

REGULATORY IMPACT ASSESSMENT

REVISION OF THE SLUDGE (USE IN AGRICULTURE) (SCOTLAND) REGULATIONS 1989

This Regulatory Impact Assessment is an evaluation of the costs and benefits for Scotland of the proposed revision of the Sludge (Use in Agriculture) Regulations 1989.

Purpose and intended effect of the measure

(i) Identify the issue and objective

1. Controlled recycling of sewage sludge to agricultural land has been regarded, in accordance with the waste hierarchy described in the National Waste Strategy, as representing the best practicable environmental option in most circumstances and currently accounts for approximately 40% of 115,000 tonnes (dry solids) of sewage sludge produced in Scotland. As well as bringing substantial savings in fertiliser costs, the addition of organic matter improves soil structure, workability and water holding capacity.

2. In order to ensure that this process is carried out in a way which protects the environment and human and animal health, regulations have been made (the Sludge (Use in Agriculture) Regulations 1989 (SI 1293 as amended by SI 880 in 1990)) which lay down standards which must be observed when recycling is carried out. The regulations, which implement the EU Sludge Directive¹, are enforced by the Scottish Environment Protection Agency (SEPA), and set out specific requirements aimed at preventing the accumulation of hazardous concentrations of heavy metals in soil and the bacteriological contamination of crops.

3. A comprehensive review of the scientific evidence, completed by WRc in 1998, made a number of recommendations to tighten the existing controls in order to further reduce the potential risk of pathogen transfer into the food chain. “The Strategic Review of Organic Waste Spread on Land”, published by SEPA on behalf of the then Scottish Office in 1998, made a number of recommendations to tighten the existing controls on the application of sewage sludge and other organic wastes to land to further reduce associated environmental and human health risks. In particular, this review recommended that septic tank sludges should be prohibited from being spread on agricultural land and that a consistent legislative framework should be developed for all organic wastes applied to farmland. Following a public consultation on the Review, the Scottish Executive announced its intention to take forward a number of its recommendations through legislative amendments.

4. Following extensive discussions involving sludge producers (i.e. the water authorities in Scotland and the water companies in England & Wales), the food industry and government, a voluntary agreement (the “Safe Sludge Matrix”) implementing these recommendations was drawn up and adopted by Water UK

¹ 86/278/EEC

(representing the water authorities and companies) and the British Retail Consortium. In Scotland the Scottish Agricultural College assisted with reaching this agreement.

5. The proposed revisions to the regulations reflect the higher standards currently set out in the Matrix and, in doing so, are intended to bring increased confidence in the acceptability of the practice of recycling of sludge to agricultural land. Application of untreated sludge to land used to grow food crops would be banned and further harvesting and grazing restrictions, relating to two specified treatment standards, introduced. Since both agriculture and the environment are devolved matters, it is proposed that the Scottish Parliament should approve the regulations for Scotland, which will be enforced by SEPA. Similar regulations, however, will be in force in other parts of the UK.

6. The non-statutory code of practice associated with the regulations, which applies throughout the UK, would also be revised to include updated guidance on the minimum requirements in the regulations as well as giving advice on 'best practice'. The previous Code was revised in 1996. The new revised code of practice would recommend that those affected by the regulations should follow additional voluntary 'best practice' measures. In Scotland, guidance on the spreading of sewage sludge on agricultural land is also contained in the Code of Good Practice for the Prevention of Environmental Pollution from Agricultural Activity (PEPFAA Code) which is currently being revised. A more concise version of the PEPFAA Code - "The DOs and DON'Ts Guide" - was issued in June 2002 to farmers, land managers and known contractors setting out practical guidance on measures to adopt to prevent agricultural pollution in an easy to understand format.

7. The regulations allow SEPA to recover the costs of the necessary enforcement of the new standards from Scottish Water and other sludge producers. SEPA will consult separately about the detail of the charging scheme.

8. The revised regulations go beyond the requirements of the EU Directive in that they define sludge treatment standards. These standards have, however, been agreed by the major stakeholders and funded in Scottish Water's Quality & Standards Strategic Review 2002-2006. Proposed revisions in respect of mandatory limits for lead and zinc are not expected to lead to any increase in costs as they reflect current standards.

