UK Sewage Sludge Survey

This project was undertaken to provide the Agency with data on the production, recovery and disposal of sewage sludge in the UK in the financial year 1996/7. The survey provided information to meet the reporting requirements of the EC Directive on sludge to land and is indicative of progress made to achieve compliance with the EC Directive on urban wastewater treatment. The last survey of information on sewage sludge was undertaken on behalf of DoE in 1992 and was based on data for the year 1990/1. The new survey fulfils the same overall objectives as the previous one but has collected more extensive information.

The national survey report gives an overview of the results of the survey for the UK and also separately for England and Wales, Northern Ireland and Scotland. Some of the main findings of the survey were as follows:

- Sludge production in 1996/7 in the UK was 1.12 x 10^6 tonnes dry solids (tds). This was an increase of 1% over 1990/1, much less than predicted by the earlier survey.

- Recycling to agricultural land was the outlet for 47% of sludge, 25% went to sea disposal, 8% to landfill and 8% was incinerated. The remaining 12% went to a range of minor outlets.

- Estimates of future sludge production are 1.41 x 10^6 tds in 2000/1 and 1.47 x 10^6 tds in 2005/6. This extra sludge is expected to be recycled to land or incinerated with energy recovery.

- In 1996/7, 54% of sludge was treated by mesophilic anaerobic digestion (mad), 13% was treated by storage, but the use of other treatment processes did not exceed 2% in any case. Twenty one per cent of sludge used in agriculture was untreated compared with 26% in 1990/1. The use of untreated sludge on land will be phased out in the future and more sludge will be treated by mad or 'high level' processes such as thermal drying.

- Concentrations of potentially toxic elements (PTEs) in sludge in 1996/7 were comparable to those in 1990/1, although the mean concentration of zinc at 792 mg kg^{-1} ds was reduced by 14%. Slightly greater concentrations of PTEs were found in sludge from the larger sewage treatment works (>150 000 population equivalent) which may reflect treatment of sludge by mad as well as wastewater quality in urban catchments.

- Sludge was applied to about 80 000 ha of land in 1996/7 or approximately 0.5% of the total area of agricultural land in the UK. The use of land receiving sludge was 60% arable and 40% pasture. Average application rates of sludge were 3.5 tds $^{ha-1}$ to arable land and 2.8 tds hha-1to pasture land. Most of the soils treated with sludge had an ash value of 6.0 or above. Most sludge (58%) was applied to the land by subsurface soil injection. PTE concentrations in soils receiving sludge were close to background

levels.

The timing of the survey means that a proportion of the data that it contains is now dated and should be treated with a high degree of caution. The plans for ways in which sewage sludge will be utilised in the future has changed markedly over the last year and the predicted data in the survey are now incorrect. Since the survey was completed the water companies have altered their sludge strategies to take account of a number of recommendations from key reports and also from the British Retail Consortium. The survey should be treated as a snap shot of the situation in 1996/97 and the predicted data should not be used to extrapolate figures for the future

This R&D Technical Summary relates to information from R&D Project P2-065 contained in the following outputs:

R&D Technical Report P165 UK Sewage Sludge Survey - National Presentation

Internal status: Released to Regions
External status: Public Domain

R&D Project Record P2/065/1 UK Sewage Sludge Survey - Regional Presentation

Internal status: Released to Regions
External status: Public Domain

R&D Project Record P2/065/2 UK Sewage Sludge Survey - National Database

Internal status: Limited Release Regions
External status: Not Circulated

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Research Contractors: WRc

Copies of these documents are available internally from the Regional Information Centre (Library) and externally from WRc, Frankland Road, Blagrove, Swindon, Wiltshire SN5 8YF (Tel: 01793 865012; Fax: 01793 511712).

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