animals population[1]	Total value of animals[2] £ * 1000	Mortality rate[3] per year (%)	Costs[4] (£)
Dairy cows and heifers	242,650	121,325	5	
Beef cows, heifers and bulls	540,250	432,200	2	
Other cattle, prime cattle and <1 year	1,115,640	390,474	5	
Total bovine	1,898,540	943,999		7,084,755
Ewes and rams	3,820,940	114,628	5	
Lambs	3,677,280	147,091	1.6	
Total ovine	7,498,220	261,719		3,748,252
Laying hens	2,919,810	13,723	8	
Pullets rearing for laying	1,237,750	5,817	5	
Fowls rearing for breeding	1,586,800	7,457	5	
Broilers	8,314,990	83,149	3.5	
Other poultry	69,610	1,044	5	
Total Poultry	14,128,960	111,192		435,056
Total Swine	456,670	68,500	6	342,503
SUM		1,385,411		11,610,566

[1] Based on June 2007 statistics (Economics Report on Scottish Agriculture, 2008 Edition).

[2] Following values were used to estimate the total value of the animal populations: dairy cow £500, beef cow £800, other cattle £350, ewes £30, lambs £40, laying birds, pullets and fowls £4.7, broilers £10, other poultries £15 and pigs £150.

[3] Following references were used: for dairy cows: (McConnel et al, 2008), for beef cows: (de Roes, 2007), ewes, lambs, poultry and swine: personal communications with SAC experts.

[4] Following disposal costs were considered based on reference (Scottish Government, 2002): £90 per cow, £15 per sheep, £12.50 per pig and £0.65 per bird.

In this section the direct costs of fallen stock disposal for the farmers have been estimated for four species namely bovine, ovine, swine and poultry. The goal of this simple cost calculation was to produce a quantitative figure which can be used for a cost-benefit analysis. The total costs of disposing fallen livestock were estimated based on the animal population in Scotland as well as the mortality rates reported in the literature or by experts. Results show that the total direct cost to the livestock farmers is estimated at £11.6 million for 2007 in Scotland. The details for each industry are summarised in Table 3. According to the chairman of the National Fallen Stock Company (NFSCo), over £16 million was paid to the farmers, who are member of the scheme, against the costs of fallen stock across the GB last year. By considering 15% of those farmers being in Scotland, £2.4 million subsidy has been paid to the Scottish farmers via NFSCo which equals to 20% of our estimated total cost of fallen stocks for the Scottish animal keepers (£2.4/£11.6 = 0.02).

Discussion

In this case study we focused on recurrent costs for the animal keepers in Scotland. As discussed, this regulation also imposes and has imposed recurrent and non-recurrent costs to other small businesses mainly animal by-product processors. Thus, the estimated costs in this case study only reflects the direct or recurrent cost and thus the total costs of the whole Animal by-products Regulations is an under estimate. According to the regulatory impact assessment, the total cost of implementing the regulation was estimated to be greater than £100 million (including investment costs or non-recurrent costs and recurrent costs) (Scottish Government, 2002). Our estimated recurrent cost for the farmers is almost 11% of the total predicted costs of the Regulations. However, a lower total cost of implementing the Regulation is anticipated in the years after the enforcing the Regulation (2003). More updated data from the animal by-product industry are required to be able to generate the total costs of the Regulations. However, estimating the recurrent costs for the farmers helps to evaluate the efficacy of the part of the regulations that deals with fallen stock (that was our main goal). The impact (cost) of fallen stock scheme on farmers in England has been estimated by Defra to be at £14m, £15m and £15m for 2006, 2011 and 2015 respectively (Defra, 2005). Given the lower animal population in Scotland the estimated impact of the Regulation £11.6m on Scottish farmers seems to be a reasonable estimate.

Estimation of the direct and indirect benefit of the Regulation is harder than estimation of the costs. When focusing only on the help of the fallen stock regulation on safeguarding the animal populations, by reducing the exposure to the infectious materials and risk of spreading the devastating animal diseases, the benefit has been certainly positive. This is demonstrated in our simple benefit-cost analysis and sensitivity analysis using a range of scenarios. As it can be seen in Figure 1, The highest (positive) B/C ratios are achieved, by assuming the highest effectiveness for the regulation (i.e. high level of compliance), in the scenarios where the economic impacts of the disease were very high (50%). In other words, by assigning a high compliance for implementing the regulation, it is more cost-effective when a disease with high economic impact occurs. By contrast, by assuming a lower effectiveness (i.e. representing a scenario where regulation does not effectively change the

probability or severity of disease outbreak) for the regulation in all the examined scenarios (i.e. low, moderate and high economic damage) the B/C ratios are smaller than one and thus implementing the regulation is not cost-effective and cannot be justified. These findings imply that, the high compliance in implementing the regulation has a positive effect on reducing the risk of introducing and spreading animal diseases and consequently reducing the economic damages. It is expected this effect is greater in case of animal diseases with higher epidemiological and economic impacts. By including the effects of the regulation on safeguarding the public health (e.g. less bovine related vCJD cases) and enhancing the environmental parameters, the benefits of implementing the fallen stock regulation would be higher.

As it has been mentioned in the regulatory impact assessment (Scottish Government, 2002), this Regulation helps to safeguard public and animal health and the environment and reduce the risk of transmission of a wide range of diseases. There are some indications confirming that the regulations and measures against TSE have been effective in reducing the number of confirmed cases in both cattle and sheep across the Great Britain. These have been demonstrated in the latest report of the Veterinary Laboratories Agency on number of confirmed BSE cases (Defra 2008). (Figures A1a and A1b in Appendix present these outcomes for cattle). Although the current available data cannot confirm any statistically significant relationship between the observed reduction in number of vCJD human cases (from 18 cases in 2003 to 5 cases in 2007- see Figure A1c) (NCJDSU, 2008) and implementation of the fallen livestock disposal regulation, it can perhaps be considered as a positive sign. Quantifying the mentioned possible effectiveness of those observations is difficult and needs extensive economic-epidemiological studies to establish the impact on disease incidence and quantify the benefits.

Under the Scottish Regulations, fallen stocks or animal by-products originating in the remote areas of Scotland (which covers most of the Highlands and Islands and Argyll), can be disposed of as waste by burning or burial on-site. Scottish Government has provided a detailed guideline for on-farm disposal of the fallen stocks (Scottish Government, 2005). As the definition of the remote areas covers a relatively large proportion of the country, the inspection and supervision of the enforcement of the mentioned on-farm burial guideline, to protect the environment from the pollution, is crucial. Due to the mentioned fact, it can be concluded that more efforts is required and is spent to comply with the fallen stock regulation in Scotland compared to the other parts of the country.

As it has been learnt from the previous animal disease crises, the benefits of avoiding and preventing highly costly animal disease outbreaks are obvious and extremely large. The ban of dead animals' on-farm burial that has been stated in the Scottish Animal By-Products Regulations is considered as a practical step towards using those experiences in formulating new regulations and guidelines. Maintaining and improving these regulations is crucial to enhance the animal health and welfare levels, the regulations. In rural areas, the regulations can impose more costs to the farmers in the remote areas and can increase the spread of the animal diseases if the fallen stock are not buried properly. Thus, any change to the currently in practice regulations, or any change in implementation of the EU legislation by the Government might have an important influence on maintaining and enhancing animal health and welfare. Therefore, it is essential any possible change of the Regulations be carefully

investigated and communicated with the stakeholders in advance. This should be done so as to minimise the difficulties caused by the public good nature of some aspects of animal health.

Review of RIA

Disposal of fallen livestock under The Animal By-Products (Scotland) Regulations 2003 (SSI 2003/411)

Does the regulation originate from an EU Directive?
Yes. European Commission of the Animal Waste Directive (90/667/EEC).

Has a RIA been done?
Yes.

Does the RIA quantify costs?
Yes, has quantified costs for disposal, but not total costs.

Does the RIA quantify benefits?
No, benefits not quantified.

Does the RIA demonstrate that benefits exceed costs?
Not applicable.

Data required to improve assessment of costs and benefits
Not applicable.

Recommendations for improvement

Any change to the current regulations, or any change in implementation of the EU legislation by the Government might have an important influence on maintaining and enhancing animal health and welfare. Therefore, it is essential any possible change of the Regulations be carefully investigated and communicated with the stakeholders in advance. This should be done to minimise the difficulties caused by the public good nature of some aspects of animal health.

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Appendices to case study 8

Appendix 1

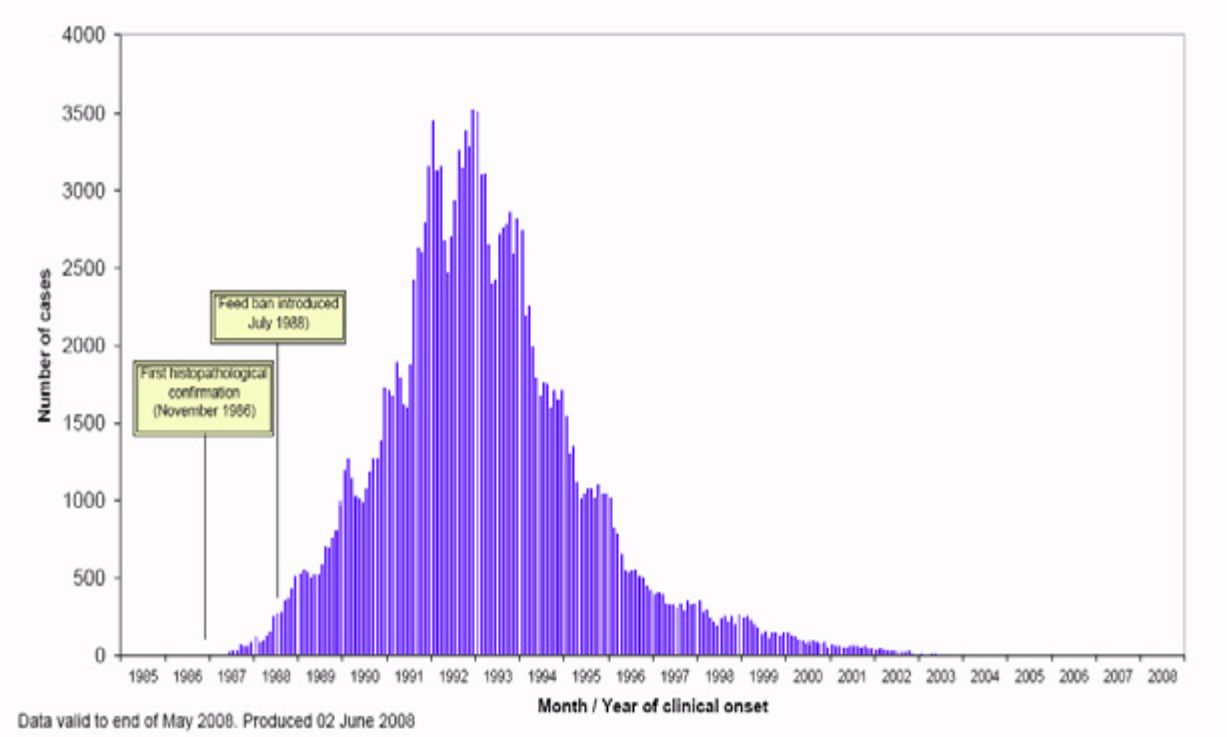

Figure A1a. BSE cases confirmed by passive surveillance in Great Britain, plotted by month and year of clinical onset (adapted from Defra 2008).

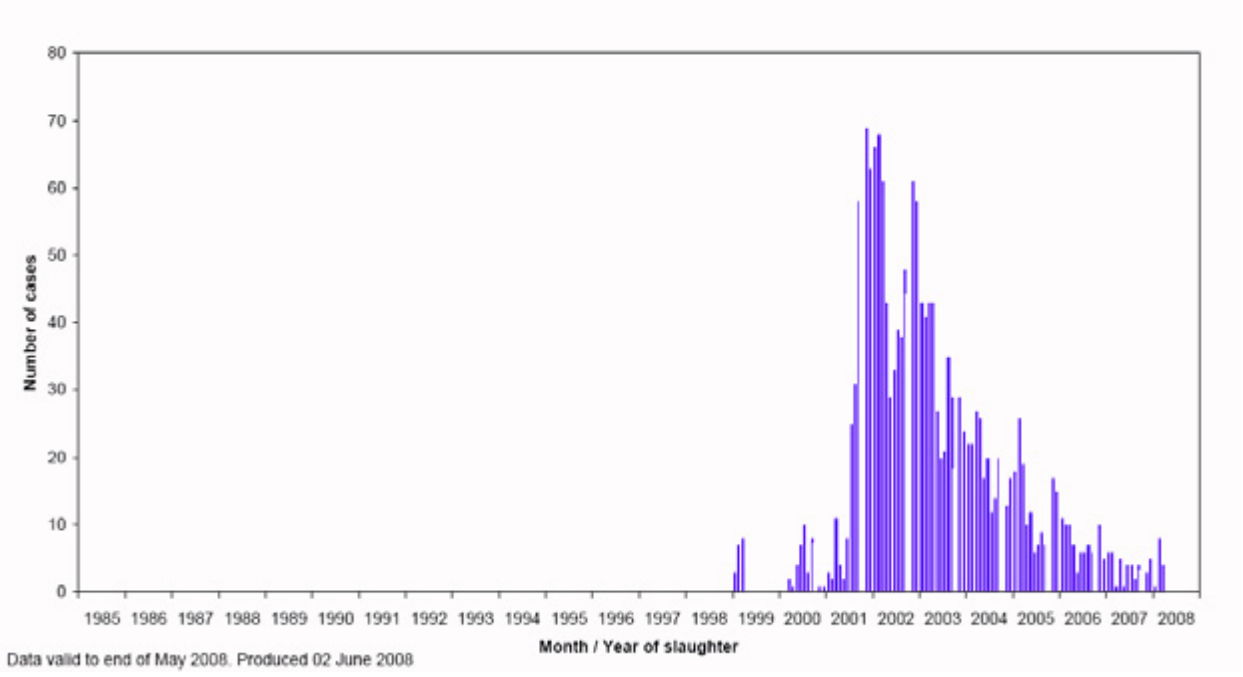

Figure A1b. BSE cases confirmed by active surveillance in Great Britain, plotted by month and year of slaughter (adapted from: Defra 2008).

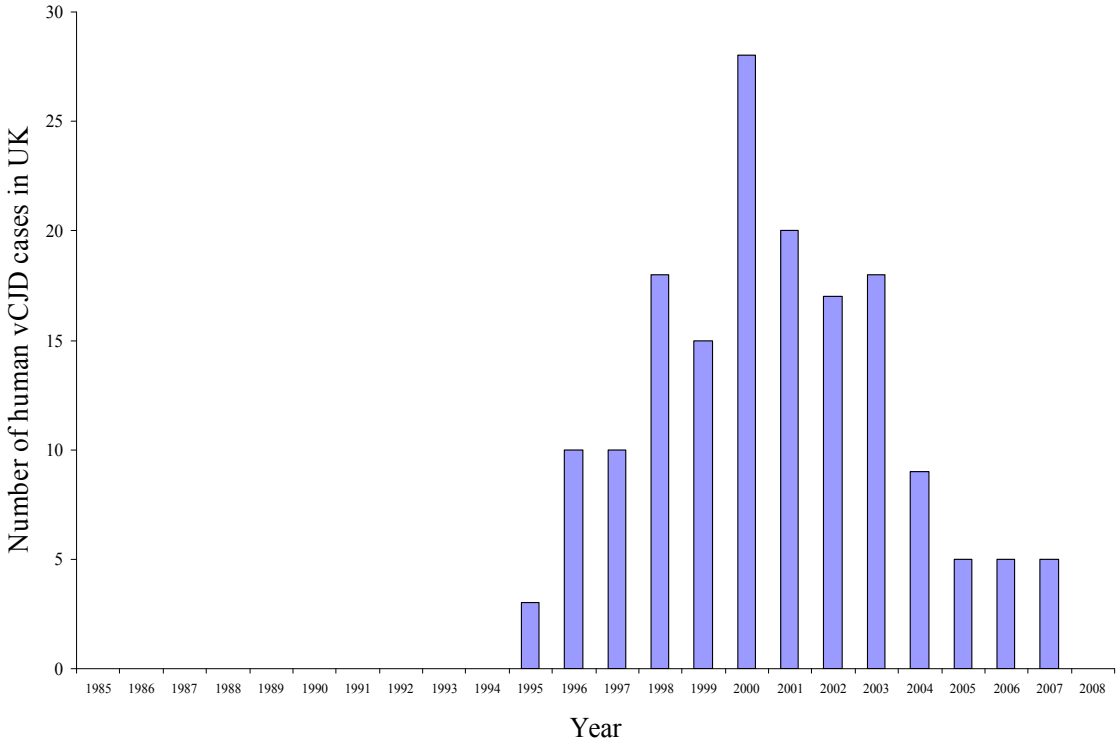

Figure A1c. The number of deaths of definite and probable cases of human vCJD in the UK, up to 2nd June 2008 (adapted from: NCJDSU 2008).

Appendix 2

Supplementary analysis

To estimate the effectiveness of intervention (regulation) 'without' regulation scenario is compared to 'with' regulation scenarios. The result of a study on BSE in Switzerland has revealed that the chance of finding a BSE case was 49 times higher in the fallen stock than other animals (Doherr et al, 2001). In other words the chance of being BSE positive in normal animals in a herd is 0.02 of that chance in fallen stock. If, based on this finding, we assume that the probability of outbreak of a certain animal disease (e.g. FMD) and consequently the economic losses due to animal mortality and animal slaughtering can be reduced (i.e. multiplied) by the factor 0.02 (as a result of regulations). This assumption is made in order to examine the related benefit-cost ratios in the case where regulation acts to decrease the probability or severity of disease outbreak. We clarify this by the following example.

In this example two hypothetical outbreaks (e.g. FMD and AI) occurs and cattle, sheep, pig and poultry industries are affected. We assume that, in without regulation scenario, a 5% economic loss (i.e. disease mortality and welfare/preventive slaughtering) is imposed to those sectors. This assumption is supported by the recent figures of 5-8% total economic loss for cattle and sheep industries due to bluetongue (BTV8) incursion scenarios (Scottish Government, 2008). Based on the estimated livestock values (Table 1) this equals to approximately £69 million. Now, by introducing the regulation, the impact of the economic losses due to the outbreaks is assumed to be reduced to 0.1% (10%* 1/49). As a result of that, the total economic

losses are reduced to £1.4million. Based on that the benefit-cost ratio of the mentioned intervention is calculated at 5.84 using formula below:

B/C ratio = (Without reg. losses – with reg. losses) / reg. implementation costs

In order to get more insight on benefit-cost ratio evaluate our assumptions, a simple sensitivity analysis was performed. A range of values for the effectiveness of the regulations were used (i.e. most effective: 0.02, moderate effective: 0.04, low effective: 2 and very low effective: 5) against a range of loss impact to the imaginary outbreaks (i.e. 1%, 5%, 10% and 50%). The outcomes of this analysis, in terms of benefit-cost ratio) are presented in Figure A2a.

