



PRINCIPAL OPINIONS OF THE EUROPEAN WATER ASSOCIATION ON THE FUTURE OF THE REGULATION OF TREATED SEWAGE SLUDGE UTILISED ON LAND WITHIN THE EUROPEAN UNION

S1 The use of sewage sludge has been a subject of intense interest at a continental level for over thirty years, as far back as the COST 68 programme. Since then the EWA (also as its predecessor body) has contributed extensively to the work of the Commission and wishes to continue to do so. It is committed to the continuing use of sewage sludge on land, but only on the basis of sound scientific and operational evidence.

S2 The European Water Association, the EWA, is the non governmental organisation representing professionals working in water management throughout the European continent. It is expressing this opinion on the important topic of managing the solids produced during the treatment of sewage because it is aware of the importance of water and waste management programmes in the European Union. The focus of the Opinion is the use of treated sewage sludge of good quality, compliant with the required standards, on land but it offers some thoughts on other aspects of sewage sludge management as well.

S3 The EWA wishes to emphasise the following points to the European Commission:

- The use of the solids, arising from the treatment of sewage sludge, on land as a fertiliser and soil conditioner brings benefits to the whole community.
- The 1986 Directive on the use of sewage sludge in agriculture has worked well, but needs to be reviewed in order to take advantage of operational experience gained in the meantime and of progress in scientific and technological knowledge.
- The language used to communicate issues on municipal used water and the solids arising from their treatment needs to be reviewed and harmonised in all the languages used by the Commission.
- Use of sewage sludge on land after treatment should be considered as part of an overall strategy which recognises the value of alternative methods of management in particular locations. In practice, the only options for managing the solids arising from the treatment of used municipal waters are by thermal treatment (such as incineration, co-incineration, pyrolysis and maybe in the future also super critical wet oxidation) or use on land. Landfill of dewatered or dried sewage sludge will no longer be a practicable alternative except for the residues from incineration because it is not sustainable and because of the restrictions of the Landfill Directive. However there are still locations which wish to retain the option of mono-fill for small quantities of sewage sludge for practical reasons.

- Thermal treatment is practised using several technologies, but now focus is primarily on incineration incorporating the recovery of energy. At present, small scale plants are not economically competitive. A demand for such plants seems of increasing relevance.
- There is a need for continuing research on many aspects of sludge disposal and uses including other uses on land, such as for land reclamation, product recovery, such as for proteins and particularly for phosphorus, and thermal treatments.
- Beneficial recycling of all organic materials should be safe, sustainable and welcomed by communities. Thus the aim should be to practise recycling without short or long term harm to humans, animals, soils and plants or objection by communities. Regional partnerships should be established to engage stakeholders, such as producers, users, food processors and retailers, consumers and so on, in a combined pursuit of excellence. This cannot be achieved by action at the level of the European Commission but nevertheless there would be benefit in encouragement by the Commission.
- The EWA has identified some difficulties in reconciling all the legislation currently applying and being developed for treated sewage sludge. There is overlap between the Water and Waste Framework Directives and a Soil Framework Directive is being developed. This needs resolution.
One way forward is by application of the proposed Soil Strategy and Waste Framework Directive in conjunction with the Water Framework Directive, including the Urban Waste Water Treatment Directive, regulating a variety of utilisation practices nationally according to local factors rather than under the Waste Framework Directive per se. Whilst there should be integrated management of recycling of all resources, there is a need to clearly represent the role and impact of treated sewage sludge within the outputs of the River Basin Plans being produced under the Water Framework Directive. There would appear to be advantages in a radical re-think about the need for a Sludge Use Directive per se, if the criteria for adequate sludge quality for land application are clearly defined and there are robust links to soil and groundwater protection strategies and Good Agricultural Practice using an appropriate precautionary approach.
If sewage sludges are regulated in general under the Waste Framework Directive, the special connections to water legislation and the usefulness of the treated sludges must be recognised by affording exemptions for treated sludges as adopted by the European Parliament Industry Committee.
Harmony with the controls of the beneficial uses on land of other organic resources is needed. Treated sewage sludges are objects of value! Describing them as wastes discourages beneficial use.
With its wide range of membership, the EWA would be pleased to assist the Commission in finding the best way forward.
- The EWA has the knowledge base and experience to assist the Commission in the review process and would be pleased to organise workshops as it did in the formulation of the 1986 Directive and in recent work on amendments.

