CIWM is the professional body for the resource and waste management sector. It represents around 5,500 waste and resource management professionals, predominantly in the UK but also overseas. CIWM sets the professional standards for individuals working in the sector and has various grades of membership determined by education, qualification and experience.

**Clean Air Strategy 2018**

CIWM sought input from its members through the Biological Treatment special interest group (SIG) and their feedback has helped form this response. This SIG includes experts in biological treatment, with detailed operational and commercial knowledge of AD and composting, along with landspreading techniques.

CIWM supports the principle of a Clean Air Strategy. Our submission has concentrated on the Action to reduce emissions from farming - Ammonia emissions from anaerobic digestion.

*Q18. Should future anaerobic digestion (AD) supported by government schemes be required to use best practice low emissions spreading techniques through certification? If not, what other short-term strategies to reduce ammonia emissions from AD should be implemented? Please provide any evidence you have to support your suggestions.*

CIWM sees linking future AD incentives with appropriate digestate recovery / use being a sensible approach and CIWM supports the requirement to use best practice low emissions spreading techniques, as part of this approach. However, apportioning of any incentive must be given further consideration, since AD supply chains can comprise sequences of separate legal entities covering different activities (feedstock sourcing / supply, AD site / operations and digestate haulage / storage / application).

CIWM questions how appropriate spreading techniques will be monitored, to ensure a robust link with any AD incentives? Digestate from farm materials is normally applied without specific (waste) regulatory oversight, which is also the case for digestates certified under the Biofertiliser Certification Scheme. Other digestates will be produced and spread under an environmental permit, so CIWM suggests what is needed is a competence scheme covering all landspreaders / landspreading, irrespective of the ‘waste’ status of digestates. With whom would the overall compliance checking reside? CIWM suggests if it is to be the Environment Agency, then extra resources will be required to carry out this requirement.

In a wider resource-efficiency context, anaerobic digestion techniques provide an opportunity to transform livestock slurries and other land-applied resources into fertilisers / biofertilisers that have much more predictable nutrient properties / behaviours than untreated substrates. This is particularly the case where AD is coupled with nutrient-recovery techniques based on separation, precipitation and stripping. AD converts the majority of organic nitrogen (in the form of proteins etc) into ammonium, a form of inorganic nitrogen. Ammonium can then be recovered through precipitation (as struvite) or stripped and recovered as ammonium sulphate solution; other techniques are currently in development. Phosphate can also be precipitated as struvite. These techniques have been developed to address operational barriers encountered in waste water treatment, and are increasingly applied to industrial and commercial substrates before or after AD. Incentivising the deployment of these techniques across agricultural substrates such as livestock slurry could result in the manufacture of new organo-mineral fertilisers that can be stored, hauled and applied in a manner that is much more akin to conventional fertilisers. This would simultaneously optimise nutrient use and minimise potential for ammonia loss and air quality impairment.

CIWM is aware that covering lagoons and farm slurry tanks creates ATEX hazards where waste gases (including methane) are not properly captured and managed. CIWM believes larger scale, centralised processing of these wastes / residues should be encouraged. CIWM suggests Gov support / incentives are available for nutrients captured and CO2e offset; both relating to local emissions reductions (quantified via mass & energy balance monitoring). Resultant data recording should be part of the payment / Gov support mechanism, not just grants for covers, etc.

Action to cover open dairy yards and reduce rainfall impacts to slurry volumes and dilution has been effective so far but needs expanding / improving to include audits for downpipe / gutter maintenance, etc.

There is also the issue of uncontrolled storage of manures etc in the open, wasting a resource and allowing nutrients to leach into ditches and local watercourses. CIWM suggests this needs to be regulated.

CIWM is aware of recent requirements for bio-aerosol monitoring in waste treatment facilities, especially for composting, that have been introduced and supports the relationship the regulator had with the resource and waste management sector in working towards a more practical but necessary approach.