(ii) *Risk Assessment*

10. 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, such as *E.coli* O157 and *Salmonella*, cannot be transmitted into the food chain by using sewage sludge to fertilise land used for food crops. A review carried out by WRc in 1998 entitled "Review of the Scientific Evidence Relating to the Controls on the Agricultural Use of Sewage Sludge" (DETR 4415/3) contains a qualitative assessment of the risks associated with land application of wastes, including sewage sludge. The recommendations on the potential risks from pathogens in the application of sewage sludge used to grow food crops in agriculture are based on this assessment. The Food

Standards Agency has indicated that it considers that the application of sewage sludge to agricultural land should not present any unacceptable risk to food safety provided it is carried out in accordance with the new requirements.

Options

11. At present, there are statutory regulations, a non-statutory code of practice and a voluntary agreement (i.e. the Safe Sludge Matrix) governing the application of sewage sludge to agricultural land. The House of Commons Environment Sub-Committee of the Select Committee on the Environment, Transport and the Regions has previously recommended (Inquiry into Sewage Treatment and Disposal by the House of Commons Environment Sub-Committee Cm 4023, July 1998) that any changes in the treatment and disposal of sewage sludge should be incorporated in legislation. The water industry, food industry and other major stakeholders are likewise pressing for the new standards to be made statutory in order to increase confidence and to allow them to be brought within the enforcement regime operated by SEPA.

(i) *Identify options*

12. Three options have been considered for dealing with this issue:

- Option 1: do nothing and continue to rely on the current *Sludge (Use in Agriculture) Regulations 1989* as amended, the Matrix and the existing code of practice;
- Option 2: a non- statutory approach revising the “*Code of Practice for Agricultural Use of Sewage Sludge 1996*”, without revising the regulations;
- Option 3: revising the *Sludge (Use in Agriculture) Regulations 1989* as amended and accompanying code of practice, as recommended by the Environment Sub-Committee and supported by major stakeholders.

(ii) *Issues of equity or fairness*

13. The suggested revisions to the regulations would impose more stringent requirements on Scottish Water. Because Scottish Water is already committed to following the requirements currently set out in the voluntary ‘Matrix’, the additional capital investment and operating costs necessitated by the new requirements have already been allowed for in the Quality & Standards period 2002-2006. This means that there are no extra costs for consumers and therefore no increase in water bills anticipated as a result of the revision of the regulations.

14. There is an additional cost to owners of a septic tank, mostly located in rural areas, as the spreading of untreated sludge to land would be banned in all circumstances, and sludge from their tanks would therefore have to be treated. The cost of treatment is estimated to be fairly low and is expected to add on average £10 to every disposal of septic tank sludge, which costs in the region of £300 to £500. The total extra cost of disposal of septic tank sludge in Scotland is estimated to be £0.2 million a year.

15. UK farmers that use sludge on their agricultural land face different costs according to the sludge producer in their region. Where charges are made, prices range from around £1.50 per tonne for sludge cake (conventionally treated sludge) to around £12.00 per tonne for sludge pellets (enhanced treated). This broadly reflects the differing fertiliser value and cost of treatment. **In Scotland, however, sludge is currently supplied free to the farmer.**

Benefits

(i) Identify the benefits

16. The proposals would not result in significant change in farm working practices. While they would allow enforcement measures to be taken if necessary, the principal benefit is intended to be to the confidence of farmers, the food industry and the public in the sewage sludge to agricultural land route. This would reduce the risk of this route becoming unsustainable and hence helps to ensure that water undertakers maintain an economic outlet for a major proportion of their sludge. Without this outlet additional costs and significant capital investment in other sludge disposal routes, such as incineration or landfill, would be required, and administrative hurdles, such as planning permission, would have to be overcome. These disposal routes also pose questions of sustainability and environmental acceptability, while use on land is to be preferred according to the criteria in the National Waste Strategy. Agricultural use of sludge also improves soil structure, workability and water holding capacity.