- The EWA urges that the objectives of any review should be:
 1. to understand any deficiencies of the current policies and legislation and to advise on any changes which will be necessary
 2. to recommend the best way of optimising the need for implementing effective controls over the uses treated sewage sludge use on a day to day, practical and local basis with the need for compliance with different EU requirements
 3. to recommend clear definition of the short and long term strategies of reliable sludge management with enough time for the construction and commissioning of further sludge treatment facilities, if any
 4. to recommend how the value of sewage sludge can be communicated better to all stakeholders
 5. to recommend the need to take into account the high reliability requirements for any programme of sludge management to contribute to compliance with the Urban Waste Water Directive
 6. to understand the cost efficiency of sludge management in these contexts
 7. to advise on the need for the optimal adaptation of any changes to the specific local or regional situations

The reasoning behind this Opinion and greater detail is given in the Appendix.

APPENDIX

INTRODUCTION

1 The EWA represents approximately 52,000 individual professionals, working predominantly in the European Union. They work in all aspects of water cycle management and include engineers, scientists, economists, planners, meteorologists etc., working in public utilities, government agencies, environmental regulators, universities, consultancies, etc.

2 The EWA has clear evidence of the benefits which the water management professionals can bring to embed sustainability into the fabric of society. They achieve this by education and advising policy makers for water management. Historically this has been clearly demonstrated in terms of the contribution that these professionals have made in the safe disposal of sewage sludge and in particular the safe use of treated sewage sludge on land.

3 The EWA is aware that the European Union has reached a crucial point in determining the future of spreading sewage sludge on land. These decisions will in turn have significant consequences for its water and waste treatment programmes. It therefore wishes to contribute to the current discussion and offer its expertise.

4 The EWA has amongst the members of its member National Associations individuals who regulate and operate schemes for the use of sewage sludge as a fertiliser and soil conditioner on land. It can confirm that well operated and regulated schemes are beneficial to the whole community. It supports these practices and continues to support the European Union which has wished to promote the use of treated sewage sludge on agricultural land under the 1992 Urban Waste Water Treatment Directive and under the 6th Environment Action Programme. It is pleased that similar support is coming from other sources such as the European Parliament Industry Committee and from CEN in the work of TC 308.

5 However, it also recognises that it is over twenty years since the information was assembled to support the 1986 Directive for the use of sewage sludge in agriculture. Some countries have exceeded the regulation of practices in implementing the Directive. It is timely, therefore, to review the effectiveness of the 1986 Directive and to determine if the regulation of sewage sludge should be extended to its other potential uses.

6 On the basis of the contributions from our members we would urge that the objective of any review should be to refine and improve operational practices rather than to prohibit them.

OVERALL STRATEGIES

7 It is very important that the possibilities of using of treated sewage sludge on land are part of an overall strategy which recognises the value of other options in each local situation. Such strategies must have a clear understanding of the risks and costs of available options. Hence, this Opinion does devote some time to consider the other options, even though the focus is utilisation – thus providing the correct comparative framework. It is also very important indeed that any strategy must recognise the importance of good communications.

8 All sewage sludges have calorific value, organic matter and nutrients. But these are affected by treatment. They can either be wasted such as by disposal to landfill, or some content recovered. When there is recovery the challenge is to demonstrate the value of this to the wider community. The EWA recognises that without proper treatment, proper quality control and proper management practices, there would be real risks to the environment in all the available options and that is what feeds public and media concerns. This is particularly true for the uses of treated sludges on land. The EWA would like to explore how it can assist the Commission in the promotion of safe and sustainable management of treated sludges in the drafting of social and environmental strategies and policies.

