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Subject:	COMMISSION STAFF WORKING DOCUMENT EXECUTIVE SUMMARY OF THE EVALUATION Council Directive 86/278/EEC of 12 June 1986 on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture

Delegations will find attached document SWD(2023) 158 final.

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COMMISSION STAFF WORKING DOCUMENT

EXECUTIVE SUMMARY OF THE EVALUATION

Council Directive 86/278/EEC of 12 June 1986 on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture

{SWD(2023) 157 final}

EXECUTIVE SUMMARY

The Sewage Sludge Directive[1] (SSD) aims at encouraging the use of sewage sludge in agriculture while preventing negative health and environmental impacts. It sets quality requirements for the sludge and the soil on which it is to be used, by setting upper limits on their content in seven heavy metals (cadmium, copper, nickel, lead, zinc, mercury, chromium). It also requires sludge treatment before application, and consideration of the nutrient needs of the plants.

The Directive has never been substantially amended since its adoption almost 40 years ago. Meanwhile, in parallel to progress on the knowledge of sludge properties, treatment and use, the wider environmental legislative and policy framework has considerably changed. Also, wide differences in implementation are observed, linked to the fact that sludge management strongly depends on local conditions, or policy choices by Member States (e.g. some of them ban the use of sludge in agriculture). Broadly speaking, looking across all heavy metals thresholds and parameters set by the Directive, over time seventeen of them have adopted stricter requirements by setting stricter limits or limits for additional contaminants.

This evaluation was carried out in view of that, and in line with the European Commission's Better Regulation principles and methodology.

Effectiveness

About 40% of the 2 to 3 million tons of sludge yearly produced in the EU (17 kg/ha) are applied on farmland. The other share is incinerated (27%), composted (about 10%), or landfilled (currently estimated at 11%, and phasing out). Sludge use in agriculture has remained the main route for sludge management in the EU, allowing to curb sewage sludge disposal through landfilling, while acting as a fertiliser which also shows to improve further soil properties.

The level of heavy metals in sludge used in agriculture significantly decreased over time, to level below the limits set by the SSD, very often 10 times lower. While it can be partly attributed to the Directive, it is challenging to distinguish its effect from that of national action or of legislation controlling the emission of these pollutants at source.

The evaluation found very limited information linking soil quality and use of sewage sludge, in particular on long-term effects, and research is going on in this regard. The current reporting system also showed limitations, not only suffering from low compliance by Member States, but also not generating information allowing to assess the impact of sludge use on land, including verifying that plant needs are taken into account (thereby preventing groundwater pollution by excess of nitrates). The evaluation also identified room for data improvement in streamlining reporting under the SSD and the Urban Waste-Water Treatment Directive[2] (UWWTD) and data flow management at EU level (currently shared between the European Environmental Agency and Eurostat).

Quality standards voluntarily set up between sludge producers and farmers have contributed to achieving the objectives of the SSD. Conversely, negative public perception, the lack of EU-wide end-of-waste criteria for sludge and the use of alternative organic fertilisers e.g. manure, or, increasingly, biowaste, are identified as hindering factors.

[1] Council Directive 86/278/EEC of 12 June 1986 on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture, OJ L 181, 4.7.1986, p. 6–12

[2] Council Directive 91/271/EEC, OJ L 135, 30.5.1991, p. 40–52

The SSD also has had unintended effects, positive (sludge use in agriculture presents an overall negative carbon footprint) or negative (sludge use in agriculture leading to antibiotic resistance genes and microplastics presence in soil, associated emissions of methane and of other contaminants not regulated by the Directive).

Efficiency

Using sludge in agriculture entails costs, for treatment to make it suitable for use (for safety reasons e.g. hygienisation, or to ease transport), and for transport. These amount to several hundreds of euros per ton of dry sludge (tDS). However, it is overall significantly less costly than other sludge treatment options, especially (mono-)incineration, the main alternative to the agriculture route. A hypothetical shift of the sludge currently used in agriculture towards (mono-)incineration could increase costs by €41–488 million/yr, and, for mono-incineration only, by €391-488 million/yr. Also, in a theoretical case where sludge would fully substitute a mineral fertiliser, savings for farmers could be some €96 and €44/tDS, for nitrogen for phosphorus respectively.

Coherence

The SSD is in line with the waste hierarchy set by the Waste Framework Directive[3], prioritising recovery of nutrients over energy recovery and disposal, notably through landfilling.

In principle, the objectives of the Directive are also aligned with other environmental and health legislation and the linked policies outlined in the Zero Pollution Action Plan and the EU Soil Strategy for 2030. However, in practice this coherence would be fully ensured if the risks linked to contaminants present in sludge were reassessed, notably reviewing the limit values and the set of pollutants which it regulates.

The revised UWWTD, as proposed by the Commission[4] in 2022, could affect the composition of sludge, by potentially increasing its content in microplastics, while decreasing the level of contaminants which the UWWTD would reduce at the source. It is also bound to influence sludge treatment practices in view of increasing the energy efficiency of the treatment plants.

More broadly, the Directive serves the European Green Deal, and EU policies on climate, health, circular economy, security of food supply, and independence in fertilisers, critical raw materials and energy. These policies influence sludge management policies differently, depending on local conditions e.g. the agronomic needs of soils, energy mix and available infrastructure. It can also favour specific treatments, with varying impacts on carbon footprint. Anaerobic digestion allows to produce biogas while treating the sludge, but is not always sufficient to remove certain pollutants. Treatment may not always be feasible, where infrastructure lacks, or technically, depending on the contaminants to be abated in the sludge. In such cases, (mono)incineration could be a last recourse, possibly with recovery of heat from a renewable resource.

EU added value

The SSD maintains its added value, as the sole legal instrument providing an EU wide framework for soil protection from sludge use in agriculture, setting a minimum level of harmonisation for control of pollution and health risks. It also promotes a rather inexpensive sludge management route.

[3] Directive 2008/98/EC
[4] COM(2022) 541 final

However, many Member States have gone beyond the Directive requirements, showing that it is not the only driver to limit contaminants in soils and sludge and that it does not offer as high a level of environmental protection as in the legislation of some Member States.

Relevance

Overall, the SSD continues to be relevant and it is supported by stakeholders. However, the list of contaminants which it regulates would need review, notably considering organic compounds, pathogens, pharmaceuticals, and microplastics which are present in sewage sludge. The risks which they pose when sludge is used on farmland need to be assessed and addressed through risk management measures.

Lessons learned

The data gap on the environmental impact and health risks linked to sewage sludge use on land has hindered maintaining the relevance of the legislation over time.

In the wider context of sustainable development, zero pollution, climate change, and EU policies of strategic autonomy, there may be synergies and trade-offs between different drivers of choices for sludge management. Applying a mix of techniques, in function of local settings, can help maximise benefits and minimise adverse impacts on the different sustainability dimensions affected by sludge management. As such, maintaining the flexibility of choice for sludge management is important.

It could be explored whether more guidance or instructions on treatment at EU level would be opportune, for optimised benefits in nutrients and, possibly, energy. For regulatory simplification, synergies could be exploited with future waste, soil or water legislation, and future policies to increase efficiency in nutrient, biomass and energy use. In view of the EU Soil Strategy, sludge application onto non-agricultural lands may be examined too.

Finally, the internal market legal base of the Directive should be reconsidered, since changes in the EU treaties have made a specific environmental policy legal base available.