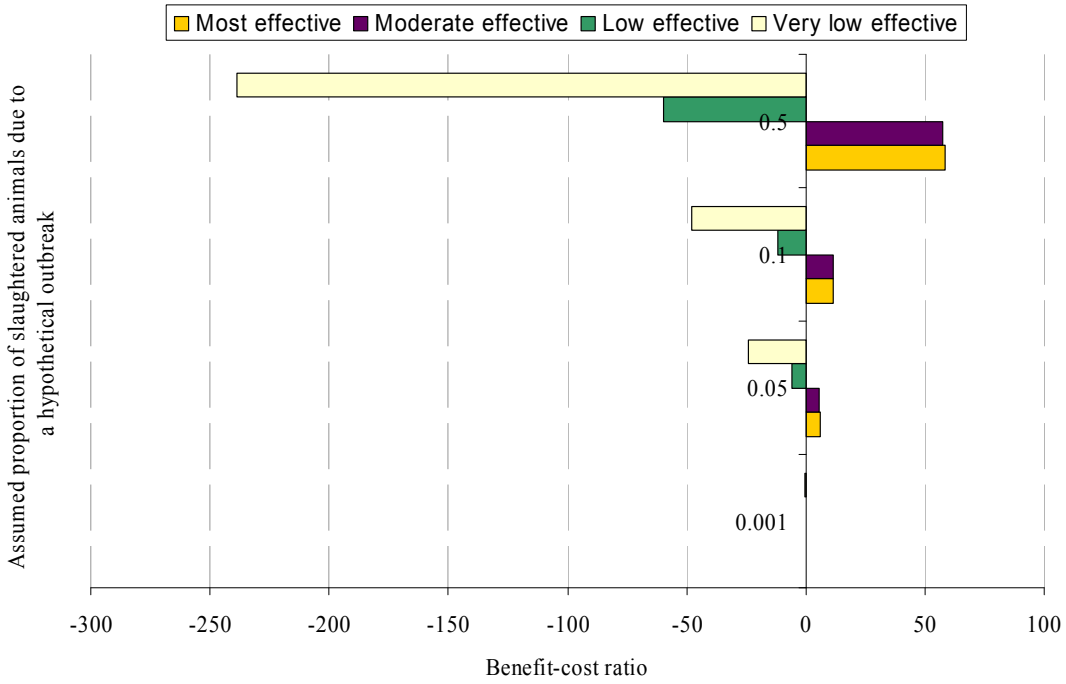

Figure A2a. Benefit-cost ratio for implementing the fallen stock disposal regulation as a measure to reduce the economic losses due to imaginary animal disease outbreaks.

Based on the above analysis and the discussion presented it can be conclude that the efficacy of the fallen stock regulation (higher benefit-cost ratios) in preventing/controlling the economic losses due to animal disease outbreaks is greater in modelled scenarios where there is a better compliance level in implementation.

9. Scottish Statutory Instruments 2007 No. 559 The Sheep and Goats (Identification and Traceability) (Scotland) Amendment Regulations 2007

Abstract

These regulations implement EC Regulation (EC) No. 21/2004 which establishes a system for the identification of sheep and goats through double tagging. The previous UK national system had benefits in terms of traceability but compliance was an issue and this led to the loss of a previous derogation for double tagging. The new system has benefits in terms of decreased cost as movement tags are no longer required and record keeping is simpler. The full benefits of the scheme will not be realised until linked to a system for monitoring movements, for example electronic identification (currently set for implementation in 2010). Industry views have been mixed and the NFUS is currently petitioning for the removal of the requirement to double tag. The Scottish Government will need to ensure that further proposed animal identification measures are practical and useful within the Scottish agricultural system.

Introduction

The Sheep and Goats (Identification and Traceability) (Scotland) Amendment Regulations 2007 implement Community legislation 24, which aims to standardise and improve the identification and tracing of sheep and goats across the EU and to provide a system that allows animals to be traced quickly and effectively. Experience gained during the foot-and-mouth disease epidemic in 2001 highlighted the need for traceability systems for sheep, and both sheep and goats are now identified according to the Council Regulation (EC) No 21/2004.

The EC Regulation required that all animals born after 9 July 2005 be identified individually with a visible eartag and a second identifier (eg an eartag, electronic mark or tattoo) with the same code.

The main purpose of the Scottish amendment is to amend the principal domestic Regulations[25] relating to sheep and goat identification and tracing. This reflected the fact that the UK derogation from the main double tagging regime under Council Regulation 21/2004 expired in June 2007.

Double tagging of sheep and goats is now required under the Scottish Regulations, which came into force in January 2008.

Scotland has applied the 'slaughter' derogation which means that animals not intended for export and intended for slaughter under the age of 12 months can be identified by a single identification tag.

There are estimated to be about 20,600 livestock holdings that keep sheep and/or goats in Scotland, and many livestock markets and slaughterhouses that deal in sheep

[24] Council Regulation (EC) No. 21/2004 (establishing a system for the identification and registration of ovine and caprine animals and amending Regulation (EC) No. 1782/2003 and Directives 92/102/EEC and 64/432/EEC)

[25] Sheep and Goats (Identification and Traceability) (Scotland) Regulations 2006

and goats. Any analysis needs to take into account the size of the Scottish sheep industry, the stratified system and the large number of animal movements. The UK has the largest number of sheep, and moves each sheep more times on average compared to other Member States.

NFU Scotland (NFUS) is continuing its campaign against EU sheep-tagging proposals, which it claims are "unworkable". The Scottish Farmer and NFUS are calling on the Commission to remove the current double tagging rules, and postpone the introduction of electronic identification until it is proven to be cost effective and based on batch movements only.

The National Sheep Association (NSA) has welcomed the changes and says they are broadly in line with what NSA and others in the industry have been calling for since it became apparent the derogation would be lost. The NSA see that the negatives in these changes are far outweighed by the practical benefits in terms of not having to apply movement tags when sheep move from one holding to another.

Analysis

Effectiveness of the regulation

The EC Regulation aims to standardise and improve the identification and tracing of sheep and goats across the European Union and to provide a system that allows animals to be traced quickly and effectively, back to their premises of origin.

The UK operated under a derogation for double tagging between the introduction of the measure in 2005 and 2007. The derogation was allowed on the basis that the UK national system (in place since 2001) allowed the residence history of any sheep to be read from the ear tags. After three EU Food and Veterinary Office inspections, it was clear that UK farmers were failing to adhere to the 2001 rules. EU veterinary officials reported "significant deficiencies" in the UK's traceability system for sheep during an inspection of farms, auction marts and abattoirs in February 2007. The UK withdrew its request for extending the derogation just before it expired in mid 2007.

While the UK national system was found to be inadequate, the effectiveness of the new regime has also been called into question. A regulatory impact assessment carried out in relation to double tagging notes that the main measures to ensure the effective tracing of animal movements do not come into effect until electronic identification becomes mandatory (2010) and, even then, they might only be obligatory for breeding animals.

While double tagging enables identification of the animal's birth holding (as it is less likely that both tags will be lost at the same time), it is more important to be able to trace animal movements in the UK system which involves a large number of sheep movements. The UK national system allowed for this as a new 'movement tag' had to be fitted with each movement.

Given difficulties in reading individual identification markings from large numbers of animals in a short time, electronic transponders were proposed with obligatory

introduction set scheduled for 1 January 2008. However, a 2007 Commission report concluded that it was not possible to fully justify a decision on the final date of obligatory introduction. The Council of Ministers has agreed to an EID implementation date of January 2010.

In moving from the previous UK national system to double tagging, there will be a reduction in the Scottish Government's ability to trace sheep in the event of a disease outbreak until EID (or another monitoring system) is fully introduced. The Scottish Government's ability to trace animals during this period is further hampered by EU laws which put constraints on what can be required in terms of movement documents and holding registers. Further, for legislative reasons, the Scottish Government can no longer enforce the movement tag rule under the EC Regulation.

Financial Implications

A regulatory impact assessment has been completed for this instrument that provides full detailed costing which shows a slight decrease in cost burden for most sheep and goat keepers. England also carried out a regulatory impact assessment that was very much along the same lines. Although the amendment instrument provides that animals will now require to be identified with two means of identification, cost savings set out below can be attributed to:

- no longer having to apply a further means of identification every time the animal moves
- the adoption of a slaughter derogation that means animals under the age of 12 months intended for slaughter can be identified by a single tag
- a reduction of the administrative burden on most keepers as a result of making the system less complex.

Cost comparison for Scotland: Previous UK national system compared with the introduction of double tagging, movement tags abolished for all animals

Measure	Total Cost of UK national Single Tagging System (Option 1)	Total Cost of Option 2	Cost of Option 2 compared to UK national system
Identification:			
Cost of identifying slaughter animals	£580,000	£580,000	£nil
Cost of identifying breeding Animals	£390,000	£690,000	+£300,000
Cost of replacement tags	£44,300	£53,800	+£9,500

Cost of applying Movement tags Cost of export tags	£457,200 £61,000	£nil £15,200	-£457,200 -£45,800
Total Identification Costs	£1.53m	£1.34m	-£190,000
On farm records:	£91,000	£45,500	-£45,500
Movement documents:	£178,000	£167,000	-£11,000
TOTAL COSTS	**£1.80m**	**£1.55m**	**-£0.25m**

Source: Regulatory impact assessment for Scotland on the implementation of double tagging for ovine and caprine animals under Council Regulation (EC) 21/2004.

For the industry as a whole, the savings from the abolition of movement tags (£457,200 per year) outweighs the increased cost of double tagging (£300,000).

The main costs of the Sheep and Goats (Identification and Traceability) (Scotland) Amendment Regulations 2007[26]

	Action	*Scale of cost*
Admin	Tags	low
	On farm records	low
	Movement records	low
Policy	Traceability	medium

The main benefits of the Sheep and Goats (Identification and Traceability) (Scotland) Amendment Regulations 2007

	Action	*Scale of benefit*
Private	Tags - abolition of movement tags	medium
	Fewer on farm records	medium
	Fewer movement records	low
Social	Traceability	low

Industry views

The UK industry has not presented a unanimous stance throughout the sheep and goat identification debate. While some recognised that extending the derogation was going

[26]The rankings of costs and benefits are subjective assessments of the relative scale of costs and benefits within case studies, and are not comparable across case studies

to be difficult and that the final decision was ultimately out of the UK's control, others continue to push for a re-think of the double tagging system.

NFUS commented positively on the degree of formal and informal consultation with Scottish Government in the lead up to the draft. While they endeavoured to keep members informed of developments, the NFUS recognise that it is difficult for the Government to comment publicly while the instrument is in draft form and still undergoing changes. The comment was also made that the Scottish Government was both sensitive to industry concerns and pro-active in putting them to Defra as the competent authority.

The NFUS is currently running a sheep tagging petition which it plans to present to the EC this year to show the strength of feeling against EID in Scotland.

The petition calls on the EC to

- Remove the current requirement to double tag low-risk sheep, in particular home-bred ewes.

- Scrap plans to individually identify sheep and their movements. Any future sheep ID and movement recording system must be on a batch basis.

- Review the cost-effectiveness of EID prior to considering implementation.

Industry representatives are being involved in trial work for EID. Again, NFUS comments were positive in terms of the Scottish Government's inclusive approach on this matter.

The National Sheep Association (NSA) states that it is broadly content with the implementation of the regulation, given that the industry had to accept change from the previous system.

The Scottish Crofting Foundation (SCF) believes that for the vast majority double-tagging is a big disincentive to keeping a few sheep as the system is viewed as being a "complex nightmare".

The Tenant Farmers Association of Scotland (STFA) think the system of double tagging could be made simpler, and that industry needs more time to become familiar with the system.

The Scottish Rural Property and Business Association (SRPBA) stated that the regulation has caused problems for the industry in terms of practicality in remote areas, and that the regulation could be improved to reduce its burden on the industry by allowing for traceability on a flock basis.

Goat keepers are primarily concerned about the welfare implications of the move to double tagging. Animal welfare issues could increase costs though the need for replacement tags and vet time.

Overall the industry was anxious that the derogation allowed in EU regulations not to double-tag animals being slaughtered before 12 months old was included in the national regulations. Farmers viewed double-tagging in this situation as an unnecessary waste.

On the suggestion that the move to double tagging would compromise traceability, some in the industry commented that as long as movements are properly recorded in movement documents, there is no need to use 'S' tags when moving sheep.

Industry is calling for pragmatism in the application of the regulations in this area to ensure that they carry as little cost as possible, are easy to understand and comply with and deliver a level of identification and traceability that is proportionate and yet effective.

Ability of the Scottish Government to influence

This regulation brings the UK into line with the EC Regulation and thus reduces the likelihood of infraction and disallowance. As the EC Regulation is taken into account for cross-compliance for the single payment under CAP, it is crucial that Scottish sheep farmers are able to comply.

As this issue is in a state of flux, the Scottish government has a role to play in shaping future animal identification and traceability measures to ensure that the interests of Scottish farmers are represented. A key area for further work could be the workability of identifying animals on a batch basis.

The Government will also need to be closely involved with developments surrounding the introduction of EID. This will impose additional costs on sheep farmers in terms of equipment and training. While some in the industry have already embraced this technology, they point out that flock production management could be enhanced if the technology was taken up along the supply chain so that individual animal results could be fed back. A major processor commented there had been little call for tracing individual animals along the production line. The practicality and cost of introducing such technology, and the number of add-ons to be incorporated will need careful consideration.

Industry views seem to be mixed at present on the implementation of EID and consultation will be required to fully understand their concerns, and those of others along the supply chain. It would also be worth exploring how the implementation of double tagging is working in practice and how it has affected farmers financially.

Though it is not a good time to be suggesting extra costs given the current unfavourable market conditions, farmers are more likely to act positively to any changes if a sensible lead time is allowed in order to familiarise themselves with new requirements and technologies.

Conclusions

Does the regulation originate from an EU Directive?

Yes - EC Regulation (EC) No. 21/2004 and associated directives

Has a Scottish RIA been completed?

Yes

a. *Are the benefits adequately quantified?*

The RIA does not quantify benefits. Benefits listed include reduced level of infraction and disallowance as it complies with European law, simpler rules, and potentially increased compliance levels.

b. *Are the administrative costs adequately quantified?*

Yes

c. *Are the policy costs adequately quantified?*

Yes

What are the problems with the regulation?

While the new Scottish regulation will lead to cost savings there are risks involved in terms of animal traceability which could hamper responses to disease outbreaks, until movement information is linked either through the introduction of EID or more requirements for keeping movement records. However, Scotland is constrained in its response to these issues following the expiry of the derogation which made it clear that the previous UK national system was not operating as it should. It should be born in mind however that the UK lost the double tagging derogation as a result of low levels of compliance with the previous UK national system. This means that the actual level of traceability 'lost' in the change to the double tagging system is less.

What is the overall balance – cost or benefit?

While the implementation of the regulation will lead to cost savings, the benefits in terms of ability to trace animals do not come into play until better movements are required, eg with the introduction of EID. Double tagging in the interim appears to have little benefit other than still being able to identify the animals birth holding should one of the tags be lost. The cost to the industry as a consequence of a disease outbreak and limited traceability in the interim period could be significant, but no estimates were given.

Suggestions for improvements

The Government's role going forward will need to focus on ensuring that the regulations are implemented effectively, and that future regulations to enhance

traceability are fit for purpose and balanced with ongoing industry concerns about cost, proportionality and practicality. This will be particularly important if the EC continues on the path towards introducing EID in 2010. As with the current Regulation, it is imperative that the Scottish industry is able cope with the physical and financial implications in order to comply.

Does it meet the Better Regulation guidelines?

Transparency: Medium. The requirements of the new regulations are fairly clear but there may have been some uncertainty around the derogation review as to what rules would apply and when. More information on the cost benefits and implications around EID may have allayed some industry concerns.

Accountability: High. The Scottish government is responsible for designing and implementing the regulation in accordance with the EC regulation. At the practical level, goat and sheep keepers are responsible for complying with the regulation. Local authorities will enforce the legislation in markets, the Meat Hygiene Service in abattoirs and Scottish government inspectors on farm.

Proportionality: Low. The derogations and other measures used by the Scottish government in designing the regulation make the costs more proportional, but, as outlined above, the benefits are yet to come into play in terms of traceability.

Consistency: Medium. The regulation applies to sheep and goats except where certain derogations apply relating to the type and number of movements (ie direct to slaughter within 12 months). However, all breeding animals need to be double tagged, even if they are not going to be moving from the property until due for slaughter.

Targeted: Low. This regulation aims to standardise and improve the identification and tracing of sheep and goats across the EU and to provide a system that allows animals to be traced quickly and effectively. This will not be achieved until better movement information is required.

References

The Sheep and Goats (Identification and Traceability) (Scotland) Amendment Regulations 2007

Council Regulation (EC) No. 21/2004 (establishing a system for the identification and registration of ovine and caprine animals and amending Regulation (EC) No. 1782/2003 and Directives 92/102/EEC and 64/432/EEC)

Regulatory Impact Assessment for Scotland on the Implementation of Double Tagging for Ovine and Caprine Animals under Council Regulation (EC) 21/2004

Impact Assessment of the introduction in England of Double tagging for Sheep and Goats Under Council Reg. (EC) 21/2004

10. Scottish Statutory Instrument 2007 No. 147 The Tuberculosis (Scotland) Order 2007

Abstract
This legislation is based on EU Directive 1964/432 as amended. Additional controls in terms of pre and post movement testing were introduced in SSI 2005 No.434 the TB (Scotland) Order as part of the strategic framework for the control of b TB the aim being to reduce the risk of spreading disease through the movement of cattle. Only minor changes were introduced in the 2007 Order and the RIA for the 2005 Order therefore remains the point of reference in this case study.

In Scotland the legal requirement is that no one should accept onto a holding any cattle from a high risk area unless the cattle have been tested within the 60 day period prior to movement. Despite several breakdowns, Scotland has so far prevented the development of any high disease incidence areas, unlike the situation elsewhere in GB where the incidence of disease is increasing. While the introduction of this legislation is believed to have helped limit the incidence of the disease other factors such as changes in the pattern of trade between England and Scotland, may be partly or wholly responsible. The introduction of post movement testing has brought additional direct costs for the Scottish Government and Scottish farmers but has also brought benefits. In particular additional cases of b TB have been detected by the post movement test. Industry views on post movement testing have been positive as it is considered essential to protect the health status of Scotland and stakeholder support is strongly in favour. The costs of implementing the legislation are estimated to be low compared to the benefits to the Scottish industry. In view of the continued escalation of TB in England and Wales, the Scottish Government needs to keep the legislation under review to ensure that it continues to provide effective safeguards.

Introduction

Background
Tuberculosis is a notifiable disease that affects cattle and can be spread between cattle and carried by a wide range of mammal species including humans and badgers. Movement of infected cattle is thought to be one of the most important reasons behind the spread of the disease [1]. The disease can be difficult to detect and the symptoms are not always identifiable. In addition there are problems with the main available tuberculin skin test; it is slow, costly and not always accurate.

There is significant variation in disease levels across the UK. Incidence is highest in the South West of England and Wales and in Northern Ireland (and Eire). By contrast the level of the disease is very low in Scotland and there are no high incidence areas within Scotland.

In the calendar year 2007, Scotland accounted for just 1.8% (512 hd) of all cattle slaughtered on account of b TB across GB (29,042 hd), according to DEFRA [2]. This is despite the fact that Scotland had 22% of the Great British cattle population in 2007, according to the June 2007 Agricultural Census. In the same year Scotland was responsible for just 5% (0.291m hd) of b TB tests carried out across GB total as a whole (5.879m hd), according to DEFRA [2].

This variation in the incidence of b TB across Great Britain (and Northern Ireland) influences the control strategy and legislation adopted in each country.

The higher level of disease in England and Wales means that herds there are routinely tested on an annual or bi-annual basis compared to a four yearly basis in all areas of Scotland. Investigation into TB cases has shown that almost all the cases of infection in Scotland can be traced to imports of cattle from infected areas in England, Wales and Northern Ireland.

Cost of b TB control

The Government cost of bTB control in Great Britain is estimated at around £80m per year [2] as detailed in the following table. Government costs are incurred as a result of cattle testing, compensation for the culling of affected cattle and associated surveillance and research costs [3].