9 The hierarchy of European Union policy for dealing with materials classified as waste are

- Prevention
- Minimisation
- Recovery: a) re-use, b) recycle for resource/material recovery including use on land or phosphorus recovery in industry, c) energy recovery by incineration or pyrolysis for example, but residues still need disposal, usually by landfill, but may include use of the ash on land to exploit the nutrient content; this category could also include incorporation of the sludge into cement manufacture or the incorporation of the ash into bricks preferably after recovery of phosphorus.
- Incineration including co-incineration without energy recovery and dispose or use of the residue
- Safe use of landfill

10 For established communities, the existing methods of collecting used waters in sewers and treatment at central works are likely to continue for the foreseeable future. The quantity of product is predicted to rise. It is a substantial responsibility for water utilities to manage. Prevention is not an option and minimisation has limited scope.

11 The next practical step at present is to consider recycling. In addition to the use of treated sewage sludge in agriculture, there are other uses on land such as in forests, and for reclamation. There is growing interest in the use of sludge to grow industrial crops particularly for use as biofuels- such methods may combine the treatment of the sludge with the growth of crops.

12 In instances where direct recycling is not practical for quality or economic reasons the final available option is thermal treatment ,usually incineration ,preferably with recovery of the energy content. Mono incineration and novel processes such as super critical wet oxidation are promising alternatives allowing the recovery of phosphorus. Co-incineration of sludges with solid municipal waste, coal or as part of the process used in cement manufacture are alternatives making use of the calorific value but do not favour phosphorus recovery. Recovery of protein could be interesting in the future but is yet not economically viable in most instances. Phosphorus being a limited resource and representing the most interesting monetary value of the sludge compounds needs special attention. The EWA urges the European Commission to promote research in these options.

13 One effect of the Landfill Directive has been to reduce the availability of landfill sites as an option for the disposal of sewage sludge. Soon, in practice, it will be difficult to dispose of these solids to landfill except for the ash arising from incineration. However, some locations wish to retain limited mono-fill options for landfill of organic matter.

14 As a result, the two practical options for dealing with sewage sludge in the foreseeable future are, use on land and disposal by thermal treatment preferably with some energy recovery. For an individual source of these solids, the assessment of the best practicable environmental option must agree with the principles of sustainability – cost, environmental impact and social impact. This must encompass the use of best available technology.

15 The regulation of sewage sludges , in general, falls under the Waste Framework Directive but that for treated sludges used on land falls between of the Directive for water and that for waste. For example they are created by the treatment of sewage which will be governed by the overall drive of the Water Framework Directive and the Urban Waste Water Treatment Directive specifically encourages agricultural use of treated sludges. Many of the criteria for control of the environmental impact of utilisation are driven by other water Directives on such matters as the control of nitrate in water and diffuse pollution. Yet the Waste Framework Directive may drive the regulation of the practice itself on the basis that sludges are wastes.

16 Untreated sludges may be wastes but treated sludges are not!! Describing them as wastes is very discouraging. This would appear to run counter to the objectives set in the European Waste Framework and Thematic Strategy on Wastes and Recycling.

17 So there is a dichotomy between the regulation of untreated sludges and treated sludges. The EWA is concerned that the management of these solid by-products suffers as a consequence. At a time in which there are major programmes of work for water and waste in the European Union, it is important that there is clarity and the purpose of this Opinion is to contribute views to this end. The EWA is pleased that the European Parliament Industry Committee adopted an amendment requesting the exclusion of the Sewage Sludge Directive from the scope of the revised Waste Framework Directive. This is discussed further in para 31.