(ii) Quantify and value the benefits

17. The benefits for each of the three options have been identified below:

- Option 1 – Do nothing and continue to rely on the current regulations – if public confidence holds there are zero benefits of this option. However, there is a greater risk that due to the loss of consumer confidence the sludge to agricultural land route would become untenable. This would lead to an immediate need for investment in more costly and less environmentally acceptable disposal routes such as incineration or landfill. While biogas may have potential in the future there is little prospect of availability of sufficient capacity in the near future in Scotland.

(a) Incineration: There are no identified benefits to incineration, although there may be some energy value in combined heat and power plants.

(b) Landfill: There are no identified benefits to the use of landfill.

- Option 2 – A voluntary approach by revising the code of practice without revising the regulations – this could have some benefits similar to Option 3 but some customers have already indicated that they will not accept crops grown on treated land without the guarantee of higher standards of regulation and enforcement. In practice therefore, this option might not offer much advantage over Option 1.

- Option 3 – Revise the regulations - the additional security of the sewage sludge to agricultural land route would avoid the additional costs of landfill and incineration or biogas (see Option 1). Although difficult to value, there are clear economic and environmental benefits from the recycling of sludge to land. The beneficial effects for the fertility, workability, structure and the water holding capacity of the soil have been repeatedly demonstrated. Such effects are also highlighted in the “State of the Environment – Soil Quality Report” published by SEPA in 2001. Trials have suggested that the use of sludge can boost arable crop yields and gross margins.

Compliance and other costs for business, charities and other organisations

(i) Business sectors affected

18. The proposed regulations would have a direct impact on the following businesses:

- Sludge producers: Scottish Water and operators of private sewage treatment works would have to upgrade and replace current treatment plant equipment in order to meet the new standards of treatment set out in the regulations.
- Septic tank desludgers: who collect and dispose of septic tank sludge would need to meet the treatment standards; and
- Farmers: who are the sludge users, would have to comply with revised grazing and cropping restriction in the regulations, although less than 1% of farm land utilises sludge recycled to land. Farmers would also have some additional costs for replacement inorganic fertilisers (or treated sludge) for septic tank sludge previously received untreated.

19. The proposed regulations would have an indirect effect on the manufacturers of plant used to meet the revised treatment, food retailers and food processing companies.

(ii) Compliance costs

20. The recurring costs of the three options for the sludge producers have been set out in column 2 of the table below. The costs for options 2 and 3 are the same.

21. The non-recurring costs of the options for Scottish Water have been set out in column 3 of the table below. If all the sludge that is currently recycled to land were diverted to landfill or incineration, there would be insufficient capacity or public support to open additional capacity. It may take between 10 to 15 years to bring an incinerator on line.

22. The total non-recurring costs for Scottish Water have already been agreed as part of the Quality & Standards 2002 –2006 Periodic Review, which provided for approximately £14 million for the upgrading and replacement of sludge treatment plant. The agreed recurring costs were £2 million per annum. These costs have been compared against the costs for disposal routes of sludge such as incineration and landfill to show how the recycling to agricultural land route overall provides best value for money.

Table 1 – Total costs for Options 1-3 (£millions)

Option		Estimated recurring costs	Estimated non-recurring costs
Option 1 – do nothing	Public Confidence Holds	£0	£0
	Sludge to Agriculture unacceptable	Incineration - £16m per annum; or Landfill - £7m per annum £0.6m per annum for replacement inorganic fertilisers	Landfill – none Incineration - £46m
Option 2 - a voluntary approach by revising the code of practice without revising the regulations Again, issue of public confidence – the risk being higher with Option 2 than with Option 3. If sludge to agriculture becomes unacceptable, the costs above would apply		£2m Scottish Water per annum £10 per farmer per annum £10 per septic tank desludging	Scottish Water - £14m
Option 3 – revise the regulations The option most likely to maintain public confidence		£2m Scottish Water per annum £10 per farmer per annum £10 per septic tank desludging	Scottish Water - £14m

Note 1: Figures are approximate

Note 2: The recurring cost to Scottish Water is approximately 0.2% of current income

23. The costs for private sewage treatment works and owners of septic tanks are difficult to estimate as we have inadequate information. However, based on a range of identified costs it is estimated that the costs of treatment of septic tank sludge would be some £0.2m per annum.