Table 1. Breakdown of bovine TB expenditure in Great Britain: 1998/99 – 2007/08 (£m)

Activity	**2000/01**	**2001/02**	**2002/03**	**2003/04**	**2004/05**	**2005/06**	**2006/07**	**2007/08[1]**
Cattle Testing	13.3	5.4	24.7	33.2	36.4	36.7	37.8	32.6
Compensation	6.6	9.2	31.9	34.4	35.0	40.4	24.5	29.7
RBCT	6.6	6.0	6.6	7.3	7.2	6.2	1.63	0.03
Surveillance activity by the VLA	3.5	3.7	4.1	5.3	4.9	7.5	6.4	7.9
	5.3	6.1	6.5	7.0	5.7	6.5	7.78	8.5
HQ/Overheads	0.9	0.1	0.7	1.0	1.3	1.8	1.7	1.2
Totals	**36.2**	**30.5**	**74.5**	**88.2**	**90.5**	**99.1**	**79.71**	**79.93**

Source: DEFRA [2]

In addition to Government admin. costs, the industry suffers significant policy costs in a number of areas including;

- testing
- compulsory culling
- movement restrictions

While the government pays for the costs of the tuberculin test itself, the farmer must pay for the samples to be collected. Estimates for this vary. DEFRA estimates the cost at £9.60 per animal tested [4]. Industry estimates place the cost higher. According to a survey undertaken by Reading University on behalf of RABDF these costs averaged around £15.36 per head [5]. These farm costs comprised farm labour, veterinary charges, extra resources, management time, farm business disruption and missed marketing opportunities. Considering the 5.879m hd of cattle tested in 2007/08 this could represent an estimated cost to the industry in Great Britain of between £56.43m (DEFRA) and £90.30m (RABDF).

The cost of culling animals is offset in many cases by government compensation although this depends on the individual situation of each farmer and the value of the cattle being culled.

Further costs to the farmer arise from movement restrictions due to loss of revenue, cash flow difficulties and higher interest costs due to the inability to sell animals at the optimum time as well as suffering potentially increased feed, housing and labour costs.

Combining the costs to both government and farmer DEFRA estimated the average cost of one confirmed incident of cattle TB at £27,000 [6]. This was divided roughly 70:30 between taxpayers and farmers respectively. The total cost comprised the value of cattle slaughtered, the time and cost of herd testing, and the cost to the farmer of isolating animals and the effect of movement restrictions on the farm business.

The 2005 order

The Tuberculosis (Scotland) Order 2005 [7] extends the reach of the Animal Health Act 1981. The Order is based on Community legislation EC Directive 1964/432. This Directive and its various amendments set conditions regarding animal health issues and international trade, specifies disease testing intervals, routine testing, definition of a TB herd, tuberculin testing and how animals can be traded between TB free herds.

The purpose of the 2005 Order is to provide veterinary inspectors with the necessary powers to require owners to present their animals for testing and meet the requirements of the EU Directive.

The 2005 Order also introduces further measures over and above the minimum requirements of the EU Directive. The main additions were the inclusion of pre and post movement testing for animals moving from high to low TB disease incidence areas.

These safeguard measures were brought in part due to pressure from stakeholder groups in Scotland who felt that existing legislation was not offering enough protection to Scotland's low disease incidence status. In fact Scotland had already been applying a system of pre and post movement testing for cattle from the island of Ireland (Eire and NI) which had proved effective in limiting the spread of infection to Scotland.

A parallel Order was also introduced into England and Wales at the same time (The Tuberculosis (England and Wales) Order 2005). Like the Scottish Order this requires pre-movement testing of cattle moving from a high incidence area but differs in that no post movement testing is required.

The operation of the testing procedure is detailed as follows. Farmers in high incidence areas (i.e. in England as there are no high incidence areas in Scotland currently) sending cattle to low incidence areas (i.e. in Scotland) are required to carry out pre-movement testing no more than 60 days prior to the date of movement.

Farmers in Scotland receiving animals from high incidence areas in England, Wales, Northern Ireland (or elsewhere) are required to ensure that the animals they are bringing in have been pre-movement tested no more than 60 days prior to the date of movement. Where these animals have not been pre-movement tested the receiving farmer in Scotland is required to have them tested as soon as practicable.

The Scottish farmer receiving animals from a high incidence area is in all cases then required to carry out a further post-movement test no fewer than 60 days and no more than 120 days after the arrival of the animal in Scotland.

Effectiveness of the Order

The benefits of the TB Order are represented by reduced incidence of disease or reduced risk of incidence of disease. The introduction of the 2005 Order must be considered alongside a range of other factors that have influenced the number of disease incidents recorded. Scotland traditionally had a very low level of disease before 2002 with an average of 4 herd incidents recorded each year between 1998 and 2001 [2]. By contrast the average over the period 2002 to 2007 was just under 20 herd incidents. The main cause of this rise was likely to have been the result of the restocking of herds in Scotland with cattle brought in from infected areas in England, Wales and Northern Ireland following the 2001 foot and mouth outbreak.

Since the introduction of the 2005 Order the number of new herd incidents in Scotland appears to have stabilised at around 20 incidents per year. The 2005 Order therefore may have contributed to a stabilisation in the number of new incidents to at or below the levels seen in 2002. However other factors may well be at work here particularly the level of cross border trade in live cattle from high incidence areas. By contrast in England and Wales the number of new incidents is continuing to rise and is now around 15% higher than that seen in 2002.

Table 2.Confirmed new herd incidents

	E&W	Scotland
2007	2194	21
2006	2027	18
2005	2076	9
2004	1747	23
2003	1639	19
2002	1891	27
2001	515	1
2000	1045	4
1999	870	7
1998	717	4

Source: DEFRA [2]

Financial Implications

A Regulatory Impact Assessment has been completed for this instrument [8]. This RIA has estimated the cost of the different options. It has not estimated the value of the benefit, though it has quantified estimates of the number of b TB outbreaks likely under each option.

Table 3 Summary Costs and Benefits Table for Scotland

Option	Outcomes	Costs
1) Do nothing	26 cases of b TB	£912,240 33% of cost incurred by farmers
2) Pre-movement testing True positives False negatives	 20 5	£687,842 43% of cost incurred by farmers
3) Pre-movement testing of cattle over 15 months True positives False negatives	 13 3	£395,159 39% of cost incurred by farmers
4) Post-movement testing True positives False negatives	 20 5	 £1,096,233 39% of cost incurred by farmers
5 Pre-movement testing and post-movement testing True positives False negatives	 24 1	£1,204,767 47% of cost incurred by farmers

Source: Regulatory impact assessment for Scotland on the implementation of The Tuberculosis (Scotland) Order 2005 [8].

Option 5 was chosen for implementation in the 2005 Order and incorporated both pre and post movement testing. This option was the highest cost but brought with it the expectation of the lowest number of false negatives, representing a precautionary approach to avoiding disease incidence. Scotland's low level of infection at present reduces the chances of the disease spreading.

If increased bTB incidence were to occur in Scotland this would be likely to bring a substantial increase in cost of disease incidence or outbreak. DEFRA estimate the cost of each confirmed case of bTB at £27,000 [6]. The RIA [2] estimated potential costs and levels of b TB outcomes for Scotland, however there have not yet been any follow up estimates made of the costs and benefits that have been achieved in practice following the implementation of the 2005 Order.

EU directive and flexibility for designing legislation in Scotland

The Scotland 2005 Order exceeds the requirements of EU directive 1964/423 particularly in the level of testing. The addition of post-movement testing in Scotland represents an additional safeguard to that seen in England and is more appropriate to the need to maintain Scotland's low incidence status. While it is recognised that there are benefits of having a common policy across the UK, the low level of b TB incidence in Scotland gives support to the need to implement the most appropriate legislation for Scotland.

The Scottish Government therefore has significant room to influence the nature and detail of this Order to best meet the needs of Scotland.

Conclusions

Does the Order originate from an EU Directive?
Yes

Has a Scottish RIA been completed?
Yes

Are the benefits adequately quantified?
The RIA does not quantify financial benefits only costs although it does estimate the likely reduction in disease incidents that the Order could ensure. The option adopted in the Order had the highest cost but also the lowest level of false negatives. False negatives are the most important means of spreading the disease undetected. There is no value placed on the value of outbreaks avoided.

Are the administrative costs adequately quantified?
Yes

Are the policy costs adequately quantified?
Yes

What are the problems with the regulation?
One potential concern is that the Order leaves most farms in Scotland subject to testing only once every 4 years. Although the chance of a breakdown on these farms is low, because of the long period between testing if a breakdown does occur there is the potential for an outbreak to spread widely before it is detected. While four yearly testing brings substantially lower ongoing costs it also brings slightly higher risk and potential additional cost if it enables an outbreak to spread further before detection. The frequency of routine testing to be applied in Member States is however determined in EU Directive 64/432 according to the percentage incidence of TB in the national herd of a particular Member State or part of a Member State. The pre and post movement testing regimes implemented and enforced by the Tuberculosis (Scotland) Order 2007 are separate domestic controls.

What is the overall balance – cost or benefit?
The overall benefits of the 2005 Order in Scotland have not been quantified in monetary terms and it is therefore not possible to compare this directly to the monetary costs. Based on industry comment however, the level of cost to benefit is generally seen as favourable since the Order has helped prevent the spread of TB in Scotland. A subjective assessment of the Order is given in tables 4 and 5. Scotland has been alone in the UK in introducing post movement testing. This has brought additional costs (see Table 3). However the high value of maintaining Scotland's low disease status is widely expected to justify extra safeguards such as post-movement testing, even where further evidence of efficacy is sought. The changes made in the 2005 Order resulted in a tightening up of the testing procedures in Scotland. Further improving cost effectiveness has been accompanied by improvements in communication and checks within the government departments responsible.

Table 4. Subjective assessment of the costs of the Order (to the farmer)[27]

	Action	*Scale of cost*
Admin	Testing and inspection	low
Policy	Movement and trade restrictions on farmers importing from a high disease incidence area	medium

Table 5. Subjective assessment of the benefits of the Order

	Action	*Scale of benefit*
Private	Avoidance of bTB infection and subsequent reduction in costs	high
	Maintain Scotland's low incidence bTB status eases cattle movement and trade	high
Social	Minimise risk of bTB outbreak and associated taxpayers cost	high

Does it meet the Better Regulation guidelines?

Transparency: High. The requirements of the new Orders are clear.

Accountability: High. The Scottish government is responsible for designing and implementing the Order in accordance with the EC Directive. At the practical level, cattle owners are responsible for complying with the Order and are assisted in this by the Scottish Government Rural Directorate Animal Health and Welfare department. The UK wide Animal Health service is responsible for the enforcement of the Order on farm and the Meat Hygiene Service in abattoirs.

Proportionality: High. The benefits of the Order to Scottish agriculture are high and do not impose excessive costs on the industry with relatively low enforcement costs.

Consistency: Medium. The Order is consistent with similar Orders across GB with additional measures justified in order to help maintain Scotland's low b TB incidence status.

Targeted: Medium. This Order is correctly targeted at the highest risk farms and the highest risk animals i.e. those imported from high incidence areas of GB. It does not place undue cost on low risk farms i.e. since it permits four yearly testing.

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[2] DEFRA TB Statistics - http://www.defra.gov.uk/animalh/tb/stats/

[27] The rankings of costs and benefits are subjective assessments of the relative scale of costs and benefits within case studies, and are not comparable across case studies

[3] Badgers and cattle TB: the final report of the Independent Scientific Group on Cattle TB Fourth Report of Session 2007–08 Volume I, House of Commons, Environment, Food and Rural Affairs Committee

[4] Daily Hansard, 22 Jan 2008 : Column 1980W
http://www.parliament.the-stationery-office.co.uk/pa/cm200708/cmhansrd/cm080122/text/80122w0048.htm

[5] Bovine TB Pre-Movement Tests Cost £15 per Animal, headlines for a study by Reading University for RABDF
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[6] Defra, Cost benefit analysis of badger management as a component of bovine TB control in England, 2005, p 1

[7] Scottish Statutory Instrument 2005 No. 434 The Tuberculosis (Scotland) Order 2005

[8] Regulatory Impact Assessment on Scottish Statutory Instrument 2005 No. 434 The Tuberculosis (Scotland) Order 2005

11. Scottish Statutory Instrument 2006 No. 530 The TSE (Scotland) Regulations 2006

Abstract
In 2002, the Scottish Parliament introduced the TSE (Scotland) Regulations in response to the introduction of the Community TSE Regulations (Regulation (EC) 999/2001) and to strengthen domestic legislation issued in response to the BSE epidemic in UK. In 2006, the Scottish Regulations were revoked and replace by SSI 530/2006. The total costs of enforcing the TSE regulations in Scotland and GB have been estimated at £30.27 million and £125.22 million per year respectively. Record keeping of the activities is the main cause of high administration costs. Besides that, testing and inspection activities which include over thirty months cattle scheme, laboratory approval, meat hygiene inspection, over 24 month fallen cattle, national Scrapie plan and rams genotype scheme are the main cost generating items. The benefits to industry from disease control include avoided production and market losses, improved food safety and associated improvements in public health and confidence. Available data suggest that keeping the TSEs level at its minimum level (minor outbreaks) in Scotland will continue demanding a high cost until Scotland and eventually UK become definitely free of the diseases. Both the government and private industry will benefit from achieving disease free status. However, little has been done to quantify those benefits. Thus, a detailed cost-effectiveness analysis of the TSE regulations should be undertaken, which takes into account wider impacts, including the benefits to the industry, such as eradication of TSEs in farmed livestock as well as its impact on the public health.

Introduction

What are TSEs?
Transmissible spongiform encephalopathies (TSEs) also known as prion diseases, are a group of progressive conditions that affect the brain and nervous system of animals. Unlike other kinds of infectious disease which are spread by microbes, the infectious agent in TSEs is a specific protein called prion protein. Creutzfeldt-Jakob disease (CJD) is the most well-known of the human TSEs. Research suggests that vCJD may have resulted from human consumption of beef from cattle with a TSE disease called bovine spongiform encephalopathy (BSE). It occurs in adult animals in both sexes, typically in animals aged five years and more. BSE has been recognised as notifiable disease by the International Office of Epizootic Diseases (OIE). Other TSEs found in animals include scrapie, which affects sheep and goats; chronic wasting disease, which affects elk and deer; and transmissible mink encephalopathy (NIH, 2008). Transmission occurs when healthy animals consume contaminated feed produced from by-products from other infected animals a practice now banned in many countries.

Background

The first control measure with respect to tissues from cattle without clinical evidence of BSE was introduced in the UK in 1989 when specified bovine offal (SBO) ban was instituted. This prohibited bovine brain, spinal cord, tonsil, thymus, spleen and intestines from entering the human food chain (Smith and Bradley, 2003). In 1990, the SBO ban was extended to protect all animal species and such bovine tissues were prohibited for use in meat-and-bone meal (MBM). Further adjustments to the ban

have been made in the UK and a similar ban has been introduced throughout the EU since 2000 (Smith and Bradley, 2003). In 1996 the over 30-month (OTM) scheme was introduced by the UK Government that stopped cattle aged over thirty months from entering the food supply. This was because BSE has mostly been found in cattle over thirty months old.

Regulation (EC) No. 999/2001 is the directly applicable EU legislation that provides a framework for the prevention, control and eradication of certain TSEs namely BSE and scrapie (FSA, 2006). This regulation has identified Specified Risk Materials (SRM) and has provided the guidelines to deal with SRM in member states (FSA, 2008). It has also set out the guidelines on feed, BSE testing procedure, mechanically separated meat (MSM) as well as compliance with EU measures.

In 2002, the Scottish Parliament introduced the TSE (Scotland) Regulations in response to the introduction of the Community TSE Regulations (Regulation (EC) 999/2001) and to strengthen domestic legislation issued in response to the BSE epidemic in UK. Parallel legislation was also introduced in England, Wales and Northern Ireland (FSA, 2006). Since March 2002 several amendments have been made in response to changes in the Community TSE Regulations (EC). In 2006, the TSE (Scotland) Regulations was introduced that they revoked the TSE (Scotland) Regulations 2002. The TSE (Scotland) Regulations 2002 consist of nine different parts that lays down the rules and guidelines on the basis of the Community TSE Regulations. This regulation defines *SRM* as follows (with latest amendments (SSI, 2008)):

Cattle
All ages: The tonsils, the intestines, from the duodenum to the rectum, and the mesentery.
*Over 12 months***:** Skull excluding the mandible but including the brains and eyes, and spinal cord.
Over 30 months: Vertebral column, excluding the vertebrae of the tail the spinous and transverse processes of the cervical, thoracic and lumbar vertebrae, the median sacral crest and the wings of the sacrum, but including the dorsal root ganglia .

Sheep and goats
All ages: The spleen and the ileum.
Over 12 months: Skull including the brains and eyes, tonsils, spinal cord.

In addition: *i)* If SRM is not removed, the entire carcass of a dead animal, not slaughtered for food, must be treated as SRM. This includes the entire carcass of animals, removed to be rendered or incinerated. *ii)* Any material still attached to SRM after dissection of the carcase and any animal matter which comes into contact with that material or with SRM after it has been removed from the carcass will itself be regarded as SRM.

Feed controls which are in force in EU countries are: *i)* a prohibition on the use of mammalian protein in feed to ruminant animals, *ii)* a prohibition on the incorporation of mammalian meat and bone meal (MMBM) in any farmed livestock feed, and *iii)* the ban (except in tightly defined circumstances) on having MMBM material on premises where livestock feed is used, produced or stored.

Testing procedure for BSE in all the member states is required. According to that all cattle over 30 months of age, subject to normal slaughter for human consumption, must be tested for BSE. *MSM* rule prohibits the use of bones of cattle, sheep and goats for the production of mechanically separated meat.

Main control measures
The main control measures that are directly or indirectly work against TSE, impose costs to various stakeholders and are currently in practice are: OTM, SRM, feed ban, surveillance programs (cattle, sheep and goats and other species), testing cattle for human consumption, testing over 24 months fallen cattle, cohort cull, animal by-products, off-spring cull and cattle identification and tracing (Defra, 2005). Details of the main control measures are presented in Appendix.

Analysis

Costs and benefits of the measures
The main costs and benefits of the measures are outlined in tables 1 and 2 below[28]:

Table 1 Main costs

	Action	*Scale of cost*
Admin	Record keeping	high
Policy	Over 24 month fallen stock	medium
	OTM testing, meat inspection, laboratory approval, national Scrapie plan and rams genotype scheme	low

Table 2 Main benefits

	Action	*Scale of benefit*
Private	Higher food-safety level	high
	Improved public perception of meat quality.	high
	Reduced risk of food-safety crisis and losses due to product recall or ban	high
	Access to international markets	high
Social	Improving public health with respect to incidence of human vCJD cases	high

Costs of the control measures
Although it is relatively easy to identify the interventions in practice against TSEs (both at GB and Scotland level), data on the annual costs of the implemented interventions based in the TSEs Regulations is more difficult to establish. The recently published SG consultation documents detailing the proposed TSE cost sharing plan, provides reliable information on the cost side of some of the control measures (Scottish Government, 2008). In this study the monetary values mentioned in that document have been used for cost calculation. The advantage of using those

[28] The rankings of costs and benefits are subjective assessments of the relative scale of costs and benefits within case studies, and are not comparable across case studies

figures is they are valid and specific for Scotland. The disadvantage is that they only reflect the cost of TSE regulations borne by the industry and the Government. Moreover, there is still some missing information on the cost aspects of some control measures (e.g. feed ban or surveillance programmes). As a result, the calculated cost in this case study is an under-estimation of the total cost borne by the whole society.

In addition to the above mentioned source, a Defra publication on TSEs (Defra, 2005) has been consulted to determine the administration costs of enforcement of the TSE regulations. Record keeping of the activities is the main cause of high administration costs. The reported administration costs for UK have been modified to represent that costs in Scotland. Table 3 presents the costs of enforcing the TSE regulations in Scotland and GB. Total costs for Scotland and GB are £30.27 million per year and £125.22 million per year respectively.

Table 3 Estimated BSE costs for the industry and Governments in Scotland and GB.

