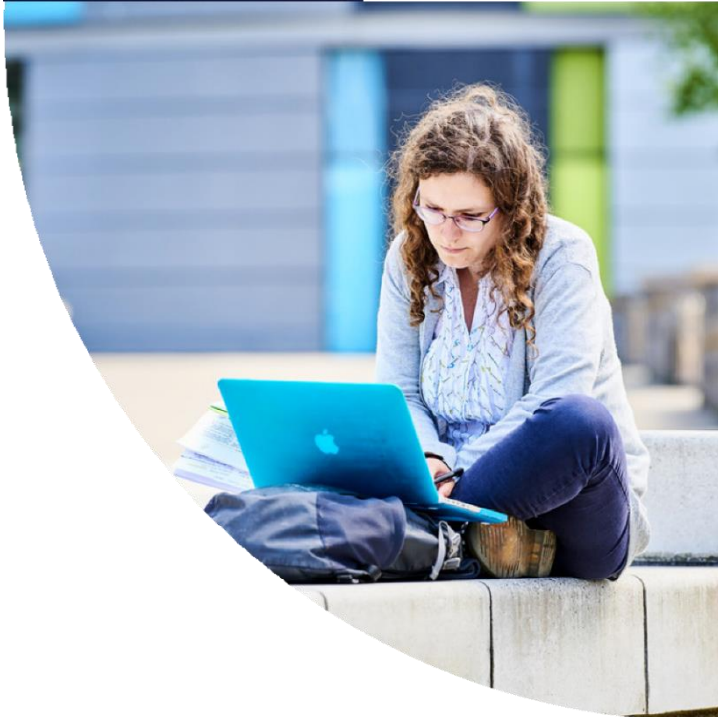


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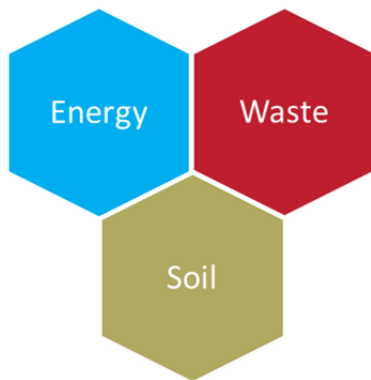
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Exploring links between Waste, Energy and Soil



Exploring links between Waste, Energy and Soil

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Government strategies have started to link agendas of sustainable energy, waste management and soil health, however disconnects and inconsistencies continue which need to be addressed.

In the 2019 Spring Statement, the Chancellor of the Exchequer stated the UK Government's commitment to being 'the first generation to leave the environment in a better state than we found it'. Realisation of this aspiration will lie in understanding and responding to some of the most complex and multifaceted sustainability challenges of our time: 'climate change, clean growth, and preservation of the planet for future generations'.¹

The response of the UK government (and society itself) to these interlinked issues, will depend upon developing shared understanding, and will require collective action.

This action will span multiple agendas and disciplines, and will potentially require balancing of competing demands.

Within recent UK governmental strategies²⁻⁴ links are increasingly being developed across the agendas of biodegradable waste/resource management, sustainable energy provision, and soil preservation to address these challenges.

For example, further development of Anaerobic Digestion - a method of biogas (fuel) and 'nutrient-rich fertiliser' generation from biodegradable wastes - can be a key tool in addressing the interconnected issues of: sustainable waste management; renewable energy provision, stabilisation of greenhouse gas (GHG) emission rate⁵, and future sustainable soil management.

Specifically, the BEIS-led 'Clean Growth Strategy' which aims to drive clean growth through improving efficiency in industry, business, enhancing quality of homes, and shifting to smart energy systems, and low carbon transport, while 'enhancing the benefits and value of our natural resources' includes anaerobic digestion in its 'targeting new sustainable land management techniques to overcome the decline in soil quality in the UK

and the impact on productivity' and moving in towards 'zero avoidable waste' by 2050.



This approach is expanded upon in the recently published 'Our waste, our resources: a strategy for England' which supports and encourages the move towards a circular economy for wastes, and indicates that much of the unavoidable, biodegradable, waste will be used in energy production and soil amendment through Anaerobic Digestion.

In contrast to the 'Clean Growth Strategy' and 'Our waste, our resources: a strategy for England', the '25 Year Environment Plan' (which addresses the long term sustainability of the UK's natural environment) acknowledges that 'Healthy Soils' are critical to future agricultural food production, and that we need swiftly address 'factors in soil degradation such as erosion, compaction and the decline in organic matter' and develop and implement metrics for soil health.

However, it does not make reference to the use of Anaerobic Digestate as a component in future sustainable soil management practices, addressing soil health or soil organic matter composition.

The disconnect between governmental strategies provides a perfect moment, to pause, explore, and further develop these links across these agendas. Using, for example, the role that anaerobic digestion can play in future waste reuse, energy production and soil preservation as a starting point, and exemplar, in developing policies that maximize (1) biodegradable and non-biodegradable waste as resources, (2) bio-energy production, and (3) soil health and productivity.

“addressing these interlinked issues, will depend upon developing shared understanding, and will require collective action. This action will span multiple agendas and disciplines, and will require the balancing of competing demands.”

Balancing competing needs across climate change, clean growth and sustainable resources agendas would enhance the UK's position at the heart of global policy around the management of wastes and the circular economy.



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At present we perceive key knowledge gaps exist in understanding:

- The level and composition of carbon required to improve and maintain soil health and fertility, ensuring the resilience of our soils for sustainable future use and reuse⁶.
- The implications of medium to long term soil amendment with anaerobic digestates and alternative organic materials on soil organic carbon levels, carbon composition, soil health and function.
- The role that novel processes that combine wastes from multiple sources i.e. biodegradable and mineral wastes, can play in enhancing waste use, bio-energy production, and soil health^{7,8}.

References

¹ Ministerial Spring statement, 2019

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² The Clean Growth Strategy: Leading the Way for a low carbon future. Pg 113

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700496/clean-growth-strategy-correction-april-2018.pdf

³ Our waste, our resources: a strategy for England

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⁴ A Green Future: Our 25 Year Plan to Improve the Environment

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