Consultation with small business: the ‘Litmus Test’

24. The Department of the Environment, Food & Rural Affairs consulted a number of septic tank desludgers to assess the impact of the proposals. The extra cost relating to the cost of treatment of untreated sewage sludge was found not likely to affect their competitiveness or profitability, as this cost was not significant in economic terms and would be passed onto the customer.

25. There were some differences between the costs outlined in the RIA and the litmus test due to estimated higher transport costs and larger estimates of septic tank sludge being treated.

26. As the test was carried out around the time of the Foot and Mouth outbreak farmers were not consulted.

Identify any other costs

27. The cost to enforce the existing regulations is approximately £14,000 per annum. This cost is likely to rise significantly with the changes towards a tighter regulatory regime. However, because the suggested changes allow SEPA to recover these costs, they may be passed on to sludge producers. SEPA's charging scheme will be consulted on separately in accordance with SEPA's own obligations under the Environment Act 1995. In the mean time it is in discussions with Scottish Water, which will be responsible for paying the overwhelming majority of these costs.

Results of consultations

28. The suggested changes have been discussed extensively with the water industry and the food industry who are broadly content. A consultation has been carried out with those listed in Annex A being specifically invited to comment on the proposed revision of the regulations and this RIA. A public consultation was carried out on the proposal to make the Safe Sludge Matrix compulsory. The results were as follows:-

- 39 replies were received.
- Of these replies 15 stated either explicitly stated they supported Option 3 (making the Safe Sludge Matrix compulsory), or explicitly stated that they supported the Executive proposals. A further 13 implicitly did so. The Malt Distillers Association explicitly supported option 3, the Scotch Whisky Association (representing the Gin & Vodka Association and the Neutral Alcohol Producers Association) implicitly so. No respondents explicitly or implicitly preferred either of the other two options. There is therefore a clear majority among the respondents for proceeding along the lines outlined.
- Of those who did not support the proposals, 4 – such as the Blairingone and Saline Action Group - were opposed to *any* further spreading of sludge. Of the other 7, 2 felt that further controls were necessary and 4 offered no comment. NFU Scotland, like other respondents, was conscious of the importance of commercial interests in determining the future of sludge spreading and in its case did not take a definite view on the proposals. Among those who supported the proposals, 12 also felt there was a need for further controls. Suggestions were making the Code of Practice compulsory, and further controls on odour and specific requirements against cryptosporidium.
- Comparisons were made with proposals for England and Wales. SEPA, Scottish Water and Burness Solicitors all commented unfavourably on the notice periods suggested in the DEFRA paper, and which we intend to simplify in Scotland.

Several respondents noted that the DEFRA paper made specific mention of the hazard analysis critical control point (HACCP) approach. All those that did so hoped it would be a feature of the Scottish regime. [Since the Code of Practice will be UK-wide, this will be the case.]

- No further precise information was offered in respect of the draft Regulatory Impact Assessment. Some respondents, however, believed that the regulatory costs to SEPA would prove higher than the £14,000 stated in the draft. Some organisations, such as the Scottish Landowners' Federation and Highland Council, specifically welcomed the relatively small impact on farmers. It was generally felt appropriate that sludge producers, notably Scottish Water, bear most of the costs. NFU Scotland felt it important that they should be responsible for the necessary assessments.

Summary and recommendations

29. The proposed revisions to the regulations reflect the higher standards currently set out in the Safe Sludge Matrix. The change to farming practices would be very slight (as these are overwhelmingly compliant with the Matrix) but the revisions would allow cost-effective enforcement and, more importantly, would bring increased confidence in the acceptability of recycling sewage sludge to agricultural land. The proposals therefore reduce the risk of having to use other, more expensive, and possibly less environmentally desirable disposal routes.

30. The cost of alternative disposal routes is the cost of landfill or incineration and the costs of replacement fertilisers. Capital investment by Scottish Water is not required for the landfill option but there is a continuous high recurring cost each year (a cost that is likely to increase due to scheduled increases in the landfill tax and pressure on availability of landfill sites). The incineration option has very high costs compared to the agricultural recycling route and creating the additional capacity to deal with extra sludge would require a long planning process, and is unlikely to receive public support on environmental sustainability grounds.