THERMAL TREATMENT

18 There are many options under this heading which will not be explored in detail as they are not the main focus, but they are matters which utility managers would consider as alternatives to agricultural use of sewage sludge. These range from the use of the sludges in brick and cement manufacture through pyrolysis and gasification to incineration with and without energy recovery. At present due to limitations in technology or cost, the options other than of incineration are only used on a very limited basis, but interest and application is growing. More development and investment is needed.

19 For incineration to be sustainable it must avoid wasting the heat energy it generates. Incinerators are by tradition large central plants but these may not be sustainable in some areas and so there is a need to develop smaller plants with energy recovery which are available in economic and environmental terms. These do not exist at the moment. The EWA urges the Commission to promote the concept of 'energy from waste' and the development of cost effective small scale thermal recovery plants as viable alternatives to the current large installations with their inherent social and environmental impacts. This will also significantly reduce the energy costs and carbon dioxide emissions necessitated by the transport demands of large centralised plants. However, the EWA accepts that waste legislation should apply to the incineration of sewage sludge solids and the ashes if they are not used for recovery of valuable materials.

RECYCLING – THE FOCUS OF THIS OPINION

20 Treated sludges are in themselves valuable sources of organic matter, nutrients and even water. Their uses on land bring many benefits to soils and assist in the overall pursuit of sustainability and minimise the carbon footprint of used water treatment. Indeed their uses are likely to help counteract the increasing impoverishment and desertification of soils. Sewage sludges including the ashes from incineration are increasingly viewed as valuable sources of phosphate. However it is the concerns on the risks of other materials present such as micro-chemicals and micro-organisms which has needed caution in their uses.

21 The chemical quality of sludges is a function of the management of discharges to the sewerage system but microbiological quality and even nutrient availability are affected by the processes at central treatment works. Great progress has been achieved in the control of sources of contaminants in industrial effluents discharged to municipal sewers and the EWA has concluded that if any further restriction on the use of sludges were to be imposed this might lead to the prohibition of the use of a wider range of substances and products, even in domestic properties. Therefore any such restrictions should be based on very sound evidence. The EWA favours strict regulation of contaminants entering the sewerage systems.

22 The EWA has long been of the view that the treated sewage sludge must not be considered as a waste and has already followed many other bodies in supporting the use of more accurate language, as described earlier.



23 All sludge disposal must comply with the principles of sustainability. It is vital that , in making decisions as to whether or not to use treated sludges in a particular location, proper risk assessment methods are used to plan and control operations. The EWA is well placed to assist the Commission in identifying these.

24 The EWA member associations have amassed a great deal of experience on the issues of the properties of the treated sludges. It is vital that any changes in legislation should have a clear understanding of the natures of the target and indicator organisms. In addition to applying the principle of critical point risk management in the processes, the EWA is of a view that best available technology is vital to successful operations.

25 The EWA is very much aware that treated sludges often compete for re-use on land on a local basis with other forms of recycled organic matter such as treated municipal green waste, treated food by-products and wastes and farm manures. The EWA urges planners and regulators to ensure that all these materials are managed so as to have equal opportunity for beneficial re-use, leaving it to farmers and suppliers to decide on what is best.

26 The EWA wishes to promote the uses of sustainable organic resources for a wide range of uses on land. Of course, agricultural use remains a very important focus but rather than introduce a long series of regulations on each use, the EWA very much supports the approach of developing an overall framework of management leaving it to the national regulators to define the local requirements for particular activities. Such a framework would have to link into the Soil Framework Directive. This would require a radical re-think about the need for a separate Sludge Use Directive.