	Costs (£m)	
	Scotland	GB
Industry		
Over thirty months	0.86	7.00
Laboratory approval	0.06	0.32
Meat hygiene service	1.63	11.00
Over 24 month fallen cattle	6.34	32.00
National Scrapie Plan	2.20	9.20
Rams Genotype Scheme	0.56	2.60
Government		
Administration	18.62	63.10 [1]
SUM	30.27	125.22

[1] adapted from (Defra, 2005).

Discussion

Details of the effectiveness assessment analysis and the cost to disease case ratio analysis are presented in the Appendix. Based on the estimated cost and effectiveness, it can be concluded that keeping the BSE level at its minimum level (minor outbreaks) in Scotland will continue demanding a high cost until Scotland and eventually UK become definitely free of the disease (which is the milestone of the whole campaign against TSEs (Defra, 2005)). Both the government and private industry will benefit from achieving disease free status. Disease free status would mean fewer trade barriers for industry. Countries that are not recognised as BSE free must condemn certain tissues from all manufacturing, and they become waste instead of useful products. Moreover, the industry will benefit from more quality assurance, better product differentiation and branding, and eventually more consumer confidence and demand. In addition to the discussed effectiveness of the implemented measures there are some positive judgments from the international organisations as well. At EU level, following the authorities' positive opinion in 2004 on the BSE situation in the UK, the European Food Safety Authority (EFSA) confirmed on 15 March 2005, that the UK herd is considered a moderate risk for BSE. In the latest development, on 17 June 2008, The World Organisation for Animal Health (OIE) officially declared that the UK is 'controlled risk' for BSE at its recent General Session (Defra, 2008). The OIE

sets out risk-based criteria for the export of live bovines and bovine products. It agreed a new system of categorising exporting countries on the basis of BSE risk as 'negligible', 'controlled' or 'undetermined'. The UK applied for categorisation under the new system in March 2007. Confirmation of the UK's 'controlled risk' status will support the opening of more international markets for the export of UK cattle and beef.

Review of RIA

Scottish Statutory Instrument 2006 No. 530 The TSE (Scotland) Regulations 2006

Does the regulation originate from an EU Directive?
Yes. European Commission Regulation Number (999/2001 EC).

Has a RIA been done?
Yes.

Does the RIA quantify costs?
Yes, partially.

Does the RIA quantify benefits?
No.

Does the RIA demonstrate that benefits exceed costs?
Not applicable.

Data required to improve assessment of costs and benefits
Not applicable.

Recommendations for improvement

A detailed cost-effectiveness analysis of the TSE regulations could be undertaken, which takes into account wider effects such as reducing the incidence of human vCJD cases and the possible positive impact on the environment and access to international meat markets, however this case study has concluded that benefits are likely to be high compared to the costs of this regulation.

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Appendix to case study 11

Control measures

i) OTM and OCDS rules

The over thirty month (OTM) rule banned the sale for human consumption of meat from cattle aged over thirty months at the time of slaughter. The ban took effect on 29 March 1996. On 7 November 2005 the rule was replaced with a system of BSE testing for OTM cattle born after July 1996 (Defra, 2006). The older cattle disposal scheme (OCDS) was introduced to compensate for older cows when post 31 July 1996 born cows, aged over thirty months came back into the food chain to maintain consumer confidence. Current Pre August 1996 numbers on farm are approximately 50,000 for Scotland (SAC, 2008).

ii) Specified risk material (SRM)

The controls on SRM are designed to prevent the tissues of slaughtered animals most likely to contain the BSE agent from entering the food and animal feed chain. Those in place for sheep are a potential risk reduction rather than risk elimination measure as BSE has not been found to have occurred naturally in sheep.

iii) The feed ban

The aim of this ban is to keep potentially infectious material out of feed for farmed livestock. It began as a ban on feeding ruminant protein to ruminants but has been extended to prohibit the feeding of any mammalian MBM to any farmed livestock. It has been largely effective in arresting the spread of the BSE epidemic and hastening its decline.

iv) Surveillance programme

Cattle surveillance programme has two implementation patterns: passive and active. Passive surveillance for BSE is designed to ensure detection of animals showing clinical signs of BSE. As the TSEs are considered as Notifiable Diseases, veterinarians or other professionals who are in charge of the health status of the animals need to report any suspicious case to the state veterinary service. Active or targeted surveillance programme specifically targets the risky animal groups or healthy animals are being tested for TSE (For detail information see Defra, 2005).

v) Testing of fallen cattle aged over 24 months

Under The Animal By-Products (Scotland) Regulations 2003, burring or burning an adult bovine or goat on-farm without official approval is forbidden. Under the TSE (Scotland) Regulations 2002 all livestock keepers, including those within the "remote area", have a legal responsibility to report the death or slaughter on-farm of all bovine animals aged over 24 months and all goats aged over 18 months to the TSE Surveillance Helpline number. After registration, the Helpline will arrange for the carcass to be collected**,** tested for BSE and destroyed free of charge.

vi) Cohort cull

Regulation (EC) No.999/2001 required that all Member States identify, trace, restrict and cull the cohorts of confirmed BSE cases. Cohorts are cattle which were either: born in the same herd as a BSE case, up to a year before or after its birth; or reared with a BSE case when both were up to a year old (Defra, 2005).

vii) Offspring cull

All surviving offspring born on or after 1 August 1996 to confirmed BSE cases and the offspring of new BSE cases arising after 25 November 1998 should be slaughtered without delay. In 2001, the offspring cull was introduced throughout the EU but, other than in the UK, it only applied to cattle born two years before, or any time after, the onset of clinical signs of disease in the dam (Defra, 2005).

viii) Animal by-products

The Animal By-Products (Scotland) Regulations 2003 introduced stringent conditions throughout the food and feed chains requiring safe collection, transport, storage, handling, processing, use and disposal of animal by-products. It required premises that handle, treat or dispose of animal by-products, to meet specific standards and to be approved.

Supplementary analysis

Effectiveness in reducing BSE cases

There were 8,267 confirmed cases of BSE in Scotland from the start of the epidemic in 1987 until 2 June 2008. Figure A1a illustrates the epidemic from 1987, when the disease first became notifiable, to June 2008. The decline in the epidemic since the peak in 1993 reflects the considerable impact of the controls introduced by enforcement of the Regulation (EC) No. 999/2001 and the TSE (Scotland) Regulations 2002 and the regulatory controls that preceded this instrument.

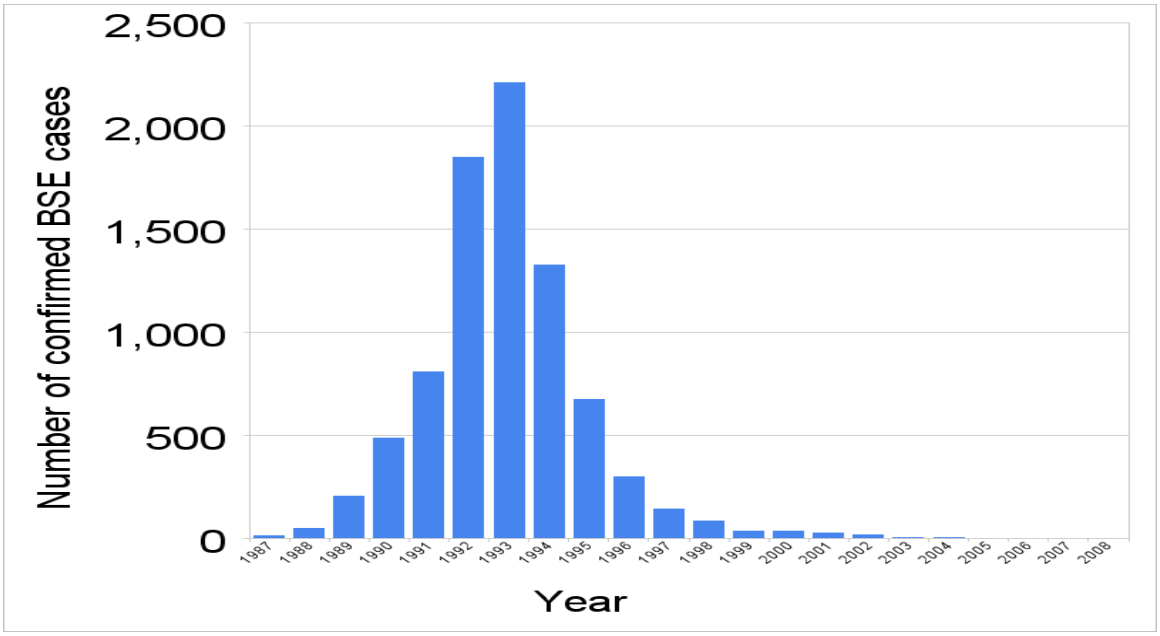


Figure A1a Number of confirmed BSE cases in cattle in Scotland from 1987 to 2008

Cost to disease case ratios

A cost to disease case ratio analysis has been done to compare the costs and health effects of an intervention to assess whether it is worth doing from an economic perspective. This approach is a useful approach to rank various interventions in situations where quantifying benefits and the effectiveness of regulations in monetary term is difficult. In this case study the cost to disease cases ratios have been calculated to compare the cost per year to the number of actual cases of BSE. For illustrative purposes two scenarios for the costs were assumed. The first assumption was that the estimated total costs for year 2008 have been a fixed value from the start of the BSE epidemic in 1987 in Scotland. The second scenario uses a discount factor (0.05) to estimate the distribution of the BSE costs since 1987 till 2008. The yearly change in the number of confirmed infected cattle cases was considered as the effectiveness of the Regulations (although one cannot assign all the effectiveness to the Regulation) and was used to generate cost to disease case ratios. As the ratios were very small values, to ease the evaluation process they've been multiplied by 10^9. Table A1 summarises the number of cases, reduction in terms of percentages for every year, discount factors used, discounted BSE control costs per year (from the starting year 1987), the assumed fixed costs and the ratios for the two cost scenarios. Figure A1b illustrates the cost to disease case ratios (the last two columns of the right hand side of the Table A1) across the epidemic years based on two cost assumptions.

Table A1 Cost to disease case ratio[1] for the BSE Regulations in Scotland from 1994 to 2008.

Year	BSE confirmed cases in cattle	Reduction (%) in cases (ΔP)	Discount factor	BSE discounted cost (dC), (£m)	BSE fixed cost[2] (fC), (£m)	Cost to disease case ratio (ΔP/(dC* 10^9)	Cost to disease case ratio (ΔP/fC* 10^9)
1994	1325	40	0.71	£55.48	£28.02	7	14
1995	672	49	0.68	£52.84	£28.02	9	18
1996	301	55	0.64	£50.33	£28.02	11	20
1997	141	53	0.61	£47.93	£28.02	11	19
1998	84	40	0.58	£45.65	£28.02	9	14
1999	37	56	0.56	£43.48	£28.02	13	20
2000	36	03	0.53	£41.41	£28.02	1	1
2001	25	31	0.51	£39.43	£28.02	8	11
2002	16	36	0.48	£37.56	£28.02	10	13
2003	5	69	0.46	£35.77	£28.02	19	25
2004	3	40	0.44	£34.10	£28.02	12	14
2005	1	67	0.42	£32.44	£28.02	21	24
2006	2	-100	0.40	£30.90	£28.02	-1	-1
2007	0	100	0.38	£29.43	£28.02	34	36
2008	0	100	0.36	£28.02	£28.02	36	36

[1] Reduction in number of confirmed cases divided by discounted and (assumed) fixed costs: ΔP/dC and ΔP/fC.

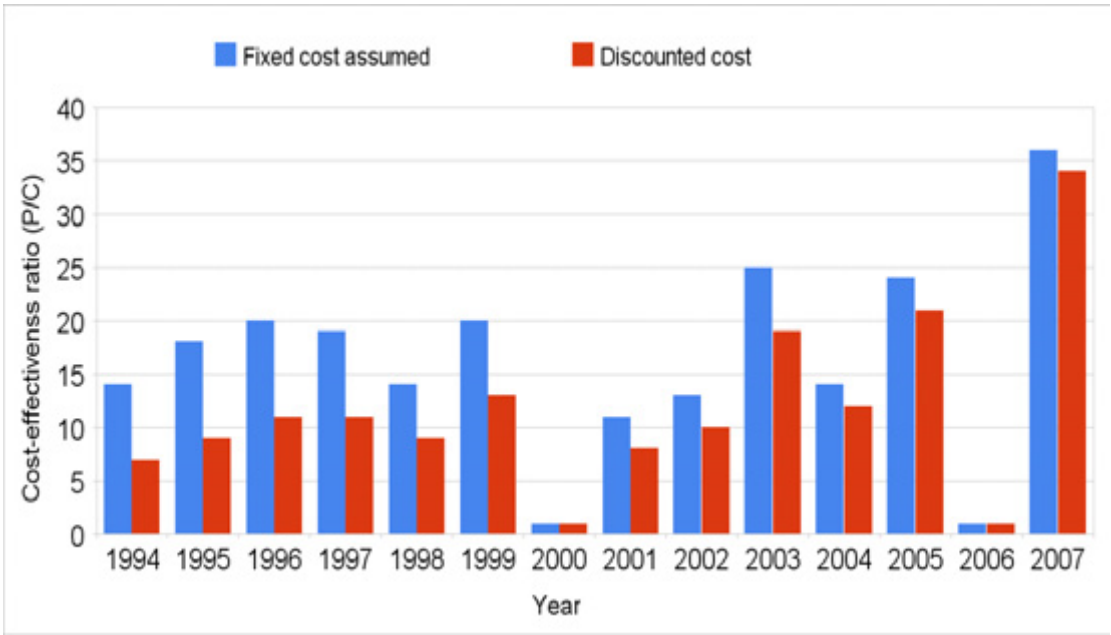


Figure A1b Cost to disease case ratios for TSE (Scotland) Regulations from 1994 to 2007 based on: i) the reduction of confirmed BSE cases in Cattle, and ii) two assumptions for cost calculations, fixed and discounted from year 1987 to 2008.

Table A1 and Figure A1b show that the highest cost to disease case ratios (36) have been achieved in the last two years (2007 and 2008). There are two years, which are 2000 and 2006, with the lowest ratios (1 and -1) where the reductions of the confirmed cases were in its minimum level. In other worlds in those years, the implementation and enforcement of the regulations (and the whole efforts against TSEs) were not as successful as the other years. It should be noted that the incidence of TSEs are influenced by various annually fluctuating epidemiological parameters. Our main assumption in this case study was that the TSE Regulations have had positive effects on controlling those epidemiological parameters and as a result, the incidence of the diseases has been reduced. The other important outcome of this analysis is that by reducing the number of confirmed cases, as a result of control measures, the costs of minimising (or eradicating) the number of BSE positive cases increases. As an example, the cost of BSE control measures in 1994 was £63,000 (883 cases reduction from the previous year). This figure grows up to £135,000 in 1996 (for 371 cases) and to £925,000 for 47 confirmed cases in 1997). The costs of eliminating the only positive confirmed BSE case in 2005 was £25 million.

In the presented analysis the focus was on BSE and the effects of the control measures on other TSEs such as sheep scrapie were not taken into analysis. Moreover, the other potential benefits of these Regulations, such as reducing the incidence of human vCJD cases and their possible positive impact on the environment and having access to international meat markets were not included in the study. In addition, lack of data on the imposed costs to the farmers, as well as costs of implementing some interventions (e.g. feed ban) are considered as shortcomings of the presented case study. However, it is considered as a pilot model and a good practice to shed light on economic and epidemiological effectiveness of the TSEs Regulations in Scotland. Thus, for a full cost to disease case ratio analysis of the TSE regulations further data would be built on this basis once the data in the mentioned fields are available.

12. Scottish Statutory Instrument 2006 No. 606 The Welfare of Animals (Transport) (Scotland) Regulations 2006

Abstract
The Welfare of Animals (transport) (Scotland) Regulations 2006 make provision for the administration and enforcement of Council Regulation (EC) No. 1/2005. The Regulation aims to improve animal welfare through raising transportation standards, and provides for greater enforcement capability in respect of all species. The new rules were generally supported by farming industry and welfare groups. However, several are potentially burdensome on farmers and commercial transporters. The Scottish Regulation attempted to strike a balance between animal welfare benefits, cost and ease of compliance/enforcement, primarily through the use of derogations. Key areas unchanged by the Regulation - journey time, rest periods and space allowances - will be review by the EC by 2011. The EC launched a public discussion on these areas which closed on 7 August 2008.

Introduction

According to the Council Regulation (EC) No 1/2005 on the protection of animals during transport and related operations and amending Directives, "No person shall transport animals or cause animals to be transported in a way that is likely to cause injury or undue suffering to them".

A Commission report in 2000 highlighted problems with the animal transport rules introduced in 1997. Consultation with industry and the public was carried out in 2002 and the results showed support for change in a number of areas.

However the proposals put forward for amending the Directive in 2003 (journey times, rest periods and space allowances) were too radical for Member States. Discussions collapsed in early 2004. Talks were subsequently revived avoiding the key contentious issues of journey time and space allowance. The EC is required to review maximum journey times and space allowances in 2011.

The UK welcomed the chance to get agreement on the bulk of the proposals. However the compromise did mean that some less welcome changes had to be accepted. The Regulation was adopted in December 2004.

The Scottish Executive did not enforce certain provisions from the Welfare of Animals in Transport Regulations which would have a very limited affect on animal welfare but would have imposed a considerable burden on the industry.

The derogations mean that for road journeys within the UK of between eight and 12 hours, there will not be a requirement to:

- Have water constantly available to pigs
- Install insulated roofs on existing vehicles
- Maintain a vehicle temperature of 0°C or above when animals are being loaded

- Install forced ventilation, temperature monitoring and warning and satellite navigation systems.

No changes to the current rules on maximum journey times (other than new restrictions on moving young animals), feeding, watering and rest periods during a journey and space allowances resulted from the implementation of the regulation. However some new provisions did come into force, including:

- Those transporting animals for commercial purposes (in connection with an "economic activity") on journeys over 65km (approx 40 miles) will need to have a specific authorisation
- Stricter vehicle standards apply
- Those transporting animals over 8 hours will need a vehicle approval
- Operators of assembly centres and markets must comply with the technical rules as set out in the regulation
- For exports, route plans are replaced by journey logs; and stricter rules apply at assembly centres, and control posts
- Anyone commercially transporting farmed livestock, poultry or horses on journeys of over 65km must hold a certificate of competence (from January 2008)
- Transporters moving unregistered horses, cattle, sheep, pigs and goats over 8 hours must use a navigation system for their journeys and keep records for at least 3 years (from January 2009)

Anyone transporting livestock for 65km or eight hours (round journey) must, as of January this year, obtain a Certificate of Competence. Stockmen, hauliers and owners will be required to sit a written test in a bid to gain a Certificate. Registration alone, excluding any training needing to be given, costs from £17 per species and farmers could pay nearer £47 per species to comply. Some have questioned the benefit of undertaking competency tests, suggesting that the test was common sense and just added another unnecessary hoop to jump through.

Defra had signalled that enforcement would be moderate until April 30 in acknowledgement of the difficulty recent disease outbreaks such as foot-and-mouth and bluetongue have caused the farming sector. However many moving stock may still be in breach of the rules.

Analysis

Aim of the regulation

The Welfare of Animals (Transport) Scotland Regulations 2006 aims to introduce administration and enforcement arrangements to ensure compliance with the EU Regulations. Without such Orders, the UK could be liable to infraction proceedings.

New EU Regulations came into force in January 2006 following an investigation into live transport on behalf of the European Commission initiated in December 2000. The report acknowledged that the current rules were not being observed.

Effectiveness of the regulation

The Scottish Government completed a regulatory impact statement looking at the risks, costs and benefits of various options. The English RIA came to similar conclusions.

Approximately 6,200 businesses will be affected by the new Regulations in Scotland. However a possibly disproportionate impact on the transport of species other than the farmed species and horses was revealed. This included the impact on hobby farmers and vehicle and container inspection requirements for other species. Further consideration of the legal interpretation of the regulation allayed some of these concerns.