31. Landfill or incineration may have benefits in the form of improved consumer confidence, as the perception of risk from sludge used in agriculture disappears. There would also be a reduced nuisance from odour as the spreading of sludge in proximity to residential and commercial property would no longer take place. However, there are disbenefits as consumers are opposed to landfill and incineration and these options are less favoured according to the criteria in the National Waste Strategy than the recycling route.

32. The voluntary approach avoids the additional costs of incineration or biogas and landfill. However, key stakeholders would find the lack of regulation and enforcement unacceptable, as they believe without regulation and enforcement there could be a high risk of the loss of the sludge to agricultural land route through a loss of consumer confidence. If this were to occur, the costs of replacement technologies would also become an immediate issue.

33. Revising the *Sludge (Use in Agriculture) Regulations 1989* maintains the recycling to agricultural land route and provides best value for money. There is no

need for the additional costs of landfill and incineration, or the development of biogas capacity. The security of the sludge to agriculture route means improvements to the soil and reduces the need for farmers to use inorganic fertilisers. The initial capital investment in improved treatment guarantees for the future a low cost option for recycling sludge. The total capital costs for Scottish Water has already been agreed within the Quality & Standards Review for 2002-2006 as approximately £14m. The funding of any additional costs identified would need to be discussed by Scottish Water and the Water Industry Commissioner.

34. The table below summarises the costs and benefits of each of the options. The costs are shown as the net present value for a thirty-year period, with the capital investment assumed to occur in 2002.

Table 2 – Summary of costs (NPV) and benefits for each option

Option		Estimated Costs (Net Present Value)	Benefits
Option 1 – do nothing	Public Confidence Holds	£0	None
	Sludge to Agriculture unacceptable	Incineration - £280m or Landfill - £95m £9m for inorganic fertilisers	Disbenefits as consumers oppose alternative routes (and landfill/incineration is lower in the waste hierarchy and less sustainable than recycling route)
Option 2 - a voluntary approach by revising the code of practice without revising the regulations If sludge to agriculture becomes unacceptable, the costs above would apply		£45m Scottish Water £150 per farmer £3m for septic tank desludging	Limited increased confidence
Option 3 - revise the regulations		£45m Scottish Water £150 per farmer £3m for septic tank desludging	Proposals would secure greater confidence of the food industry and the public in the sewage sludge to agricultural land route

Enforcement, sanctions, monitoring and review

35. The Scottish Executive, together with the UK Government, the Welsh Assembly Government, SEPA and the Environment Agency would issue a revised UK code of practice explaining the regulations and recommending best practice.

36. SEPA, as the competent authority, would be responsible for enforcing and ensuring compliance with the regulations through a process of audit and spot checks of sludge treatment centres, registers, and reports, and through field visits etc. The sludge producers would be required to notify SEPA, maintain records and make these available to SEPA on request. The regulations would carry the appropriate maximum fines on summary conviction. A charging scheme would enable SEPA to recoup the costs of enforcing the activities required by the revised sewage sludge regulations.

37. SEPA would also issue guidelines to officers and arrange suitable training when the proposed revised regulations are introduced to ensure that the revised regulations were implemented, monitored and enforced consistently and fairly across the country. The Scottish Executive and SEPA would monitor and review the effectiveness of the regulations at regular intervals.

Contact Point

38. Copies of this RIA are available from:

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LIST OF CONSULTEES

All MSPs

Local Authorities

Aberdeen City Council
Aberdeenshire Council
Angus Council
Argyll & Bute Council
City of Edinburgh Council
Clackmannanshire Council
Dumfries and Galloway Council
Dundee City Council
East Ayrshire Council
East Dunbartonshire Council
East Lothian Council
East Renfrewshire Council
Falkirk Council
Fife Council
Glasgow City Council
Highland Council
Inverclyde Council
Midlothian Council
Moray Council
North Ayrshire Council
North Lanarkshire Council
Orkney Islands Council
Perth and Kinross Council
Renfrewshire Council
Scottish Borders Council
Shetland Islands Council
South Ayrshire Council
South Lanarkshire Council
Stirling Council
West Dunbartonshire Council
West Lothian Council
Western Isles Council