27 The EWA wishes to emphasise the importance of obtaining public support for the re-use of sewage sludge on land. It proposes that the European Commission and national Governments should be promoting safe, sustainable and “welcome” recycling. “Acceptable” is the minimum in terms of operational objectives – the target should be ”welcome”:

- “Safe” is a self evident term based on sound scientific knowledge and risk assessment.
- “Sustainable” relates to the length of time which an operation can continue within the parameters defining environmental safety. The ideal solution is that the treated sludges are of such good qualities that the site on which they are used is available in perpetuity i.e. safe soil limits are never reached, but there may be some practical time limitation on such use beyond which soil quality limits would be exceeded. This period should be as long as possible, based on sound soil science knowledge and be of practical use to the solids supplier and farmer. This is usually measured in terms of more than one generation.
- “Welcome” is that public attitude beyond benign acceptance. The aspiration must be to achieve such sympathy that the public demands the

use of treated sludges as a valuable contribution to the health and wealth of the future of the Planet.

28 In practice there are three levels of environmental and operational sustainability which must be built into strategies:

- Short term issues: - if the operation is conducted in such a way that public opposition is maximised by causing malodours or leaving mud on adjacent roads and so on, the effect will be to stop the operation immediately. If the causes can be remedied quickly and the public can be persuaded that there will not be a recurrence, the operation may be re-started if. So these issues are relatively short term in nature.
- Medium term issues. - If human, animal and plant health is compromised the operation will be stopped immediately. It may be possible to effect a relatively quick recovery from the physical effects, but there may well be longer term issues about public confidence which will need to be overcome.
- Long term issues: - These usually centre on contamination of soil and crops and damage to ecosystems. They will be much less evident to the general public but the long term consequences and hence long term sustainability issues are much more lasting. It is this which has caused so much concern in the past for environmental planners.

29 But sustainability must also address other issues. Sludge management by utility must not contribute unnecessarily to waste water charges and must be seen to be contributing to the overall welfare and social needs of a community.

30 The EWA urges all European Union Member States to continue taking account of these points in formulating national practices and regulations; when they are clearly under control, then public attitudes will migrate from opposition to acceptance to welcoming for practices which add to 'greenness' of the Planet. But this can only be achieved by good communications and the EWA is of the opinion that there is a good case for establishing national partnerships to promote safe, sustainable and welcome recycling of all organic resources to supplement and complement the role and work of regulators and policy makers. Such Partnerships should include producers, users, food processors and retailers and consumers.

31 The EWA has not concluded whether the management of the uses of treated sludges should be seen primarily as a critical part of the River Basin Management Plans with connections to Waste Management Plans rather than vice versa. An argument can be constructed to change from the latter to the former which not only makes good environmental and investment sense, but it enables the water utilities to embed risk management practices and processes through the whole used water management chain. In fact the environmental consequences of using treated sludges are closely aligned to the focus of the Water Framework Directive. Some members of the EWA favour retaining the existing system to avoid confusion and to continue the linkages between the regulations of different routes of managing sewage sludges. However all are agreed that integration of management in one way

or another makes common sense and that once sewage sludges have been treated and are used in accordance with good practice and regulations designed to protect the environment and public health, they should not be accorded the status of waste and dealt with in the same way as other non beneficial materials, so exemptions under the Waste Framework Directive would be required.

The EWA would like to re-iterate the point made in para 15-17 that the control of the use of treated sewage sludges should not be under waste legislation.

32 This will require some careful thought as there are also common factors with the uses of other organic material as described earlier. The EWA would be very pleased to assist the Commission in sorting out these interrelated needs.

COMMUNICATIONS WITH THE WIDER COMMUNITY

33 It has long been recognised, that in communities which have habits and practices founded on extensive sanitation and public health protection, there will always be antipathy to anything to do with human faeces. Attitudes to sewage are encompassed by such feelings. This is known as the 'faecal aversion barrier' and was the origin of the old miasmatic theory of diseases. Yet paradoxically there is also sympathy for the recycling of organic material to land, particularly in recent times as the public becomes aware of the issues surrounding climate change. It is therefore vital to recognise the importance of good communications with the public to convey the benefits of spreading properly treated sewage sludge on land and the protection afforded by effective control systems.