There were also concerns about inspection requirements for the farmed livestock and horse sectors where no proportionate welfare benefit was seen. Some of these were dealt with under certain limited derogations which apply in particular to road vehicles undertaking journeys of a maximum of 12 hours in order to reach the final destination. This covers the majority of journeys in the UK (bar some from Scottish islands). The following derogations were taken-up:

- **have water constantly available to pigs**: the industry consider this to be bad for welfare because pigs do not drink in a moving vehicle but play with the drinkers resulting in water flooding the vehicles. It is however a requirement that water can be made available to pigs when necessary.
- **have insulated roofs in existing vehicles**: there is no technical specification for the insulation, therefore enforcement would be difficult; also this is not considered a major welfare benefit for the cost of installation
- **maintain vehicle temperatures at 0°C or more**: this particularly affects journeys starting in Scotland - the rationale is that sheep are not housed indoors and are therefore accustomed to sub zero temperatures. However young animals (who are more likely to be housed) should not be included in any derogation.
- **install ventilation, temperature monitoring, and warning systems**: expensive, specification lacks practical precision, limited welfare benefits in UK climate
- **install navigation systems**: expensive, the rules are unclear, and the EU are considering a more detailed future specification anyway

New ramp angles are not covered by the derogation provisions. Vehicles and trailers built and in use before 5 January 2007 may continue to be used within the UK until 4 January 2012 if it is impractical or uneconomic to convert or alter to comply with the new rules. This also allows for any changes as a result of the EC review of the Regulation.

Costs

On the cost side, the RIA done by the Scottish Government estimated that costs would be incurred as follows:

Measures giving rise to costs	**Option 2** Full application of Regulation *(allows full use of maximum journey times set for each species)*	**Option 3** Full take up of derogations *(limits journeys to 12 hours)*	**Option 4** Selected use of derogations from long distance vehicle standards; derogation from vehicle approval for species other than non-farm livestock and horses; deferred implementation of new ramp angles.
Transporter authorisation (cost every 5 years once charging is in place after year 1)	£0 (£38k)	£0 (£38k)	£0 (£38k)
Training and competence certificates	£490k	£490k	£490k
New ramp angles - all vehicles	£1850m	£1850k	0
Vehicle standards - long distance vehicles	£2660k	0	£360k
Vehicle Inspection & Approval	£52.5k	0	£52.5k
Total costs	**£5,052.5k (£5,090.5k)**	**£2,340k (£2,378k)**	**£902.5k (£940.5k)**

Source: Regulatory Impact Assessment (Scotland)

The largest elements of the proposals relate to vehicle specifications and are one-off costs. Derogations will defer some vehicle costs until vehicles need to be replaced anyway. Certification of competence is also a one-off cost apart from new entrants into the industry. Authorisations and vehicle inspection approval would be required every 5 years.

Benefits

It is extremely difficult to quantify the benefits of a public good such as animal welfare. However public perceptions are an important aspect of the benefits of this Regulation, though this might not translate into substantial market benefits.

The Regulation aims to improve the quality of life for the animals. Limited research in this area and difficulties in assessing the impacts will have contributed to the breakdown of discussions in 2004 about journey time and space allocation. As with measuring public goods, it is difficult to measure animal welfare benefits. This regulation does however allow for improved enforceability of the legislation in areas that were assessed as having a significant affect on the animals.

Carcass and meat quality could be affected by transport conditions but it is hard to pin-point when any damage may have occurred, and often hard to identify a problem except in more extreme cases. Mortality is a very crude measure and there are no obvious, practical indices for assessing the welfare of animals during transport when they reach the holding pens or at slaughter. Because the new regulations did not represent significant across the board changes in terms of transport requirements, it is also hard to gauge the any changes to animal welfare as a result of the regulations. Again, difficulties in assessing the extent of any problem in this area, and what improvements might be seen as a result of the Regulations, makes allocating a figure to any benefits difficult.

The main costs of the Welfare of Animals (Transport) (Scotland) Regulations 2006[29]

	Action	*Scale of cost*
Admin	Transporter authorisation	low
	Training and competence certificates	medium
	Vehicle specifications	high
	Vehicle Inspection & Approval	medium
	Record keeping	low
Policy	Enforcement	low?

The main benefits of the Welfare of Animals (Transport) (Scotland) Regulations 2006

	Action	*Scale of benefit*
Private	Improved animal welfare	Positive benefit, but uncertain monetary valuation
Social	Improved animal welfare	Positive benefit, but uncertain monetary valuation

Industry views

The Scottish Agricultural College (SAC) was commissioned by Highlands and Islands Enterprise (HIE) and a coalition of organisations, including NFU Scotland to report on the impact of the EU animal transport regulation on the Highlands and Islands region.

The report concluded that, if the EU proposals were fully implemented, the outlook for the livestock sector in the Highlands and Islands was bleak. The report highlights that the sheep industry would be hit hardest, putting further pressure on profit margins and accelerating the decline in the production base. The cost of compliance would have rested largely with producers in the area, but there were likely to be sizeable

[29] The rankings of costs and benefits are subjective assessments of the relative scale of costs and benefits within case studies, and are not comparable across case studies

impacts on livestock hauliers, ferry companies and markets which could have led to the closure of businesses.

NFUS raised this issue with the Scottish Executive and in Brussels and argued for a sensible derogation to allow the viable movement of animals from Scotland's remote areas to their traditional destinations, many of which are south of the border. NFUS also commented on the issue of enforcement and compliance in other countries and the impact on competitiveness. The frequency of changes in this area was also a concern as time is needed to bed-down new regulations and allow for meaningful assessment of the impact on animal welfare.

NFU officials, while pointing out that the regulations are not something the NFU wanted in the first place, concede that the sector has to abide by the Brussels-inspired regulation.

Two key processors commented that they did not currently see animal welfare issues relating to transport. One commented that the regulation was "short-sighted" in that it did not look at the status of haulage fleets in relation to the scale of investment required. Both suggested that many hauliers were going out of business and this limited farmers access to markets. A high degree of regulation was seen to be a key factor in the decline of slaughter capacity. Together with reduced haulage options, this means that farmers are less able to sell where and when they want.

For hauliers, the cost of upgrading vehicles for longer journeys is a key concern and also raises competitiveness issues where improvements are not made equally across the industry, both within Scotland and in other countries. A lack of enforcement was also raised as a concern. Inadequate lead-time given the scale of the investment required was again mentioned. A question was also posed about the investment losing value if trip times are decreased in the future.

The National Sheep Association (NSA) expressed concern that updated Regulations were introduced so soon after the Welfare of Animals (Transport) Order 1997 (WATO) and also suggested ways in which implementation of new regulations could better targeted to the industry. This included simplified information packages. The NSA also suggested that alternatives to increased regulation should be explored – ie replacing enforced controls with encouragement and persuasion towards achieving desired results.

There are concerns within the pig industry over potential extra costs and rising levels of bureaucracy that these EU regulations will cause. Most UK pig herds are already in Farm Assurance Schemes which also require high standards of welfare and competence by approved hauliers.

The Scottish Crofting Foundation (SCF) are concerned about the requirements of driver testing and the added levels of complication. The SCF points out that the transport situation in the more remote areas is already complex, and that there could be difficulties pulling together enough animals for a float. The SCF suggest that exemptions for the Highlands and Islands, small farms/crofts and for small numbers of animals should be available.

The Tenant Farmers Association of Scotland (STFA) do not currently view regulation in this area as a big issue, but note that it does require some organisation of trailer licenses and that it is expensive for hauliers. Again, the issue of exemptions was highlighted in terms of both smaller producers and area waivers.

The Scottish Rural Property and Business Association (SRPBA) gave this regulation a high burden rating.

The Scottish SPCA believes that the ultimate solution to the problems posed by the transportation of food animals for slaughter is transport on the hook rather than on the hoof. This would mean that animals would be slaughtered as close as possible to their point of rearing. In Scotland, a decline in rural abattoirs has meant an increase in journey times to slaughter for Scotland's farmed animals. The comment was made that although the regulations were very stringent, enforcement varied across Scotland. Overall the UK had good levels of enforcement however, compared to other countries. The point was also made that there is a fine balance between travel time and the requirement for rest periods. As loading and unloading are the most stressful parts, a slightly longer journey may be preferable to a split journey where animals have to be off-loaded.

Compassion in World Farming would like to see a maximum travel time of eight hours in total with no rest period.

Ability of the Scottish Government to influence

Without the implementing Regulations, the UK could be liable to infraction proceedings. However the Scottish government did have some ability to influence the regulation at the implementation stage by taking up derogations and looking at the degree of enforcement.

The options presented in the RIA looked at full take up of the derogations (option 3), or partial take up (option 4) with provisions for ramps. It was concluded that if non-farmed animals are transported in a container which is separate to the vehicle that they are outside the scope for inspection and approval and so do not need derogation. For those animals other than farm livestock and horses that are not excluded from the scope, a derogation was applied for vehicle inspection and approval. The use of the derogations has led to cost savings and deferrals for the industry.

Road vehicles carrying animals for more than eight hours require inspection and approval. The vehicle inspection and approval scheme builds on existing voluntary industry schemes, thus reducing the number of inspections transporters would have been subject to.

Interpretation of the legislation also had an important impact on hobby farmers and requirements for vehicle and container inspections for 'other' species. For example, in defining the term 'economic' use in more detail, some are excluded from the requirements, which led to cost savings for some groups.

The ease of implementation could also be influenced by the government. This could include tailoring information towards the farming community, as well as publicity

around new requirements as they come into force. While details of the new transport regulations have been made public for well over a year, producer' representatives have commented that Defra has not done enough to publicise the impact and practicalities. While the Scottish Government have made a large effort to disseminate information, there still appears to be a somewhat hostile attitude towards the regulations amongst farmers. Further, confusion remains about the bounds of the regulations and application. There is also resistance to the certificates of competence from those who have been in the industry for some time.

As well as industry concerns about the proliferation of regulations, concerns about duplication of requirements are likely to be common within the livestock industry. Where possible, taking into account and incorporating existing industry standards, for example Farm Assurance Schemes, could ease transition issues and help to avoid unnecessary additional requirements.

An EC review of maximum journey times, resting periods and space allowance is to take place by 2011. In June 2008 the EC launched a public discussion on whether changes should be made to current legislation - including limiting journey times for animals to be slaughtered to eight hours, and specific time and space allowances. Both the EC and the European Parliament have expressed dissatisfaction with the current regulations governing the issue.

The Scottish Government will need to ensure that the discussion takes into account Scottish conditions and systems. In particular, the science behind any proposed changes will need to be closely examined – particularly the purported animal welfare benefits of any proposal.

Further developments will include a report on implementation of navigation systems and possibly proposals to define specifications to be used by 1 January 2010.

The European Food Standards Authority produced a report in 2004 on transport of poultry and other species for which there are no specific requirements in the Regulation. The European Commission may publish proposals based on these recommendations but there is no timetable for this at present.

Conclusions

Does the regulation originate from an EU Directive?

Yes - Council Regulation (EC) No 1/2005 on the protection of animals during transport and related operations and amending Directives

Has a Scottish RIA been completed?

Yes

Are the benefits adequately quantified?

The RIA concludes that the benefits are not financially quantifiable. As with measuring public goods, it is difficult to measure animal welfare benefits. This

regulation does however improve the enforceability of the legislation in areas that were assessed as having a significant affect on the animals.

Are the administrative costs adequately quantified?

Yes

Are the policy costs adequately quantified?

Yes

What are the problems with the regulation?

While industry generally accepts that the sector has to abide by Brussels-inspired regulation, there are concerns about the number of changes to rules impacting on the rural community, and the frequency of changes which may not allow sufficient time for the regulations to bed-in. The industry pushed for the up-take of derogations and will be keen to see that any future changes proposed as part of the review are fully and scientifically justified in terms of the animal welfare benefits, and are also in balance with the cost of implementation along the chain.

What is the overall balance – cost or benefit?

This is difficult to assess given that benefits have not been quantified. Scotland introduced enabling legislation that made use of the derogations in areas where the cost to the industry outweighed the potential animal welfare benefits. Some derogations were not included where compliance was not considered to present difficulties for the industry. Through interpretation of the legislation, the Scottish government was also able to ensure flexibility in some areas relating to who was covered by the regulation and how strictly or quickly new rules were to be applied.

If the Scottish government had not used the derogations and a flexible approach, significant extra costs would have been incurred by the industry with questionable off-setting improvements in animal welfare.

Some in the industry have questioned the benefit of undertaking competency tests, suggesting that the test was common sense and just added another unnecessary hoop to jump through.

Suggestions for improvements

The government will need to take part in any discussions relating to the proposed review to ensure that the particular characteristics of the Scottish farming system are taken into account. Key focus areas will be rest times, journey length and space allowances. Close consultation with industry and research partners should draw out any differences between perceived and actual animal welfare benefits. This will ensure effective and meaningful regulation in the animal transport area within the context of EU level legislation.

Does it meet the Better Regulation guidelines?

Transparency: Medium. While details of the new transport regulations have been made public for well over a year and the Scottish Government made a concerted effort to inform the farming community (even writing to all livestock owners), there remains a feeling in the industry that more could have been done to publicise the impact and practicalities. Tailoring information towards the farming community in terms of access to information, the clearness and quantity of information, as well as publicity around new requirements as they come into force would assist in implementing the regulations effectively. A review of the approach used by the Scottish Government may highlight areas where the targeted audience is not being captured.

Accountability: Medium. The Scottish government is responsible for designing and implementing the regulation in accordance with the EC regulation. At the practical level, those involved with transporting animals are responsible for complying with the regulation. Primary enforcement remains with local authorities and with the state veterinary service. The medium accountability rating reflects the fact that some involved with the transportation of animals may not yet be aware of the requirements. Enforcement of new requirements as they come into force may also take some time to bed down.

Proportionality: Medium. The derogations and other measures used by the Scottish government in designing the regulation make the costs more proportional to the perceived benefits. While some have commented on the necessity of the competence tests, the cost and time required does not appear to be a big concern.

Consistency: Low. Different classes of animals, for different purposes, are treated differently. Current work by the EC in terms of poultry and other species may improve the coverage of the regulation. More evidence of the animal welfare benefits will also help to provide better rationale for differences in requirements across species, transport mode (eg container versus vehicle) and distance.

Targeted: Low. This rating reflects the issues with consistency set out above, and the lack of scientific justification for measures which would allow better quantification of the benefits.

References

Scottish Statutory Instrument 2006 No. 606 The Welfare of Animals (Transport) (Scotland) Regulations 2006

Partial Regulatory Impact Assessment on Compliance with Council Regulation (EC) No 1/2005 on the Protection of Animals During Transport and Related Operations

Council Regulation (EC) No 1/2005 on the protection of animals during transport and related operations and amending Directives

Final Regulatory Impact Assessment on Compliance with Council Regulation (EC) No 1/2005 on the Protection of Animals During Transport and Related Operations

The impact of the EU animal transport regulation on the Highlands and Islands region (SAC, 2003)

Animal Welfare During Transport (EC)
http://ec.europa.eu/food/animal/welfare/transport/index_en.htm

Welfare of Animals During Transport (Defra, 2008)
http://www.defra.gov.uk/animalh/welfare/farmed/transport/pdf/watoguidance180208.pdf

Appendix C: Regulation in New Zealand

Background
New Zealand provides a useful benchmark because competitiveness is critical to their long term success given their dependence on trade. A light regulatory touch is generally considered important in maintaining this competitiveness. That said, growing concerns about the environmental impact of dairy farming are leading politicians to question whether the regulatory balance is right. New Zealand farmers, on the other hand, complain about the growing influence of "Auckland greenies" in environmental matters.

The New Zealand government liberalised its agricultural industry in the mid 1980s. Consequently, New Zealand agriculture is notable for the lack of "red tape" associated with farm subsidies, which many Scottish farmers complain of. It is important to note, however, that this red tape is associated with accessing financial support rather than simply complying with regulations. The New Zealand comparison is therefore particularly useful because it highlights the cost of complying with regulations typical of industry in general.

Scotland and New Zealand - key statistics

		Scotland	**NZ**
Total area (incl water) (km^2)		78,772	268,680
Area cf. Scotland (Scot=100)		100	341
Land use (%)	- arable - permanent crops - other	7.94 .02 92.04	5.54 6.92 87.54
Population		5,116,900	4,115,771
GDP (PPP[30] – $[31] billion)		172	106.9
GDP real growth rate (%)		na	1.5
GDP per capita (PPP - $)		33,680	26,200
GDP composition by sector (%)	- agriculture - industry - services	1.2 26.8 72	4.3 26.9 68.8
Labour force by occupation (%)	- agriculture - industry - services		10 25 65
Unemployment rate (%)		3.5	3.8
Inflation rate (%)		as per UK	3.4
Source: The World Factbook 2007 (CIA), Scottish Economic Statistics 2007; Economic Report on Scottish Agriculture 2006, Wikipedia			

Reforms
Since the reforms of the 80's, New Zealand agricultural sector has changed significantly as the various sectors have responded to market demands rather than

[30] purchasing power parity
[31] US dollars

subsidy signals. The table below shows how the productivity experience of New Zealand farming has changed over time.

Economic contribution

New Zealand's agricultural sector remains a key driver of the New Zealand economy despite its share of national GDP declining since the late 1980's. Agriculture accounted for 4.9% of GDP in 2007[32], down from 5.4% in 1988. If subsequent processing is also added the combined contribution of agriculture and associated processing came to 9.2% of GDP in 2004/05[33].

In terms of export receipts, the importance of New Zealand agriculture is much more evident. Dairy products were New Zealand's largest export earners in the year to June 2007, accounting for 21 percent of total merchandise exports and valued at $7.5 billion. Meat and wood were the next largest export earners, accounting for 13.2 and 6.3 percent of total exports respectively.

Scale and productivity

Stock units[34] and productivity indicators – New Zealand

		1982/83	2003/04	Change %
Sheep	stock unit	64474	37010	-42.6
Beef	stock unit	22018	21593	-1.9
Dairy	stock unit	19658	32365	64.6
Total	stock unit	106150	90968	-14.3
Milk solids per cow	kg	231	305	32.3
Lambing rate	%	96	113	17.9
Lamb weight	kg/hd	13	17	27.7
Mutton weight	kg/hd	19	24	26.3
Beef weight	kg/hd	223	257	15.2

Source: Agriculture in New Zealand, NZ MAF (2006)

Key Issues

New Zealand farm leaders are concerned about how increasingly tougher environmental regulations are limiting competitiveness. Key areas relate to climate change and access to water. Farmers are also concerned about a suite of employment regulations that are currently being introduced which will lead to increased costs for employers. Other regulations, notably on animal welfare, may be imposed by overseas customers (eg, UK supermarkets), and may exceed global gap requirements.

Regulation in New Zealand – the Policy Process

New Zealand has historically experienced cycles of economic de- and re-regulation and debate has tended to focus on the heavy or light-handedness of settings. After a period of significant deregulation and public sector reorganisation in the 1980s, the

[32] MAF NZ

[33] (2006). Agriculture in New Zealand – past, present, future. NZ MAF

[34] A stock unit (su) is a measure used to compare the nutrition requirements of different grazing animals (eg, 1su = one 55kg ewe producing 1 lamb, a dairy cow = 7su).

emphasis of regulatory policy is now on quality management and the maintenance of robust regulatory frameworks across all sectors.