Political Parties and MSPs

Conservative Party
Green Party
Labour Party
Liberal Democrats
Scottish National Party
Scottish Socialist Party
Denis Canavan MSP

Farm Contractors

Scottish Agricultural Contractors Association, Perth
John A Petrie, Stonehaven

Ringlink (Scotland) Ltd, Laurencekirk
William Watt, Banchory
A & M Wright, Banchory
Jack Reid, Ellon
Sandy Milton, Ellon
John Skinner, Maryculter
George Wood, Echt
R & W Wilson, Sauchen
W Clark, Ellon
Colville Contractors, Turriff
Eric Gibson, Maud
John Rennie, Turriff
I M Paterson, Kintore
W Paterson, Ellon
W Robertson, Ellon
A Sinclair, Udney
Ian Sim, Turriff
M Bell, Fraserburgh
John Junor, Peterhead
Low Brothers, Peterhead
Philip Paterson, Huntly
Peter Clemson & Sons, Larkhall
Central Farmers Ltd, Pitscottie
James Scougall, Inchtute
Complete Weed Control (Scotland), Crieff
R H Sprot & Son, Berwick on Tweed
Feedmix Ltd, Turriff
Growing Concern (Scotland) Ltd, Dunning
Crop Services (Scotland) Ltd, Kelso
I A Mowatt, Evanton
John Bryson, Lesmahagow
Ronald Campbell, Ballantrae
D M Contracts, East Kilbride
W & M Craig, Drongan
A & A Drummond, Sorn
G Dunlop, Kilmacolm
James Forrest, Darvel
H Gilbert, Johnstone
Archie Kerr, East Kilbride
W Kirkpatrick & Sons, Ardrossan
David Laird, Cronberry
G & R Logan, Coylton
Craig MacFadzean, Newmilns
J MacFadzean, Kilmarnock
Jim Mair, Cumnock
Nisbet & Sons, Moscow
Seaton Bros, Lochwinnoch
J Smith, Kilmaurs
Alexander Watt, East Kilbride
J & W McNae, Tarbolton

Scottish Machinery Ring Association, North Kessock
CSG Landstar, Paisley
Snowie Ltd, Stirling
EMAC, Inverness
DM Carnegie, Kincardineshire
G Dalgarno & Sons, Angus
Derek Day, Port Elphinstone
J Elliss, Stonehaven
D Ewan, Kincardineshire
E Ewan, Kincardineshire
H McPherson, Kincardineshire

Interested Parties

Abertay University
Accounts Commission
Aitken Associates
Anderson Strathern WS
Aspinwall & Company
Association of Scottish Chambers of Commerce.
Association for the Protection of Rural Scotland
BIFFA Waste Services Ltd
Bishop and Robertson Chalmers
Blairingone and Saline Action Group
British Dental Association
British Energy Plc
Brodie Solicitors
Burness Solicitors
Caledonian Environment Centre
CBI Scotland
Central Farmers Limited
Centre for Environment & Business in Scotland
Confederation of Landscape Industries in Scotland
CORDAH
COSLA
Crofters Commission
Cuthbertson Environmental Ltd
Department for the Environment for Northern Ireland
DEFRA
Dexter Nonwovens
DK Waste Services
EAG Environ
Ecos House
Effluent Enterprise
ENVIROMAC
Environmental Assessment Group
Environmental Health Advisory Services
Environmental Services Association
Farm and Wildlife Advisory Group
Forth Valley Health Board

Forum of Private Business
Freight Transport Association
Freshfields WS
Friends of the Earth
Gas Measurement Instruments Ltd
Going for Green
Halcrow Fox
Highland Spring Ltd.
Holden Environmental Waste Management Services
Horticultural Trades Association
Ironsides Farrar Ltd
IWM Caledonian Environment Centre
IWM Centre Kilmarnock
Keep Scotland Beautiful
Levenseat Landfill Ltd
McGrigor Donald Solicitors
MLC
MLURI
NFU Scotland
Robson Maclean WS
Dr Mike Roworth
Scottish Agricultural College
Scottish Centre for Infection and Environmental health
Scottish Crofting Foundation
Scottish Environment Protection Agency
Scottish Landowners Federation
Scottish Power
Scottish Water