34 The wording of the communication is very important and in this context the EWA urges policy makers to stop the use of words which do not aid public understanding. At a time when water resources are becoming more valuable because of climate change, waste water or sewage are inappropriate terms. Society should adopt the mindset that after use water needs recovering rather than being wasted - both for the basic purpose of maintaining river flows and also for more direct re-use. Use the term 'used water' which has already been adopted by some languages, such as French, but is not yet accepted across the continent.

35 A key phase of the water cycle is the cleansing of used water and its return to the environment for further benefit. Such collection and treatment of sewage produces a by-product in the form of a thick suspension which is known in most languages as something equivalent to 'sludge' in English. The other solid products of treatment, such as those arising from used screening and grit removal are excluded from this definition. But the problem is that in most languages the word 'sludge' has other meanings and is generally not a complimentary word.

36 However, individual sludges are different and hence the term should always be used in plural. When sludges are treated by the same processes, the natures of them tend to converge much more. When they are treated to be suitable for safe agricultural use, the natures of the products changes radically and it would seem logical to find another way of describing the materials which reflects their changes in

status and benefits. Such products are being increasingly described in some countries as “biosolids” or the translated equivalent.

Even the EWA has not yet found consensus on how we should develop this thinking. It has found differences in attitude between, say, academics involved in scientific research and those engaged in the marketing of products and services as part of operational services. It has also found differences between the syntaxes of the languages across Europe. Nevertheless members of the EWA are agreed that attention to language in communications is a very important aspect of strategy. For example it is very much aware of the difference that the wording of communication brings. In English “sludge dumped on land” is less accurate and more antipathetic than the more uplifting “biosolids used in agriculture”. There is no doubt that describing treated sludges as wastes discourages their beneficial uses. This whole subject of language, which expresses underlying mindsets, is in fact one of the root causes of the problems with the legal definition of treated sewage sludge as a waste.

37 The EWA recommends that the Commission should seek to gain consensus on the concepts of syntax which translate well and which help in promoting the use of treated swage sludge across Europe. It recognises that the term ‘biosolids’ is not yet accepted. In the context of this Opinion the EWA is using the term “treated sludges” as referring to those sewage sludges which have received treatment and can be used in safe ways on land.

CONCLUSIONS

38 A consensus view must be established on any changes to the current regulatory regime. The EWA will support changes based on sound scientific information and operational experience. It is clear that a better understanding of risk management will be of benefit, in which risks are understood and abated and in which the relative risks, impacts and costs of all options are compared.

39 It is worth re-iterating that re-uses of treated sludges must be considered as an option in policies and practices of integrated sludge management. So the EWA urges that the objectives of any review should be:

- to understand any deficiencies of the current policies and legislation and to advise on any changes which will be necessary
- to recommend the best way of optimising the need for implementing effective controls over the uses of treated sewage sludge use on a day to day, practical and local basis with the need for compliance with different EU requirements
- to recommend the clear definition of the short and long term strategies of reliable sludge management with enough time for the construction and commissioning of further sludge treatment facilities, if any
- to recommend how the value of sewage sludge can be communicated better to all stakeholders

- to recommend the need to take into account the high reliability requirements for any programme of sludge management to contribute to compliance with the Urban Waste Water Directive
- to understand the cost efficiency of sludge management in these contexts
- to advise on the need for the optimal adaptation of any changes to the specific local or regional situations.

40 The EWA Principal Opinions are summarised at the front of this document but this is the start of a long process of contribution to the review processes. In this context it has access to a very wide and deep knowledge base in its membership. Its Member Associations and its committees have produced many papers and organised numerous conferences and it would be pleased to share the outputs from these with the European Commission. It would be pleased to organise workshops to aid the review process and to provide advice as it did during the formulation of the original Directive and more recent considerations for revision.

SLUDGE WORKING GROUP
EUROPEAN TECHNICAL AND SCIENTIFIC COMMITTEE
EUROPEAN POLICY COMMITTEE
EUROPEAN WATER ASSOCIATION

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