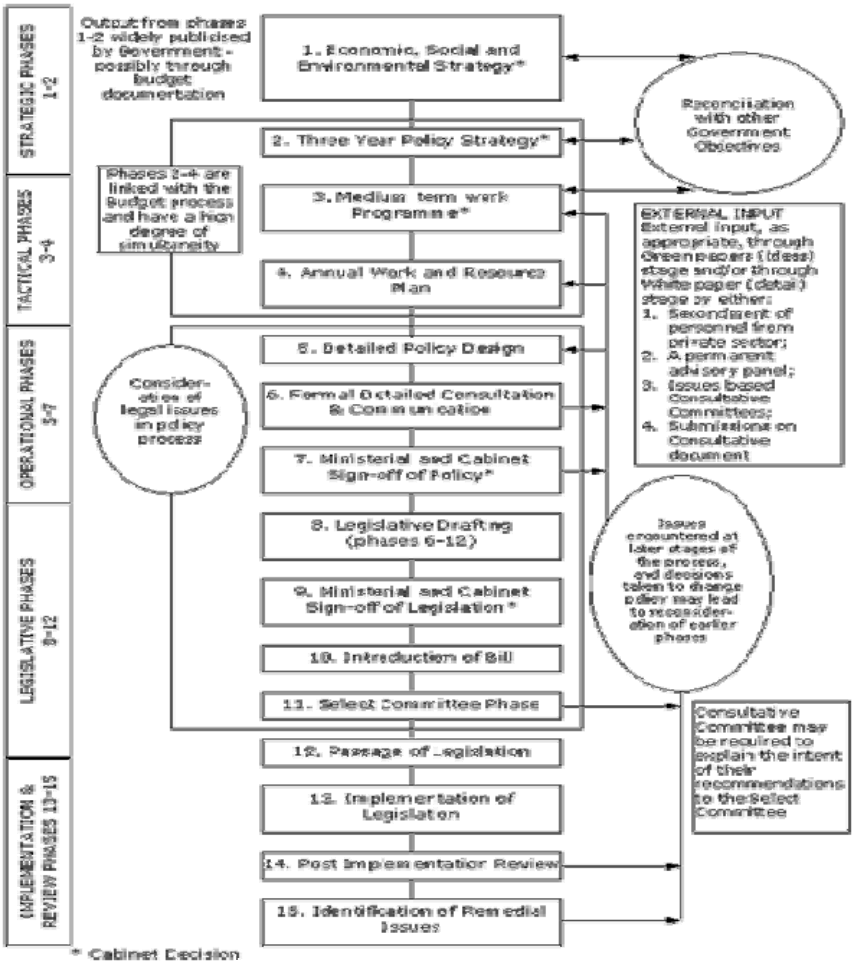
The feedback obtained from businesses during the New Zealand government's Quality Regulation Review in 2007 suggested that the current regulatory environment for business in New Zealand was in fairly good shape, with no fundamental or widespread systemic problems being identified. This is consistent with New Zealand's ranking on the World Bank's Ease of Doing Business survey, where New Zealand is second only to Singapore.

The policy cycle in New Zealand

The Generic Policy Development Process

The GPDP sets out the best practice procedures that should occur at each of the five stages (strategic, tactical, operational, legislative and implementation and review) of regulatory development and formalises the opportunities for stakeholder involvement.

Figure C1. The Generic Policy Development Process



The key objectives of the GPDP are to:

- provide transparency at every stage of the policy development process;

- encourage earlier, explicit consideration of key policy elements and trade-offs;
- clarify the responsibilities of participants and accountabilities of policy agencies;
- provide opportunities for substantial external input into policy advice and the review of its effect; and
- formalise a process of interaction between public and private sector participants in the policy process.

Role of consultation

The GPDP states that public consultation should occur as widely as possible, given the circumstances, in the policy development process. This is in recognition that a well-designed and implemented consultation programme can contribute to better quality regulations, identification of the more effective alternatives, lower costs to business and administration, and ensure better compliance.

Treaty of Waitangi[35] implications must also be assessed and advised on to ensure compliance with the basic principles of the legal and constitutional system.

In order to complete an RIA, adequate consultation is required. This will generally involve consulting with a representative sample of affected parties on the, problem, range of feasible options and impacts of the options.

Consultation can be deemed to be inadequate for a number of reasons, including

- when affected or interested parties are not consulted (e.g.: not consulted at all or unrepresentative consultation, such as where only large organisations are consulted)
- when consultation processes are ineffective (e.g.: consulted parties not given enough time to provide responses, important issues not consulted on, consultation document merely posted on department's website and not advertised widely enough).

Regulatory Impact Analysis

New Zealand, like other developed countries, uses Regulatory Impact Analysis (RIA) for considering the need for, and design of, regulatory intervention. The Code of Good Regulatory Practice sets the framework within which the RIA requirements sit. It sets out principles of quality regulation under the headings of efficiency, effectiveness, transparency, clarity, and equity.

The Regulatory Impact Assessment Unit of the Ministry of Economic Development (RIAU) found that RIA procedures were sometimes considered too late in the policy development process to be truly integrated with decision making. Clarifying the purpose of the RIS and how it is different from a Cabinet paper; rationalising the guidance material; amending the approach to adequacy certification; raising expectations of the RIA/RIS quality; and providing support for analysts with no or

[35] The Treaty of Waitangi is an agreement between the Māori people and the New Zealand Government.

little experience have all been advanced as possible ways to improve departmental compliance with RIA requirements.

In April 2007 a new regime that focuses on the RIA analysis undertaken in policy development was put into place. The main changes to the requirements were that:

- discussion documents must include questions/discussion of the substantive RIA elements (problem, options, impacts of options) or a draft RIS
- the RIA analysis undertaken in policy development needs to meet certain adequacy criteria
- the Regulatory Impact Analysis Unit will only have involvement in proposals that are "likely to have a significant impact on economic growth"
- the Regulatory Impact Statement (RIS) is now more of a summary document.

The level of analysis has be commensurate with the significance/magnitude of the proposal and allow confidence in the selection of the best option. There are four parts to this:

- identification of feasible options
- identification of the impacts of each option
- assessment of the magnitude of each impact
- choosing the preferred option.

For proposals that are more significant, wider consultation, more data collection, research and more rigorous analysis is required. All impacts of all options need to be quantified where possible. In broad terms an RIA is adequate if it convincingly establishes that the proposed regulatory change is needed because the current framework cannot deal with the problem, that appropriate analysis was undertaken given the issue's magnitude, and that adequate consultation was undertaken

An evaluation report on compliance with regulatory impact analysis requirements was completed in 2008. Overall around 60% of these outputs were not satisfactory. The main areas of weakness tended to be around problem definition and the size of the issue, and the analysis of cost and benefits. Consultation seems to be an area of strength. The report also found that in some cases there was more analytical substance behind the proposals than was being communicated in the RIS.

Evaluation and Trial of the Standard Cost Model

PricewaterhouseCoopers was commissioned to undertake an evaluation of the Standard Cost Model and the Australian Costing Tool (now termed the "Business Cost Calculator") in December 2005. Based on the findings of the feasibility study, the government agreed to implement the Business Cost Calculator on a two year pilot programme within government agencies. At present SCM use across government is currently minimal to non-existent. The Ministry is continuing to evaluate the standard cost model, or a variation of it, for potential use in the New Zealand context. Together with Australian officials, analysts are re-developing the model and transferring it to the web. Tests are due to be carried out in 2008.

Officials commented that although it is a very useful tool, a lot of analysis has to be done around the figures. It is hoped that having a tailored programme will reinvigorate policy analysts and standardise thinking at the front end of the policy development process. This will be enhanced as more information becomes available through statistics New Zealand.

Stock review

Periodic reviews of regulatory frameworks, key productive sectors, and general compliance issues across government are how New Zealand currently assesses and monitors the effectiveness of the stock of existing regulation. However, there is no central agency formally responsible for reviewing existing regulation. In the first instance, responsibility lies with individual agencies to review the laws that they administer.

The regulatory burden on agriculture in New Zealand

Current debate
The feedback obtained from businesses during the Quality Regulation Review in 2007 suggested that the current regulatory environment for business is in fairly good shape, with no fundamental or widespread systemic problems being identified. This is consistent with New Zealand's ranking on the World Bank's Ease of Doing Business survey, where New Zealand is second only to Singapore.

Industry view
Federated Farmers New Zealand (an industry body similar to the NFU) suggests however that the main view of regulation by the farming community is that the burden being put on farmers is increasing. Federated Farmers also highlights the view that the gap between urban and rural viewpoints is widening, with the feeling that the concerns of, and impact on, the farming community are not really considered by regulators. As a result, Federated Farmers believes that regulations are progressed which have potentially huge negative impacts on farmers and their livelihoods and don't necessarily achieve the desired results due to being unworkable, impractical, and inappropriate for the circumstances. Federated Farmers based this assessment of the impact of regulatory burden primarily on informal farmer feedback.

The Ministry of Agriculture and Forestry (MAF) farm monitoring commentary highlighted major farmer concerns with the potential for increasing costs associated with regulated constraints in nitrogen output and carbon credits. There is increasing concern from farmers regarding the management of the environment, and requirements that could be imposed, for example requirements for feed pads would lead to higher costs which could threaten the viability of dairy farms in particular. There is concern of increasing bureaucracy and compliance.

Concerns about compliance related to employment and the increased cost of labour resulting from additional holiday leave (now four weeks) and contributions to kiwisaver (a savings programme) were also raised during the farm monitoring process.

Quality Regulation Review 2007

Four sector studies (horticulture, hospitality, retail, and wine) were undertaken as part of the quality regulation review. Employment issues were raised in all four studies. Many interviewees indicated support for added flexibility to dismiss staff in probationary periods, and criticised the paperwork associated with employment agreements. Requirements to do with part-time and seasonal workers, including calculating leave and statutory holiday payments, were common to all sectors. Immigration enforcement, noting that the immigration status of contract workers is often not clear to employers, was a particular concern to the wine and horticulture sectors.

Concerns about the complexity and impracticality of the information communicated about The Hazardous Substances and New Organisms Act (HSNO) requirements were expressed in the horticulture, retail and wine sectors. The horticulture and wine participants also shared concerns over the perceived inflexibility and inconsistency of New Zealand's biosecurity processes. Without more sector studies along these lines it is difficult to assess how widespread these views are, and the extent of the concerns in reality. That environmental issues are at the fore, however, is not in dispute. Some farmers may see this as a threat, but others are working to turn this in to an opportunity.

Dairy intensification and the environment
The dairy industry has been facing increasing pressure from environmentalist lobbyists as the industry intensifies. Requirements such as the Clean Streams Accord are an example of compliance areas that have arisen from this pressure. The industry also faces continuous pressure over effluent management. With the expansion of dairying into the South Island, water allocation has become a large resource management compliance cost for many dairy farmers.

Dairy farmers are adapting to the call for more environmental responsibility and are meeting most of the targets of the Clean Streams Accord. A significant on-farm trend is the use of nutrient budgeting. Fonterra, along with the major fertiliser companies, have recommended that all dairy farmers complete a nutrient budget for their property. In many cases, this has resulted in more targeted nutrient application, especially on effluent areas, and potential cost savings on the amount of fertiliser used.

Nitrogen inhibitor use has increased steadily from a small base. Many farmers are trialling a small area of their farm or are waiting for more results from research relevant to their situation to prove the environmental, production and economic benefits of the product.

On dairy farms, especially in cooler wetter areas, stand off pads, long term feed pads and herd homes are becoming more popular. Their aim is to increase production of milk solids and to prevent environmental damage to soils and waterways. This change is interesting given that the New Zealand agricultural industry has been upheld as an example of low cost, extensive systems. The consequential impacts on animal welfare (real or consumer perception), the environment and cost will be interesting to follow.

Evidence of the scale of the regulatory burden
New Zealand is ranked second (after Singapore) out of 178 economies in 2008. The UK is ranked sixth. Doing Business presents quantitative indicators on business regulations and the protection of property rights that can be compared across 178 economies. Regulations affecting 10 stages of a business's life are measured.

New Zealand and the UK's ranking in Doing Business 2008
Compared to Global Best / Selected Economies

	New Zealand	United Kingdom
Ease of Doing Business	**2**	**6**
Starting a Business	3	6
Dealing with Licenses	2	54
Employing Workers	13	21
Registering Property	1	19
Getting Credit	3	1
Protecting Investors	1	9
Paying Taxes	9	12
Trading Across Borders	16	27
Enforcing Contracts	13	24
Closing a Business	16	10

Source: http://www.doingbusiness.org/ExploreEconomies/?economyid=140

Compliance costs

Compliance costs are an ongoing concern to agricultural, horticultural and forestry sector businesses. The Government has taken a number of initiatives to identify and reduce compliance costs.

A survey of compliance costs in New Zealand agriculture (1998)
In 1998, a report was completed for MAF to quantify the costs of compliance with legislation incurred by farmers and investigate any impacts on farm management arising from the process of compliance. The costs covered both the farmers' time and the direct cost of compliance. Nearly 1,000 farmers and horticulturists were surveyed plus 24 case study interviews of farmers with high compliance costs.

The chief conclusion was that most New Zealand farmers incurred only limited costs in complying with regulations. Improving taxation regulations was the best means of reducing the regulatory burden on farmers. The conclusions drawn regarding farmers perception and understanding of regulations were telling. Regulations with the highest cost like taxation were generally accepted, while farmers were most upset by regulations that involved limited cost to meet such as resource consents. Fear and uncertainty was therefore considered a bigger issue than actual financial cost.

Key findings of the 1998 report.

Compliance item	% of farmers incurring	Median hours spent, for those incurring (hrs)	Median dollars spent, for those incurring ($)	Median total cost (incl. hours at $20/hour) ($)
Taxation (time, accountant's fees)	99	60	1,800	3,220
Spent time on employment paperwork	55	24	NA	480
Spent time or money on safety paperwork	48	3	120	220
Applied for resource consent in past year	13	3	235	330
Objected to resource consent in past year	4	4	0	110
Need for resource consent changed farm management	10	NA	NA	NA
Made submission to District Plan	15	6	0	160
Made submission to Regional Plan	6	4	0	150

Source: New Zealand MAF, 1998

- Taxation was the biggest compliance cost for most farmers. Most farmers regarded taxation compliance costs as a normal cost of doing business.

- Two-thirds of farmers surveyed employed staff spending a median of two hours per month on associated paperwork. Some farmers used consultants to help with contracts of employment.

- Farmers were generally aware of health and safety legislation. At a median of just three hours and NZ$120 annually, none of the case study farmers resented the cost of improving farm safety.

- Resource consents effectively relate to environmental legislation. The most common consent applied for involved the disposal of dairy parlour effluent, and involved farmers switching from oxidation ponds to spray irrigators. While most farmers accepted the need for environmental legislation, they were critical of the way enforcement agencies interpreted and administered the regulations.

Compliance costs 2006

In 2005 MAF Policy commissioned research to look at and understand the nature of compliance costs for on-farm businesses. The Scoping, surveying and monitoring farming compliance costs report was completed in December 2006 but was not made public for various reasons. Comments from officials suggest that taxation is still the leading compliance cost to farmers and horticulturalists in both money paid to external advisors and also their own time. This is followed by industry and market requirements and employment. Industry and market requirements have also become

more important to farmers and growers as there are an increasing number of consumer and market demands to be met. Resource management compliance costs are another significant area for both farmers and growers. This may be indicative of both the increasing environmental pressure being placed on the primary sector and also the expansion of intensive horticulture and pastoral farming that requires irrigation.

General comments suggest that the overall perception of the survey respondents is that compliance requirements have increased between 2003 and 2006, particularly in the areas of hazardous substances, employment, resource management, occupational health and safety and industry and market requirements. MAF is now looking to extend this research, focusing on businesses beyond the farm gate. This particular research will seek to understand the compliance burden imposed on businesses, their origin and their perceived benefit. MAF Policy is looking to understand the regulatory quality of compliance regimes that impact on agricultural, horticultural and forestry businesses, the incentives they create and the potential opportunities to leverage competitive advantage for New Zealand businesses.

Case studies

Water issues

By international standards, freshwater in New Zealand is both clean and in good supply. However, some aspects of water quality are getting worse in areas dominated by intensive land use. Demand for water is increasing, particularly in areas that are already water-stressed. The volume of water allocated increased by 50 per cent between 1999 and 2006, driven mainly by an increase in land area under irrigation. Around 60 per cent of the total volume of water allocated comes from rivers and streams, 34 per cent from groundwater, and 6 per cent from lakes and reservoirs. 77 per cent of all allocated water is allocated to irrigation and 11 per cent to manufacturing processes. Effort is increasingly focused on halting the decline in New Zealand's water quality. The control of point-source pollution of freshwater is managed under the Resource Management Act 1991 and attention has turned to reducing diffuse pollution from intensive land use and urban run-off. As a result, there is greater emphasis than in the past on managing intensively used land through stream bank planting, nutrient budgeting, and exclusion of stock from waterways through bridging and fencing.

The Dairying and Clean Streams Accord

The Dairying and Clean Streams Accord is a voluntary agreement between Fonterra Co-operative Group (the largest dairy company in New Zealand), regional councils and the Ministers for the Environment and of Agriculture and Forestry. Signed in May 2003, its aim is to achieve clean, healthy waterways in dairying regions.

The accord sets out practical targets for farmers; for example, that "50 per cent of regular stream crossing points are to have bridges or culverts by 2007 and 90 per cent by 2012". This target has already been met, while there has also been a steady increase in the number of waterways from which stock have been excluded (up from 67 per cent in 2003–2004 to 75 per cent in 2005–2006). However, the level of non-compliance of discharges of dairy shed effluent (33 per cent) falls significantly short of the target set.

Federated Farmers launched the 10 in 10 Campaign in November 2006. The aim of this campaign is improve water quality by getting members to reduce nutrient loss from their property by 10 percent over the next 10 years.

The Sustainable Water Programme of Action

In 2003, the Ministry for the Environment and MAF jointly launched the Sustainable Water Programme of Action (SWPoA) to identify priorities for government action to improve freshwater management in New Zealand. The SWPoA focuses on addressing the pressures on water bodies from land-use change and intensification. By 2007, Cabinet had approved the development of a national policy statement on freshwater, as well as two national environmental standards, including one that will ensure methods used to allocate water are geared to safeguard aquatic ecosystems. Another focus of the SWPoA is to produce tools and best-practice guidance for regional councils on water quality and land-use management. The Government has committed $81.5 million to the long-term Lake Taupō protection programme and $4 million towards remedial work to improve water quality in Lake Rotoiti.

Local action to protect water quality

Three examples of local action to protect water quality are outlined below. The Bay of Plenty and Waikato regional councils are working with district councils, Māori trust boards, land owners, and the wider community to protect the water quality of Lake Taupō and the Rotorua Lakes. The Manawatu-Wanganui regional council has proposed nitrogen leaching targets.

The Rotorua Lakes
In the Rotorua district, action plans are under development for each of 12 lakes to reduce their nutrient (nitrogen and phosphorus) levels. One example of action planned is the construction of a channel that will limit the input of nutrient-rich water to Lake Rotoiti. Environment Bay of Plenty regional council has produced Rule 11, a set of regional rules designed to limit the loss of nitrogen and phosphorus from land-use activities. The rule requires farm owners to give nutrient budgeting information to the Council so a Nutrient Discharge allowance can be set, which caps the nutrient discharge at the average for 2001-2004. This set of rules is in the process of being replaced with a set of rules for each lake. Federated Farmers reports that farmers are strongly opposed to council collection of information for the nutrient discharge allowance. Farmers are also opposing the controlled activity status (under the RMA) of farming in certain catchments and the level of restrictions placed on farming by the way in which nutrient allowances are to be managed. It is proposed for Lake Okareka to review all nutrient discharge allowances in 2018 and reset them according to the catchment discharge average, which will cut some (mainly dairy) properties' allowances below what can be achieved with current technology and best practices.

Lake Taupō
In the Waikato, a proposed variation to the regional plan sets a water quality objective for Lake Taupō and changes land-use controls on nutrients entering the lake from urban and rural sources. Variation 5 to the Waikato Regional Plan seeks to maintain Lake Taupo water quality at the current level of clarity. This requires a 20 percent reduction in the amount of nitrogen entering Lake Taupo. Agriculture is seen as the

primary source of manageable nitrogen entering Lake Taupo and for the first time, farmers in the Waikato region will be required to cap the amount of nitrogen that may leach from their farming activities.

Federated Farmers is an appellant in the Environment Waikato regional plan change, which requires a resource consent for farming in the Lake Taupo catchment. Federated Farmers contends that farming activity can be undertaken as a permitted activity in the catchment. The Court has directed the parties to draw up an appropriate rule, although this does not mean the Court will necessarily adopt the permitted activity rule. Hearings are continuing for these appeals this month (June 2008).

Manawatu-Wanganui Regional Council - Proposed One Plan
The Horizons Council has proposed nitrogen leaching targets, using a "sinking lid approach", based on a land use class as a way of reduce leaching of Nitrogen into water bodies. This has the effect of capping production as on some land classes stock numbers will have to be reduced. This prospect is being met with resistance from farmers. Also, council is requiring nutrient budgets and compliance with FARM Strategy workbooks. The workbooks propose further mitigation on farm to reduce nitrogen, such as herd homes, riparian planting, and rules around facilities. One of the problems with the proposed approach is that Horizons is using dairy production systems as the model for the provision/rules and trying to apply this to other farm types, such as irrigated sheep and beef, cropping and market gardening. This is also being met with some resistance as the model doesn't fit mixed farming systems.

The council has also proposed water management zones and different rules depending on the water quality in those zones. Another proposal is aimed at reducing phosphorus getting into water ways through reducing accelerated erosion.

Comparison with Scotland
Under New Zealand's Resource Management Act 1991 (RMA) regional councils prepare of objectives, policies, and methods to achieve integrated management of the natural and physical resources of the region. As the above examples illustrate, this is a work in progress in terms of water issues. A key concern for farmers is how farming is classified under the RMA as this will dictate what activities are permitted and whether a resource consent is required. Resource consent applications can be both expensive and take a long time to complete depending on the particular consultation requirements. The RMA was cited in the quality regulations review as a potential barrier whereby a single objector, who can be a direct business competitor, can block a development. In working at the regional level, there can be issues of consistency of measures with councils using different approaches and classifications. This is avoided under the Scottish regulations given that areas are either venerable or not. However, the New Zealand system does allow flexibility in who is regulated, and how, to best fit the particular circumstances of a catchment.

Bovine Tuberculosis (Tb)
Bovine tuberculosis is a major animal health issue for New Zealand cattle and Deer farmers. There are approximately 130 infected cattle herds, and 18 deer herds. In New Zealand the most common way Tb is spread amongst deer and cattle is through contact with infected wildlife such as possums and ferrets. It can also be spread when

infected animals are moved into a healthy herd. Each animal must be identified with a herd number and an individual number (via ear tags), assigned by the Animal Health Board. This provides a start point for re-tracing the movement of any animals which are later found to be infected with Tb.

Cattle and deer over one month of age must be identified with a bar-coded primary tag and a secondary ear tag unless they are going straight to slaughter, in which case they need just one tag – either a primary tag or a direct to slaughter tag. Animals are exempt from ear tags if they have been moved for grazing and are kept under day-to-day management, and are not mixed with animals from other herds.

The frequency of testing varies depending on the Tb risk in the area. Animals that show a possible reaction to the first Tb test, it will either be directed to slaughter or be eligible for re-testing. All cattle and deer are given a Tb status showing their Tb history. The main categories are Clear, Infected and Suspended. he herd classification determines how frequently the herd is tested for Tb, as well as what restrictions are placed on its movements. When deer and cattle are moved from their herd or to another location, an Animal Status Declaration (ASD) form must go with them. These forms provide a record of the animal's ownership and disease history. The forms are mandatory and required by law. The form must be fully completed with the test results from the most recent Tb test allocation form. Declaration forms given when animals are received should be retained for at least six months.

The Animal Health Board (AHB) is currently determining its strategy for the period 2011 – 2030. Federated Farmers has encouraged the AHB to pursue a strategy of eradication. It is claimed that an eradication policy would have a 95% probability of success. Eradication will involve greater cost in the early years, but has greatly reduced costs in the long term (compared with containment) because, once eradication is achieved, wildlife vector control, herd testing and movement control can safely be ceased.

In order to increase the cost-effectiveness of wildlife vector control, the AHB have decided to directly manage vector control programmes rather than delegate this task to regional councils. Federated Farmers has supported this approach. In Canterbury, Federated Farmers has asked the Regional Council (via its submission on Environment Canterbury's Draft Annual Plan) to continue to collect the regional contribution for the Bovine Tb vector control programme (using a targeted rate), because setting up an alternative mechanism for collecting the regional contribution would needlessly impose additional cost.

Comparison with Scotland

The New Zealand system for TB control appears to be effective and farmers recognise the need and benefits of compliance. Earlier this year a dairy farmer was ordered to pay more than NZ$30,000 for breaches of bovine Tb regulations under the Biosecurity Act. Together with associated costs and fees the total was closer to NZ$55,000 (£21,200). Judge David Saunders identified the moving of 40 cattle, under lease, to a Darfield property in breach of a restriction place notice as the most serious charge.

Scottish regulation is compatible with England's but is more stringent in terms of post movement control. The nature of the devolved relationship means that another layer of complexity is added as Scotland doesn't have full control of enforcement. In New Zealand, the Animal Health Board has taken back responsibility for vector control programmes from local councils to allow for a more coherent national strategy.

Animal transport

The principal legislation on animal welfare in New Zealand is the Animal Welfare Act 1999 (the Act). Under the Act, people who are responsible for animals must ensure that animals in their care have:

- Proper and sufficient food and water
- Adequate shelter
- Opportunity to display normal patterns of behaviour
- Appropriate physical handling
- Protection from and rapid diagnosis of injury or disease.

The Act also makes specific provision for the transport of animals. The person in charge of a vehicle in which an animal is being transported is responsible for ensuring that the animal's welfare is properly attended to and, in particular, that proper and sufficient food and water are supplied.

Codes of welfare for different species of animals are developed by the National Animal Welfare Advisory Committee and issued under the Act. These codes expand on the principles in the Act, describing minimum standards and recommending best practices to provide for animals' physical, health and behavioural needs.

The Animal Welfare Act provides for the issue of codes of welfare that:

- promote appropriate behaviour,
- establish minimum standards
- promote best practice for people owning or looking after animals.

The codes outline the basic level of animal management and care required, but are flexible enough to be modified and improved as community expectations, scientific knowledge and technical advances allow.

Recommended best practices in the codes are not legally binding. But minimum standards are – failing to meet a minimum standard can support a prosecution under the Animal Welfare Act 1999.

Similarly, evidence of meeting or exceeding minimum standards can be used as a defence against prosecution.

A voluntary Code of Recommendations and Minimum Standards for the Welfare of Animals Transported within New Zealand currently exists and this will be replaced with a new code of welfare for animal transport, currently being developed for issue under the Act. The current code contains detail on loading densities, food and drink requirements, journey duration, rest periods and stock handling amongst other things.

The draft Transport in New Zealand Code of Welfare which will soon be going out for a second round of key stakeholder consultation which means that a public draft for consultation is likely to be available in 2009.

At this stage MAF is trying to develop the code to be as outcome based (i.e. animal based) as possible. The focus is on fitness of the animal for that particular journey and what consideration should be given, rather than prescriptive details such as maximum journey times, or food and water requirements. It is important to note that this is possible within New Zealand given that travel times and climatic extremes are minimised.

The principles will be the same as in the current Code of Recommendations and Minimum Standards, but measures are likely to be more general and not so focussed on species specific requirements.

Comparison with Scotland
New Zealand has an outcome-focused and scientifically-based domestic animal welfare systems that are highly-regarded internationally. This approach appears to be operating effectively as the development of the transport code with less prescriptive detail illustrates. Until the new code is made public, it is difficult to make meaningful comparisons between the EC regulations, as implemented by Scotland, and the New Zealand system.

The EC regulations will need to reflect vastly different conditions in terms of distance travelled and temperature. Scotland may have to comply with regulations that do not necessarily fit with the particular conditions of the national industry. What system, in the end, is more effective will depend largely on the animal welfare outcomes and enforcement action where these are not achieved. However, an outcomes based approach allows for flexibility that can mean the most effective ways can be employed to avoid excessive costs for industry.

Over the last 10 years, the EC and New Zealand have developed a collaborative relationship on animal welfare policy, working together in the World Organisation for Animal Health (OIE) and bilaterally. A 2006 New Zealand proposal to establish the EC/New Zealand Animal Welfare Cooperation Forum, to formalise and improve information exchange on key animal welfare matters formalised this relationship. The Forum is very much an “equal partner/mutual benefit” arrangement.

The scope of the Cooperation Forum includes animal welfare matters of operational and strategic importance, and allows for information exchange on domestic and international policy issues.

Lessons learned
New Zealand's regulatory environment is widely considered to be of a high standard. This is frequently commented on by business people operating in multiple jurisdictions and endorsed by international surveys such as the World Bank study *Doing Business*. New Zealand's high ranking in the World Bank survey continues into 2007. The New Zealand government recognises that quality of regulatory frameworks and the regulatory environment play a key role in determining business growth,

productivity and innovation. The government is committed to the continuous improvement of the regulatory environment as a key part of achieving New Zealand's economic goals.

Quality Regulation Review 2007

The New Zealand government completed a review of the quality of New Zealand's regulatory frameworks, the findings of which were released in September 2007.

The quality regulation review aimed to ensure that New Zealand's regulatory environment is supportive of the government's economic transformation agenda by:

- addressing issues that arise from duplication or inconsistency (across regimes), uncertainty or inconsistency (within regimes), and excessive paperwork requirements
- reducing the regulatory burden on business
- improving regulatory outcomes

The feedback obtained from businesses as part of the sector studies confirms that the regulatory environment for business was in fairly good shape, but that there is scope for improvement.

Key messages from business community that came out of the review are listed below:

- Duplicated or excessive reporting requirements as well as requirements that are considered to be overly complex (the strongest frustrations arise when there is no explanation of the purpose for collecting information)
- Inconsistent treatment across regions, particularly at the local authority level, resulting in a lack of "fairness" and impressions of either over- or under-enforcement
- Regulation that is disproportionate to the real level of risk or that disregards prior track records (e.g. in relation to licensing requirements)
- Absence of safe harbours in the regulation resulting in a lack of certainty over what is required to reach compliance with the law
- A need for more effective guidance or information to assist compliance
- Regulation and regulators perceived as acting as barriers to business development and growth
- Delays and uncertainty in the processing of regulatory requirements

In going forward, the government will use the experiences from the Review to inform the future work programme on quality regulation. The government's approach will focus on four key objectives:

1. Ensuring the quality of new regulation
2. Improving the quality of existing regulation
3. Developing a culture of good regulatory practice
4. Building the capability of regulators and business

The need to consider the stock and flow of regulation, as well as all stages of the regulatory lifecycle was highlighted in the review. A whole of government approach would be needed to address concerns about the cumulative impact of regulation on business. This will require agencies to be innovative and open-minded in their approaches to working together with other stakeholders. Agencies will need to be aware that fixes for poor regulatory outcomes are diverse, with no "one size fits all".

The importance of implementation will also be emphasised as a number of the issues raised by business during the Review related to the way regulations are implemented, rather than the regulation's purpose or design.

The government intends to build on the work already undertaken in the review and develop a programme of annual sector studies. The studies will focus on one sector or one piece of cross-sector legislation each year. They will provide an in-depth analysis of the key regulatory issues affecting sectors, including the productivity, innovation and global connectedness of firms, and focus on finding solutions to these issues.

In addition to sector studies, the government intends to build on other initiatives undertaken during the Quality Regulation Review. This will include considering ways that the Regulatory Impact Analysis (RIA) requirements could be further enhanced. A website dedicated to business consultation on compliance costs could prove to be a useful resource (http://www.businessconsultation.govt.nz/). One area that will be considered carefully is the process around the development of policy proposals for the implementation, monitoring and review of regulatory proposals.

The Ministry of Economic Development is also looking at a two year trial of a Business Cost Calculator to quantify the compliance costs of regulation. The Business Compliance Cost Calculator was launched by the Government in April this year to help government departments assess the cost of new regulation before it is implemented. The calculator will also help improve consistency in the way regulatory decisions are made and create opportunities for greater international comparison on key pieces of regulation.

The government is considering whether a fast track legislative vehicle, such as the proposed Omnibus Bill, could be used as a permanent mechanism for quickly remedying failures in regulatory frameworks.

Lessons for Scotland

The number and range of reviews undertaken in recent years highlights the New Zealand government’s commitment to ensuring an open and fair commercial environment and enhanced performance of the economy.

The reviews contain recommendations that can be applied universally. Although some of the recommendations may appear to be common sense, the value of finding out from the business community, and government agencies, where the key issues are provides focus for implementing remedial measures.

The recommendations will also lead to real benefits throughout the regulation process – from clearer guidance on design and assessment, to more efficient communication

with affected parties. Benefits in the implementation of regulations should also increase as duplication is reduced and systems streamlined.

The outcome of work regarding the use of the standard cost model will be of interest to other countries. A more user friendly, targeted tool that is scalable depending on the economic impact of any proposed regulation would be a useful tool in compiling a regulatory impact statement and assessing the change in compliance cost burden over time. Other innovations such as the two year trial of a business compliance cost calculator and the business consultation website could be applied in other jurisdictions.

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Fonterra www.fonterra.com/

Appendix D: Large figures and tables

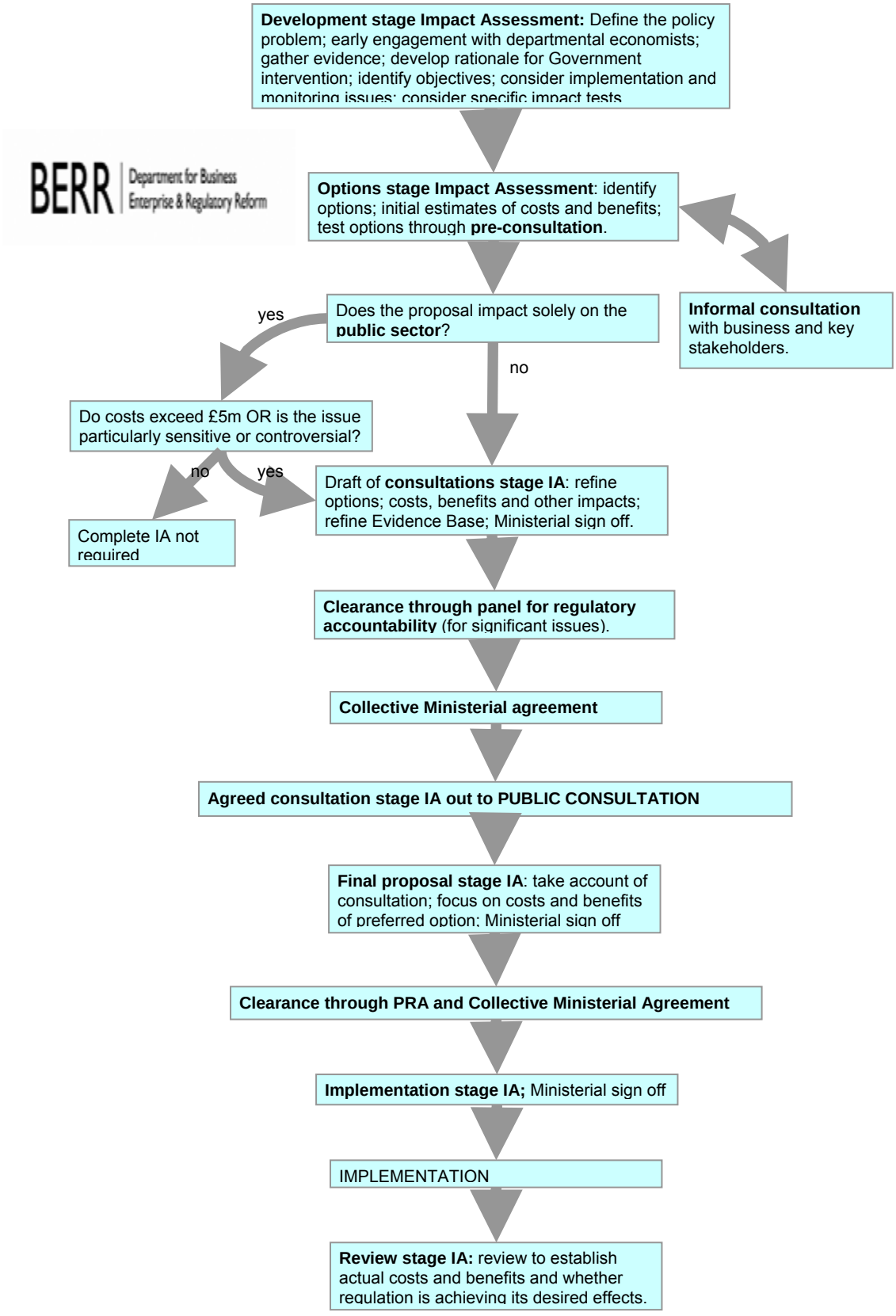

Figure 2.1 Impact Assessment Flowchart (From: http://www.berr.gov.uk/bre/policy/scrutinising-new-regulations/preparing-impact-assessments/toolkit/page44201.html, accessed 27/6/08)

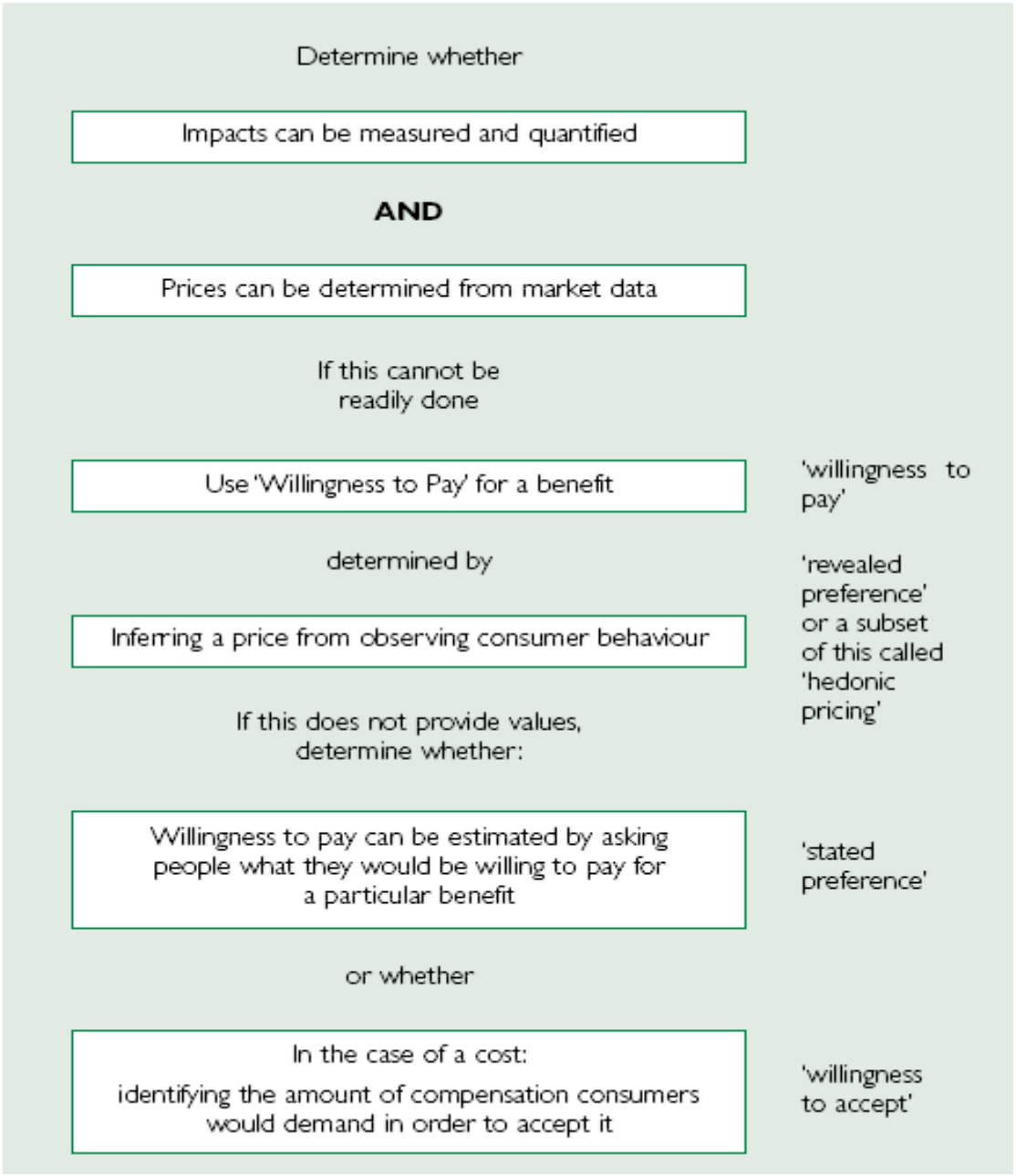

Figure 2.2 Green Book guidance on selecting the appropriate valuation technique (HM Treasury 2007)

Box 1. Scottish Extras - additional impact assessment guidance that applies in Scotland (see: http://www.scotland.gov.uk/Topics/Business-Industry/support/better-regulation/guidance/RIA-guidance/):

"Scottish Extras
In addition to the processes set out in the Cabinet Office Guidance, the following particular Scottish processes also need to be carried out by Executive staff responsible for preparation of an RIA. The aims of the Cabinet Office Guidance are clear, but it will need to be interpreted in the Scottish context. The Improving Regulation unit will be happy to assist any user who has difficulty translating.

Micro Business Test
Cabinet Office Guidance requires a Small Business Test to be included in every RIA but in recognition of the preponderance of very small businesses in Scotland, RIAs relating to all proposed regulations in Scotland impacting on business must give particular attention to impact upon micro businesses.

Legal Aid Impact Test
Cabinet Office Guidance requires a Legal Aid Impact Test to be included in every RIA but in recognition of the separate legal system and legal aid processes in Scotland, RIAs relating to all proposed regulations in Scotland that could give rise to increased use of legal processes or create new rights or responsibilities should give particular attention to possible impacts on the legal aid fund.
...

"Test Run" of business forms
All new forms which are introduced as a result of Executive legislation impacting on businesses must be "test run" with an appropriate business organisation to ensure they are as clear, simple and easy to complete as possible.

Ministerial sign-off
The full Regulatory Impact Assessment is signed by the accountable Minister and 5 copies placed in the Scottish Parliament Information Centre when the regulation/legislation is presented to Parliament. Also one copy should each be sent to the lead Committee, Subordinate Legislation Committee, Parliament Legal Advisers and the Improving Regulation Unit. A signed final version in HTML format should also be sent to the Improving Regulation Unit in order that it can be published on their website.

Review Regulatory Impact Assessments
All Executive regulations that impact significantly upon businesses will be subject to a rigorous review in the form of a Review RIA within 10 years. Acceptance of the need for a Review RIA in the Final RIA commits the lead Department to completion of a "Regulatory MOT" within ten years of the introduction of the regulation. Departments are free to review regulations at any point within the ten years if this coincides with a pre-programmed review e.g. EU Directives often have a timetable for review built in, but the Improving Regulation unit must be kept informed. The Review RIA should take the Final RIA as its starting point and update the assessment made in the light of the implementation of the regulation. The Review RIA will consequently be able to provide an accurate assessment of the impact rather than an estimate."

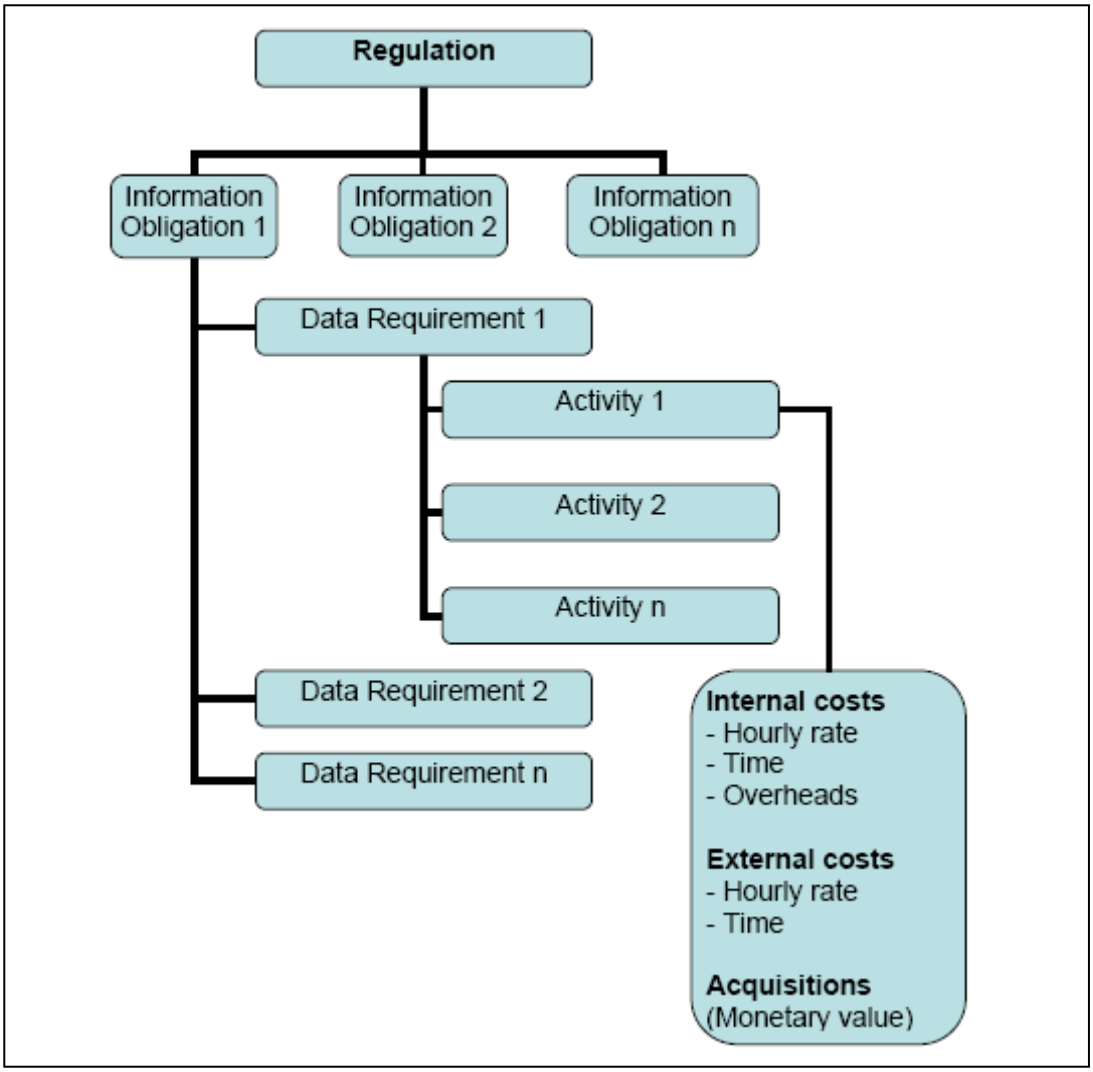

Figure 2.3 Structure of the Standard Cost Model (Better Regulation Executive 2005)

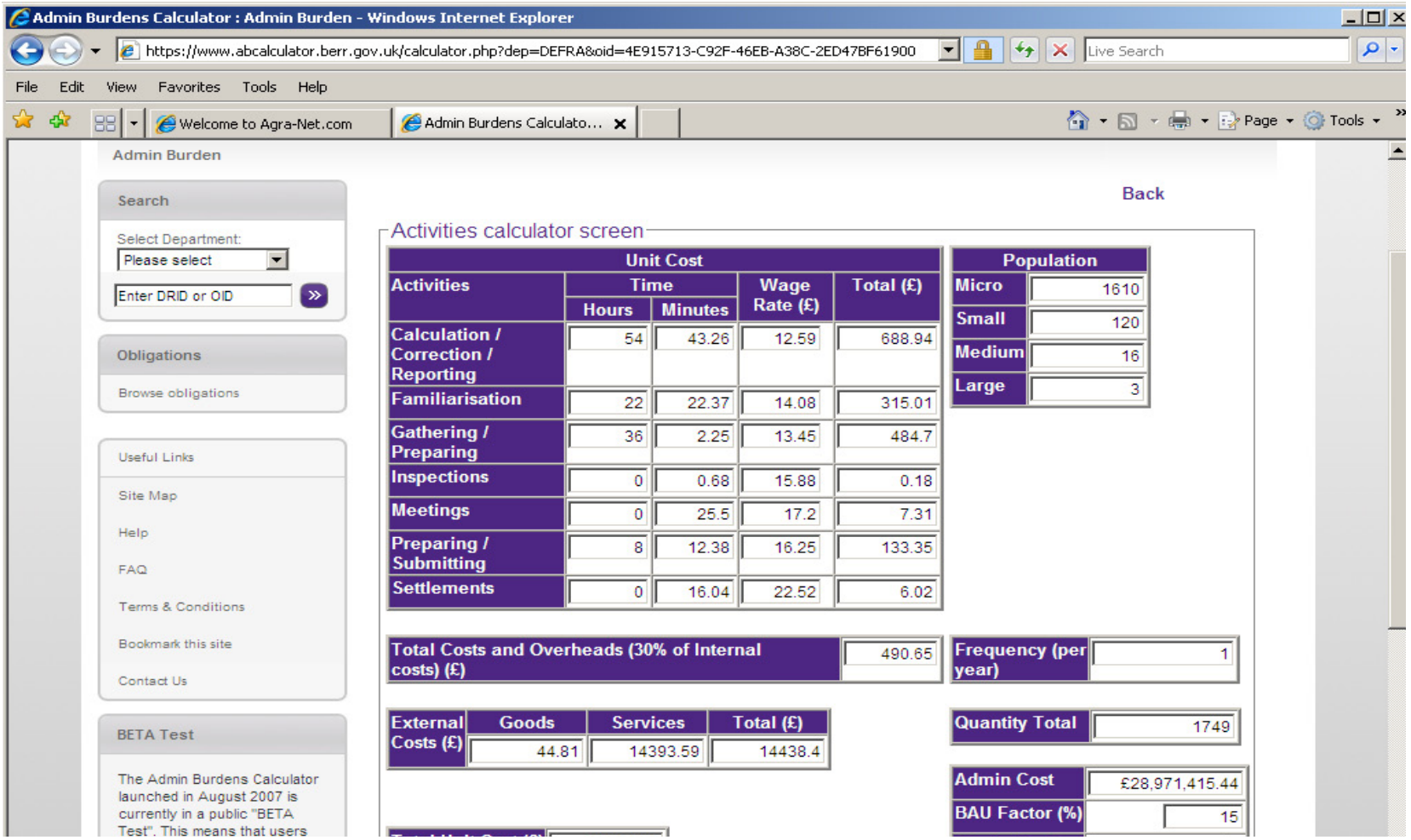

Figure 2.4 An Example of an Output Table from The BRE Online Admin Burdens Calculator (https://www.abcalculator.berr.gov.uk/)

Table 2.3 The twenty Defra regulations with the highest admin cost (Defra 2006)

		Total administrative cost	
Regulation	Reporting unit	£ (million)	% of department total
Common Agricultural Policy Single Payment and Support Schemes Regulations 2005	Sustainable Food and Farming	£128.9	18%
Animal By-Products Regulations 2003	Animal Health and Welfare	£76.2	10%
TSE (England) Regulations 2002	Animal Health and Welfare	£63.1	9%
Retailers' Records for Veterinary Medicinal Products Regulations 2000	Animal Health and Welfare	£46.5	6%
Pollution, Prevention and Control Regulations 2000	Environment	£45.9	6%
Code of Recommendations for the Welfare of Livestock: meat chickens and breeding chickens	Animal Health and Welfare	£19.5	3%
Cattle Identification Regulations 1998	Animal Health and Welfare	£18.1	2%
Waste Management Licensing Regulations 1994	Environment	£15.4	2%
Tuberculosis (England and Wales) Order 1984	Animal Health and Welfare	£13.8	2%
Sheep and Goats Identification and Movement (Interim Measures) (England) (No.2) Order 2002	Animal Health and Welfare	£13.1	2%
Water Resources Act 1991	Environment	£12.1	2%
Welfare of Farmed Animals (England) Regulations 2000.	Animal Health and Welfare	£12.1	2%
Code of Recommendations for the Welfare of Livestock: Cattle	Animal Health and Welfare	£10.9	1%
Animals and Animal Products (Examination for Residues and Maximum Residue Limits) (Amendment) Regulations 1997	Animal Health and Welfare	£10.9	1%
Control of Pesticides Regulations 1986	Environment	£10.5	1%
Code of Recommendations for the Welfare of Livestock: Sheep	Animal Health and Welfare	£10.4	1%
Pigs (Records, Identification and Movement) Order 2003	Animal Health and Welfare	£10.3	1%
Producer Responsibility Obligations (Packaging Waste) Regulations 1997	Environment	£10.2	1%
Environmental Protection Act 1990	Environment	£9.9	1%
Council Reg. (EEC) 2847/93 - establishing a control system applicable to the Common Fisheries Policy	Fisheries	£9.3	1%
Top 20 Total		**£547.2**	**74%**
DEFRA Total		**£735.7**	**100%**

Table 2.4 Defra IO/DRs arranged by total cost (Defra 2006)

IO type	Number of IO/DRs		Total cost	
	Number of IO/DRs	% of total number of IO/DRs	Total cost by IO type £ (million)	% of total department cost
Keeping records	390	12%	£342.4	47%
Applications for subsidies or grants for…	161	5%	£141.3	19%
Applications for authorisation	306	10%	£56.0	8%
Notification of activities	414	13%	£40.9	6%
Cooperating with audits/inspections of…	325	10%	£27.8	4%
Providing statutory information for third parties	309	10%	£27.3	4%
Applications for permission for or exemption from…	439	14%	£26.9	4%
Returns and reports	325	10%	£22.2	3%
Statutory labelling for third parties	223	7%	£18.1	2%
Carrying documentation	66	2%	£12.1	2%
Entry in a register	75	2%	£9.7	1%
Updating commercial emergency plans & programmes	23	1%	£7.1	1%
Carrying out inspections of…	32	1%	£3.5	0%
Framing complaints and appeals	117	4%	£0.4	0%
Agreeing contracts	5	0%	£0.0	0%
Other	0	0%	£0.0	0%
Requesting information	0	0%	£0.0	0%
Total	**3,210**	**100%**	**£735.7**	**100%**

Table 2.5 Admin cost of Defra's top twenty by origin: A=International, no discretion; B= International, some domestic discretion; C=Domestic (Defra 2006)

		Total administrative cost		% Cost by origin		
Regulation	**Reporting unit**	**£ (million)**	**% of department total**	**A**	**B**	**C**
Common Agricultural Policy Single Payment and Support Schemes Regulations 2005	Sustainable Food and Farming	£128.9	18%	91%	9%	0%
Animal By-Products Regulations 2003	Animal Health and Welfare	£76.2	10%	94%	6%	0%
TSE (England) Regulations 2002	Animal Health and Welfare	£63.1	9%	0%	0%	100%
Retailers' Records for Veterinary Medicinal Products Regulations 2000	Animal Health and Welfare	£46.5	6%	99%	1%	0%
Pollution, Prevention and Control Regulations 2000	Environment	£45.9	6%	65%	35%	0%
Code of Recommendations for the Welfare of Livestock: meat chickens and breeding chickens	Animal Health and Welfare	£19.5	3%	0%	0%	100%
Cattle Identification Regulations 1998	Animal Health and Welfare	£18.1	2%	0%	100%	0%
Waste Management Licensing Regulations 1994	Environment	£15.4	2%	0%	100%	0%
Tuberculosis (England and Wales) Order 1984	Animal Health and Welfare	£13.8	2%	0%	0%	100%
Sheep and Goats Identification and Movement (Interim Measures) (England) (No.2) Order 2002	Animal Health and Welfare	£13.1	2%	0%	60%	40%
Water Resources Act 1991	Environment	£12.1	2%	0%	0%	100%
Welfare of Farmed Animals (England) Regulations 2000.	Animal Health and Welfare	£12.1	2%	0%	100%	0%
Code of Recommendations for the Welfare of Livestock: Cattle	Animal Health and Welfare	£10.9	1%	0%	0%	100%
Animals and Animal Products (Examination for Residues and Maximum Residue Limits) (Amendment) Regulations 1997	Animal Health and Welfare	£10.9	1%	100%	0%	0%
Control of Pesticides Regulations 1986	Environment	£10.5	1%	0%	0%	100%
Code of Recommendations for the Welfare of Livestock: Sheep	Animal Health and Welfare	£10.4	1%	0%	0%	100%
Pigs (Records, Identification and Movement) Order 2003	Animal Health and Welfare	£10.3	1%	0%	93%	7%
Producer Responsibility Obligations (Packaging Waste) Regulations 1997	Environment	£10.2	1%	0%	100%	0%
Environmental Protection Act 1990	Environment	£9.9	1%	0%	30%	70%
Council Reg. (EEC) 2847/93 - establishing a control system applicable to the Common Fisheries Policy	Fisheries	£9.3	1%	82%	18%	0%
Top 20 Total		**£547.2**	**74%**	**52%**	**20%**	**28%**
DEFRA Total		**£735.7**	**100%**	**46%**	**21%**	**34%**

Note: % cost by origin is by regulation i.e. by row

Data source	Item	Number
MH	Regulations	1,400
MH	I.O.s	20,000
MH	Activities	80,000
MH	Business interviews	8,500
MH	Businesses contacted	350,000
MH	External staff involved (at peak)	700
MH	Internal staff (at peak)	300
MH	BRE staff employed on an ongoing basis in ABME/SCM (fte)	3
MH	Defra staff employed in Better Regulation work	18
Defra 2006	Defra regulations in ABME	362
Defra 2006	Defra I.O.s in ABME	3,210
MH	External costs (i.e PwC fees) (£)	10,000,000
MH pers comm	Internal recurring staff costs of the ABME	2,400,000
Defra 2006	Admin cost of Defra's regulations (£)	735,700,000
	Discount rate 3.5%	

References

MH: Interview with Mark Hammond

MH pers comm: Phone call/e-mail with Mark Hammond, 21-8-08

Defra (2006a) Administrative Burdens Measurement Exercise: Final Report

Defra (2007) Cutting Red Tape: Defra Simplification Plan December 2007

Total cost of the ABME

	One-off	Recurring			
External	10,000,000	0			
Internal	0	2,400,000			
Year	2006	2007	2008	2009	201
	0	1	2	3	
One-off	10,000,000	0	0	0	
Recurring	2,400,000	2,400,000	2,400,000	2,400,000	2,400,00
PV	12,400,000	2,318,841	2,240,426	2,164,662	2,091,46
ABME Cost (PV, £2006)	21,215,390				
Cost per IO (PV, £2006)	1,061				
Estimated cost for Defra share of the ABME	5,485,694				
Estimated cost for SGERAD share of a Scottish ABME (£2006)	2,742,847				

Assuming cost is proportionate to number of regulations

Assuming only domestic regulations/I.O.s (~50%) are included

Benefits of the ABME

	2006	2007	2008	2009	201
Total savings from Defra ABME by 2006-10	36,785,000	36,785,000	36,785,000	36,785,000	36,785,00
PV	36,785,000	35,541,063	34,339,191	33,177,962	32,056,00
Total savings from Defra ABME by 2006-10 (PV, £2006)	171,899,219				
B:C ratio for Defra ABME	31				

Assuming that the target of 25% is met, and that this saving can be attributed to the ABME

Table 2.6 Preliminary appraisal of the ABME/SCM